



MARITIME SAFETY COMMITTEE  
81st session  
Agenda item 25

MSC 81/25/Add.2  
1 June 2006  
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**REPORT OF THE MARITIME SAFETY COMMITTEE  
ON ITS EIGHTY-FIRST SESSION**

Attached are annexes 22 to 46 to the report of the Maritime Safety Committee on its eighty-first session (MSC 81/25).

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.

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**(See document MSC 81/25/Add.1 for annexes 1 to 21)**

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**ANNEX 22****DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR THE  
CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN  
BULK (IGC CODE)****CHAPTER 1  
GENERAL****1.3 Definitions**

1 In paragraph 1.3.2, the words “regulation II-2/3.3 of the 1983 SOLAS amendments” are replaced by “SOLAS regulation II-2/3.2”.

2 Paragraph 1.3.34 is replaced by new paragraph 1.3.34 as follows:

“1.3.34 “SOLAS” means the International Convention for the Safety of Life at Sea, 1974, as amended.”

**CHAPTER 3  
SHIP ARRANGEMENTS****3.3 Cargo pump-rooms and cargo compressor rooms**

3 In paragraph 3.3.1.1, the words “regulation II-2/58 of the 1983 SOLAS amendments” are replaced by “SOLAS regulation II-2/9.2.4”.

**CHAPTER 11  
FIRE PROTECTION AND FIRE EXTINCTION****11.1 Fire safety requirements**

4 In paragraph 11.1.1, the words “chapter II-2 of the 1983 SOLAS amendments” are replaced by “SOLAS chapter II-2”, and subparagraphs .1 to .3 are replaced by the following new subparagraphs:

- “.1 regulations 4.5.1.6 and 4.5.10 do not apply;
- .2 regulation 10.2 as applicable to cargo ships and regulations 10.4 and 10.5 should apply as they would apply to tankers of 2,000 gross tonnage and over;
- .3 regulation 10.5.6 should apply to ships of 2,000 gross tonnage and over;

- .4 the following regulations of SOLAS chapter II-2 related to tankers do not apply and are replaced by chapters and sections of the Code as detailed below:

| <b>Regulation</b>   | <b>Replaced by</b> |
|---------------------|--------------------|
| 10.10               | 11.6               |
| 4.5.1.1 and 4.5.1.2 | chapter 3          |
| 4.5.5 and 10.8      | 11.3 and 11.4      |
| 10.9                | 11.5               |

- .5 regulations 13.3.4 and 13.4.3 should apply to ships of 500 gross tonnage and over.”

## **11.2 Fire water main equipment**

5 In paragraph 11.2.1, the words “regulations II-2/4 and II-2/7 of the 1983 SOLAS amendments” are replaced by “SOLAS regulations II-2/10.2, 10.4 and 10.5”, the words “regulations 4.2.1 and 4.4.1.” are replaced by “regulations II-2/10.2.2.4.1 and 10.2.1.3” and “regulation 4.4.2” is replaced by “regulation II-2/10.2.1.6”.

6 In paragraph 11.2.2, the words “regulations II-2/4.5.1 and II-2/4.8 of the 1983 SOLAS amendments, with hose lengths not exceeding 33 m” are replaced by “SOLAS regulations II-2/10.2.1.5.1 and 10.2.3.3, with hose lengths as specified in regulation II-2/10.2.3.1.1”.

## **11.5 Cargo compressor and pump-rooms**

7 In paragraph 11.5.1, the words “regulation II-2/5.1 and .2 of the 1974 SOLAS Convention, as amended” are replaced by “SOLAS regulation II-2/10.9.1.1”, the words “regulation II-2/5.1.6 of the 1983 SOLAS amendments” are replaced by “SOLAS regulation II-2/10.9.1.1.1”.

8 In paragraph 11.6, the word in the heading “Firemen’s” is replaced by “Fire-fighter’s”.

9 In paragraph 11.6.1, the word “firemen’s” is replaced by “fire-fighter’s” and “regulation II-2/17 of the 1983 SOLAS amendments” are replaced by “SOLAS regulation II-2/10.10”.

## **CHAPTER 12 MECHANICAL VENTILATION IN THE CARGO AREA**

10 The words after the heading “The requirements of this chapter should be substituted for regulation II-2/59.3 of the 1983 SOLAS amendments” are replaced by the words “The requirements of this chapter should be substituted for SOLAS regulations II-2/4.5.2.6 and 4.5.4”.

**CHAPTER 19**  
**SUMMARY OF MINIMUM REQUIREMENTS**

11 The following products are added to the table in chapter 19:

| a              | b         | c         | d                                | e  | f                | g       | h              | i                    |
|----------------|-----------|-----------|----------------------------------|--|------------------|---------|----------------|----------------------|
| Product name   | UN number | Ship type | Independent tank type C required | Control of vapour space within cargo tanks | Vapour detection | Gauging | MFAG table No. | Special requirements |
| Dimethyl ether | -         | 2G / 2PG  | -                                | -  | F+T              | C       | -              |                      |
| Carbon Dioxide | -         | 3G        | Yes                              | -  | -                | C       | -              |                      |

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## ANNEX 23

**DRAFT AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND  
EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (GC CODE)**

**CHAPTER XI  
FIRE PROTECTION AND FIRE EXTINGUISHING**

**11.1 Fire safety requirements**

1 In paragraph 11.1, the following new subparagraph .5 is added:

“.5 The following requirements in SOLAS chapter II-2, as adopted by resolution MSC.99(73), should apply:

- (a) regulations 13.3.4.2 to 13.3.4.5 and 13.4.3 should apply to ships of 500 gross tonnage and over;
- (b) regulations in Part E of chapter II-2 of SOLAS Convention except regulations 16.3.2.2 and 16.3.2.3 thereof, should apply to ships, regardless of their sizes;
- (c) where deep-fat cooking equipment is newly installed, regulation 10.6.4 should apply; and
- (d) fire-extinguishing systems using Halon 1211, 1301, and 2402 and perfluorocarbons should not be newly installed as prohibited by regulation 10.4.1.3.”.

**CHAPTER XIX  
SUMMARY OF MINIMUM REQUIREMENTS**

2 The following new products are to be added to the table in chapter XIX:

| a              | b         | c          | d                                | e  | f                | g       | h                    |
|----------------|-----------|------------|----------------------------------|--|------------------|---------|----------------------|
| Product name   | UN number | Ship type  | Independent tank type C required | Control of vapour space within cargo tanks | Vapour detection | Gauging | Special requirements |
| Dimethyl ether | -         | IIG / IIPG | -                                | -  | I+T              | C       |                      |
| Carbon Dioxide | -         | IIIG       | Yes                              | -  | -                | C       |                      |

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**ANNEX 24****RESOLUTION MSC.212(81)  
(adopted on 18 May 2006)****ADOPTION OF AMENDMENTS TO THE CODE FOR THE CONSTRUCTION  
AND EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS  
IN BULK (BCH CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.212(VII) by which the Assembly, at its seventh session, adopted the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), which provides safety requirements for chemical tankers supplementary to the provisions of the International Convention for the Safety of Life at Sea, 1974, as amended,

RECALLING FURTHER resolution MEPC.20(22) by which the Marine Environment Protection Committee (MEPC) adopted the BCH Code to make it mandatory under MARPOL 73/78,

NOTING resolution MSC.29(61) by which it adopted the revised BCH Code,

NOTING ALSO resolution MSC.144(54) by which the MEPC, at its fifty-fourth session, adopted amendments to the BCH Code,

CONSIDERING that it is highly desirable for the provisions of the BCH Code which are mandatory under MARPOL 73/78 and recommendatory from a safety standpoint, to remain identical when adopted by the Marine Environment Protection Committee and the Maritime Safety Committee,

HAVING CONSIDERED, at its eighty-first session, amendments to the BCH Code proposed by the Sub-Committee on Bulk Liquids and Gases, at its ninth session,

1. ADOPTS amendments to the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code), as amended, the text of which is set out in the Annex to the present resolution;
2. DETERMINES that the said amendments should become effective on 1 August 2007\*.

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\* Date of entry into force of the identical amendments to the BCH Code adopted by the aforementioned resolution MEPC.144(54).

ANNEX

**AMENDMENTS TO THE CODE FOR THE CONSTRUCTION AND  
EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS  
IN BULK (BCH CODE)**

The BCH Code is amended as follows:

**Preamble**

1 The following new paragraph is added:

“7 The Code has been revised to reflect the 2007 revision of MARPOL Annex II”.

**CHAPTER I  
GENERAL**

**1.1 Purpose**

2 In the second sentence, the words “as defined in regulation 1(1) of Annex II thereof” are deleted and the references to (Pollution Category) “A, B or C” are replaced by “X, Y or Z”.

**1.4 Definitions**

3 Paragraph 1.4.16A is replaced by the following:

“1.4.16A *Noxious Liquid Substance* means any substance indicated in the Pollution Category column of chapter 17 or 18 of the International Bulk Chemical Code, or the current MEPC.2/Circular or provisionally assessed under the provisions of regulation 6.3 of the amendments to the Annex of the Protocol of 1978 relative to the International Convention for the Prevention of Pollution from Ships, 1973, as falling into Category X, Y or Z.”

4 In paragraph 1.4.16B the existing text is deleted and the word “Deleted” is inserted.

5 The paragraph number of the definition of “anniversary date” which was adopted as “1.4.16C” by resolution MEPC.41(29) is amended to read “1.4.16D”.

**1.7 Effective date**

6 In the second sentence of paragraph 1.7.2, the reference to “regulation 1(12)” is replaced by “regulation 1.17”.

**1.8 New products**

7 In the first sentence of paragraph 1.8, the reference to (Pollution Category) “A, B or C” is replaced by “X, Y or Z”.

## CHAPTER II CARGO CONTAINMENT

### G – MATERIALS OF CONSTRUCTION

#### 2.17 General

8 The existing text is replaced by the following:

“2.17.1 Structural materials used for tank construction, together with associated piping, pumps, valves, vents and their jointing materials, should be suitable at the temperature and pressure for the cargo to be carried in accordance with recognized standards. Steel is assumed to be the normal material of construction.

2.17.2 Where applicable, the following should be taken into account in selecting the material of construction:

- .1 notch ductility at the operating temperature;
- .2 corrosive effect of the cargo; and
- .3 possibility of hazardous reactions between the cargo and the material of construction.

2.17.3 The shipper of the cargo is responsible for providing compatibility information to the ship operator and/or master. This must be done in a timely manner before transportation of the product. The cargo shall be compatible with all materials of construction such that:

- .1 no damage to the integrity of the materials of construction is incurred; and
- .2 no hazardous, or potentially hazardous reaction is created.

2.17.4 When a product is submitted to IMO for evaluation, and where compatibility of the product with materials referred to in paragraph 2.17 renders special requirements, the GESAMP/EHS Product Data Reporting Form shall provide information on the required materials of construction. These requirements shall be reflected in chapter IV and consequentially be referred to in *column o* of chapter 17 of the IBC Code. The reporting form shall also indicate if no special requirements are necessary. The producer of the product is responsible for providing the correct information.”

#### 2.18 Additional requirements

9 In paragraph 2.18, the existing text is deleted and the word “Deleted” is inserted.

## CHAPTER III SAFETY EQUIPMENT AND RELATED CONSIDERATIONS

### E – FIRE PROTECTION

10 After the heading, the following words are inserted:

“(SOLAS regulations referred to in Part E mean, unless expressly provided otherwise, regulations in chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 and its relevant amendments adopted before by resolution MSC.99(73))”.

#### **3.13 Fire safety arrangements**

11 In paragraph 3.13.3 the existing text is deleted and the word “Deleted” is inserted.

12 The following new paragraph 3.13.5 is added:

“3.13.5 The following requirements in SOLAS chapter II-2, as adopted by MSC.99(73), should apply:

- (a) regulations II-2/4.5.10.1.1 and 4.5.10.1.4 and a system for continuous monitoring of the concentration of flammable vapours shall be fitted on ships of 500 gross tonnage and over by the date of the first scheduled dry-docking after 1 August 2007, but not later than 1 August 2010. Sampling points or detector heads should be located in suitable positions in order that potentially dangerous leakages are readily detected. When the flammable vapour concentration reaches a pre-set level which shall not be higher than 10% of the lower flammable limit, a continuous audible and visual alarm signal shall be automatically effected in the pump-room and cargo control room to alert personnel to the potential hazard. However, existing monitoring systems already fitted having a pre-set level not greater than 30% of the lower flammable limit may be accepted. Notwithstanding the above provisions, the Administration may exempt ships not engaged on international voyages from those requirements;
- (b) regulations 13.3.4.2 to 13.3.4.5 and 13.4.3 should apply to ships of 500 gross tonnage and over;
- (c) regulations in Part E of chapter II-2 of SOLAS Convention except regulations 16.3.2.2 and 16.3.2.3 thereof, should apply to ships, regardless of their sizes;
- (d) where deep-fat cooking equipment is newly installed, regulation 10.6.4 should apply; and
- (e) fire-extinguishing systems using Halon 1211, 1301, and 2402 and perfluorocarbons should not be newly installed as prohibited by regulation 10.4.1.3.”

## F – PERSONAL PROTECTION

- 13 After the heading, the following words are inserted:

“(SOLAS regulations referred to in Part F mean, unless expressly provided otherwise, regulations in chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 and its relevant amendments adopted before by resolution MSC.99(73))”.

### CHAPTER IV SPECIAL REQUIREMENTS

#### 4.12 Materials of construction

- 14 In paragraph 4.12, the existing text is deleted and the word “Deleted” is inserted.

#### 4.15 Cargo contamination

- 15 In paragraph 4.15.1, the existing text is deleted and the word “Deleted” is inserted.

### CHAPTER V OPERATIONAL REQUIREMENTS

#### 5.2 Cargo information

- 16 In paragraph 5.2.5, the viscosity figure “25 mPa”, which appears twice, is replaced with “50 mPa”.
- 17 In paragraph 5.2.6, the existing text is deleted and the word “Deleted” is inserted.
- 18 In paragraph 5.2.7, the existing text is deleted and the word “Deleted” is inserted.

### CHAPTER VA ADDITIONAL MEASURES FOR THE PROTECTION OF THE MARINE ENVIRONMENT

- 19 The existing text is deleted and the word “Deleted” is inserted.

### CHAPTER VI SUMMARY OF MINIMUM REQUIREMENTS

- 20 The IBC/BCH cross-references to the requirements under Materials of construction (column *m*) and the following cross-references under special requirements (column *o*) are deleted:

| “IBC Code reference | BCH Code reference |
|---------------------|--------------------|
| 15.16.1             | 4.15.1             |
| 16.2.7              | 5.2.6              |
| 16.2.8              | 5.2.7              |
| 16A.2.2             | 5A.2.2”            |

**CHAPTER VIII  
TRANSPORT OF LIQUID CHEMICAL WASTES**

21 In paragraph 8.3.2.2 reference to “chapter 19” of the IBC Code is replaced by “chapter 20”.



**APPENDIX**

**MODEL FORM OF CERTIFICATE OF FITNESS FOR THE  
CARRIAGE OF DANGEROUS CHEMICALS IN BULK**

22 The existing form is replaced by the following:

**“MODEL FORM OF CERTIFICATE OF FITNESS FOR THE CARRIAGE OF  
DANGEROUS CHEMICALS IN BULK**

**CERTIFICATE OF FITNESS FOR  
THE CARRIAGE OF DANGEROUS CHEMICALS IN BULK**

*(Official seal)*

Issued under the provisions of the

**CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING  
DANGEROUS CHEMICALS IN BULK**  
(resolutions MSC.9(53) and MEPC.20(22), as amended)

under the authority of the Government of

.....  
*(full official designation of country)*

by.....  
*(full designation of the competent person or organization recognized by the Administration)*

**Particulars of ship<sup>1</sup>**

Name of ship .....  
Distinctive number or letters .....  
Port of registry .....  
Gross tonnage .....  
Ship Type (Code paragraph 2.2.4) .....  
IMO Number<sup>2</sup> .....

Date on which keel was laid or on which the ship was at a  
similar stage of construction or (in the case of a converted ship)  
date on which conversion to chemical tanker was commenced .....

The ship also complies fully with the following amendments to the Code:

.....  
.....

<sup>1</sup> Alternatively, the particulars of the ship may be placed horizontally in boxes.

<sup>2</sup> In accordance with IMO ship identification number scheme adopted by the Organization by resolution A.600(15).

The ship is exempted from compliance with the following provisions of the Code:

.....  
 .....

THIS IS TO CERTIFY:

- 1 That the ship has been surveyed in accordance with the provisions of section 1.6 of the Code;
- 2 That the survey showed that the construction and equipment of the ship and the condition thereof are in all respects satisfactory and that the ship:
  - .1 complies with the relevant provisions of the Code applicable to ships referred to in 1.7.2;
  - .2 complies with the relevant provisions of the Code applicable to ships referred to in 1.7.3;
- 3 That the ship has been provided with a manual in accordance with Appendix 4 of MARPOL Annex II as called for by regulation 14 of the Annex, and that the arrangements and equipment of the ship prescribed in the Manual are in all respects satisfactory;
- 4 That the ship meets the requirements for the carriage in bulk of the following products, provided that all relevant operational provisions of the Code and MARPOL Annex II are observed:

| Product   | Conditions of carriage<br>(tank numbers, etc.) | Pollution<br>Category |
|---|--|-----------------------|
|   |  |                       |
|   |  |                       |
|   |  |                       |
|   |  |                       |
|   |  |                       |
|   |  |                       |
| Continued on attachment 1, additional signed and dated sheets <sup>3</sup><br>Tank numbers referred to in this list are identified on attachment 2, signed and dated tank plan. |  |                       |

- 5 That, in accordance with 1.7.3/2.2.5<sup>3</sup>, the provisions of the Code are modified in respect of the ship in the following manner:

.....

- 6 That the ship must be loaded:
  - .1 in accordance with the loading conditions provided in the approved loading manual, stamped and dated ..... and signed by a responsible officer of the Administration, or of an organization recognized by the Administration<sup>3</sup>;
  - .2 in accordance with the loading limitations appended<sup>3</sup> to this Certificate<sup>3</sup>.

<sup>3</sup> Delete as appropriate.

Where it is required to load the ship other than in accordance with the above instruction, then the necessary calculations to justify the proposed loading conditions should be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition<sup>4</sup>.

This Certificate is valid until .....<sup>5</sup>  
subject to surveys in accordance with 1.6 of the Code.

Completion date of the survey on which this certificate is based: .....  
(dd/mm/yyyy)

Issued at .....  
(Place of issue of certificate)

.....  
(Date of issue)

.....  
(Signature of authorized official  
issuing the certificate)

(Seal or stamp of the authority, as appropriate)

Notes on completion of Certificate:

- 1 The Certificate can be issued only to ships entitled to fly the flags of States which are a Party to MARPOL 73/78.
- 2 Ship Type: Any entry under this column must relate to all relevant recommendations, e.g., an entry "Type 2" should mean Type 2 in all respects prescribed by the Code. This column would not usually apply in the cases of an existing ship and in such a case should be noted "see paragraph 2.2".
- 3 Products: Products listed in chapter 17 of the Code, or which have been evaluated by the Administration in accordance with 1.8 of the Code, should be listed. In respect of the latter "new" products, any special requirements provisionally prescribed should be noted.
- 4 Products: The list of products the ship is suitable to carry should include the noxious liquid substances of Category Z which are not covered by the Code and should be identified as "chapter 18 Category Z".
- 5 *deleted*

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<sup>4</sup> Instead of being incorporated in the Certificate, this text may be appended to the Certificate if signed and stamped.

<sup>5</sup> Insert the date of expiry as specified by the Administration in accordance with 1.6.6.1 of the Code. The day and the month of this day correspond to the anniversary date as defined in 1.4.16D of the Code, unless amended in accordance with 1.6.6.8 of the Code.

- 6 Conditions of carriage: If a Certificate is issued to a ship which is modified in accordance with the provision of regulation 1(12) of MARPOL Annex II the Certificate should indicate in the top of the table of products and conditions of carriage the following statement: "This ship is certificated to carry only pollution hazard chemicals".



**ANNUAL/INTERMEDIATE SURVEY IN ACCORDANCE WITH PARAGRAPH 1.6.6.8.3**

THIS IS TO CERTIFY that, at an annual/intermediate<sup>3</sup> survey in accordance with paragraph 1.6.6.8.3 of the Code, the ship was found to comply with the relevant provisions of the Convention:

Signed .....  
(Signature of duly authorized official)

Place .....

Date (dd/mm/yyyy) .....

(Seal or stamp of the Authority, as appropriate)

**ENDORSEMENT TO EXTEND THE CERTIFICATE IF VALID  
FOR LESS THAN 5 YEARS WHERE PARAGRAPH 1.6.6.3 APPLIES**

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with paragraph 1.6.6.3 of the Code, be accepted as valid until .....

Signed .....  
(Signature of duly authorized official)

Place .....

Date (dd/mm/yyyy) .....

(Seal or stamp of the Authority, as appropriate)

**ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN  
COMPLETED AND PARAGRAPH 1.6.6.4 APPLIES**

The ship complies with the relevant provisions of the Convention, and this Certificate shall, in accordance with paragraph 1.6.6.4 of the Code, be accepted as valid until .....

Annual survey:

Signed .....  
(Signature of duly authorized official)

Place .....

Date (dd/mm/yyyy) .....

(Seal or stamp of the Authority, as appropriate)

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<sup>3</sup> Delete as appropriate.

**ENDORSEMENT TO EXTEND THE VALIDITY OF THE CERTIFICATE  
UNTIL REACHING THE PORT OF SURVEY OR FOR A PERIOD  
OF GRACE WHERE PARAGRAPH 1.6.6.5 OR 1.6.6.6 APPLIES**

This Certificate shall, in accordance with paragraph 1.6.6.5/1.6.6.6<sup>3</sup> of the Code, be accepted as valid until .....

Signed .....  
(Signature of duly authorized official)

Place .....

Date (dd/mm/yyyy) .....

(Seal or stamp of the Authority, as appropriate)

**ENDORSEMENT FOR ADVANCEMENT OF ANNIVERSARY DATE WHERE  
PARAGRAPH 1.6.6.8 APPLIES**

In accordance with paragraph 1.6.6.8 of the Code, the new anniversary date is .....

Signed .....  
(Signature of duly authorized official)

Place .....

Date (dd/mm/yyyy) .....

(Seal or stamp of the Authority, as appropriate)

In accordance with paragraph 1.6.6.8, the new anniversary date is .....

Signed .....  
(Signature of duly authorized official)

Place .....

Date (dd/mm/yyyy) .....

(Seal or stamp of the Authority, as appropriate)

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<sup>3</sup> Delete as appropriate.



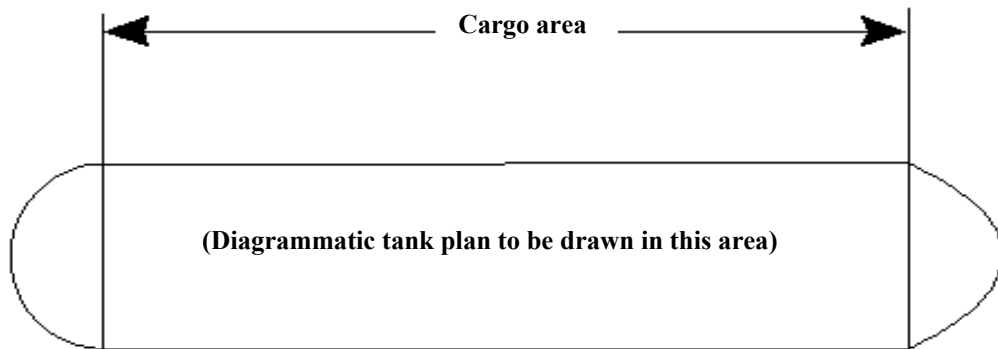


**ATTACHMENT 2  
TO THE  
CERTIFICATE OF FITNESS FOR THE CARRIAGE OF DANGEROUS  
CHEMICALS IN BULK**

TANK PLAN (specimen)

Name of ship: .....

Distinctive number or letters: .....



Date .....  
(as for Certificate)

.....  
(Signature of official issuing the Certificate  
and/or seal of issuing authority)"

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**ANNEX 25****DRAFT AMENDMENTS TO THE INTERNATIONAL BULK  
CHEMICAL CODE (IBC CODE) RELATING TO FIRE PROTECTION****CHAPTER 11  
FIRE PROTECTION AND FIRE EXTINCTION****11.1 Application**

- 1 In paragraph 11.1.1, subparagraphs .4 to .6 are replaced by the following subparagraphs:
- “.4 regulation 10.5.6 shall apply to ships of 2,000 gross tonnage and over;
  - .5 the provisions of 11.3 shall apply in lieu of regulation 10.8;
  - .6 the provisions of 11.2 shall apply in lieu of regulation 10.9;
  - .7 regulation 4.5.10 shall apply to ships of 500 gross tonnage and over, replacing “hydrocarbon gases” by “flammable vapours” in the regulation; and
  - .8 regulations 13.3.4 and 13.4.3 shall apply to ships of 500 gross tonnage and over.”
- 2 In paragraph 11.1, the following new paragraph 11.1.4 is added:
- “11.1.4 In lieu of the provisions of SOLAS regulation II-2/1.6.7, the requirements of regulations II-2/4.5.10.1.1 and II-2/4.5.10.1.4 and a system for continuous monitoring of the concentration of flammable vapours shall be fitted on ships of 500 gross tonnage and over which were constructed before [the date of entry into force of the amendment] by the date of the first scheduled dry-docking after [the date of entry into force of the amendment], but not later than [3 years after the date of entry into force of the amendment]. Sampling points or detector heads should be located in suitable positions in order that potentially dangerous leakages are readily detected. When the flammable vapour concentration reaches a pre-set level which shall not be higher than 10% of the lower flammable limit, a continuous audible and visual alarm signal shall be automatically effected in the pump-room and cargo control room to alert personnel to the potential hazard. However, existing monitoring systems already fitted having a pre-set level not greater than 30% of the lower flammable limit may be accepted. Notwithstanding the above provisions, the Administration may exempt ships not engaged on international voyages from those requirements.”

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## ANNEX 26

AMENDMENTS TO CHAPTERS 17, 18 AND 19 OF THE INTERNATIONAL  
BULK CHEMICAL CODE (IBC CODE)

The existing text of chapters 17, 18 and 19 of the Code is replaced by the following:

CHAPTER 17  
SUMMARY OF MINIMUM REQUIREMENTS

Mixtures of noxious liquid substances presenting pollution hazards only, and which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II, may be carried under the requirements of the Code applicable to the appropriate position of the entry in this chapter for Noxious Liquid Substances, not otherwise specified (n.o.s.).

## EXPLANATORY NOTES

|  |   |
|--|---|
| Product name<br>(column a)               | The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code. |
| UN Number<br>(column b)                  | Deleted   |
| Pollution Category<br>(column c)         | The letter X, Y, Z means the Pollution Category assigned to each product under MARPOL Annex II  |
| Hazards<br>(column d)                    | “S” means that the product is included in the Code because of its safety hazards; “P” means that the product is included in the Code because of its pollution hazards; and “S/P” means that the product is included in the Code because of both its safety and pollution hazards. |
| Ship type<br>(column e)                  | 1: ship type 1 (2.1.2.1)<br>2: ship type 2 (2.1.2.2)<br>3: ship type 3 (2.1.2.3)  |
| Tank type<br>(column f)                  | 1: independent tank (4.1.1)<br>2: integral tank (4.1.2)<br>G: gravity tank (4.1.3)<br>P: pressure tank (4.1.4)  |
| Tank vents<br>(column g)                 | Cont.: controlled venting<br>Open: open venting   |
| Tank environmental control<br>(column h) | Inert: inerting (9.1.2.1)<br>Pad: liquid or gas padding (9.1.2.2)<br>Dry: drying (9.1.2.3)<br>Vent: natural or forced ventilation (9.1.2.4)<br>No: no special requirements under this Code  |

|   |  |  |
|---|--|--|
| Electrical equipment<br>(column i)                  | Temperature classes (i <sup>'</sup> )<br><br>Apparatus group (i <sup>''</sup> )<br><br>Flash point (i <sup>'''</sup> )   | T1 to T6<br>- indicates no requirements<br>blank no information<br><br>IIA, IIB or IIC:<br>- indicates no requirements<br>blank no information<br><br>Yes: flashpoint exceeding 60°C (10.1.6)<br>No: flashpoint not exceeding 60°C (10.1.6)<br>NF: nonflammable product (10.1.6) |
| Gauging<br>(column j)                               | O: open gauging (13.1.1.1)<br>R: restricted gauging (13.1.1.2)<br>C: closed gauging (13.1.1.3)   |  |
| Vapour detection<br>(column k)                      | F: flammable vapours<br>T: toxic vapours<br>No: indicates no special requirements under this Code  |  |
| Fire protection<br>(column l)                       | A: alcohol-resistant foam or multi-purpose foam<br>B: regular foam; encompasses all foams that are not of an alcohol-resistant type, including fluoro-protein and aqueous-film-forming foam (AFFF)<br>C: water-spray<br>D: dry chemical<br>No: no special requirements under this Code |  |
| Materials of construction<br>(column m)             | Deleted  |  |
| Emergency equipment<br>(column n)                   | Yes: see 14.3.1<br>No: no special requirements under this Code   |  |
| Specific and operational requirements<br>(column o) | When specific reference is made to chapters 15 and/or 16, these requirements shall be additional to the requirements in any other column   |  |

**Note: The following pages are not numbered as they are database generated.**

## Chapter 17

| a   | c | d   | e | f  | g    | h  | i' | i'' | i''' | j | k   | l   | n   | o   |
|---|---|-----|---|----|------|----|----|-----|------|---|-----|-----|-----|---|
| Acetic acid   | Z | S/P | 3 | 2G | Cont | No | T1 | IIA | No   | R | F   | A   | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9                                       |
| Acetic anhydride  | Z | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | R | F-T | A   | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6   |
| Acetochlor  | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6, 16.2.9   |
| Acetone cyanohydrin   | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes  | C | T   | A   | Yes | 15.13, 15.12, 15.17, 15.18, 15.19, 16.6.1, 16.6.2, 16.6.3   |
| Acetonitrile  | Z | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | R | F-T | A   | No  | 15.12, 15.19.6  |
| Acid oil mixture from soyabean, corn (maize) and sunflower oil refining | Y | S/P | 2 | SG | Open | No | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9   |
| Acrylamide solution (50% or less)                                       | Y | S/P | 2 | 2G | Open | No |    |     | NF   | C | No  | No  | No  | 15.12.3, 15.13, 15.19.6, 16.6.1, 16.2.9   |
| Acrylic acid  | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | C | F-T | A   | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.13, 15.17, 15.19, 16.6.1, 16.2.9 |
| Acrylonitrile   | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No   | C | F-T | A   | Yes | 15.12, 15.13, 15.17, 15.19  |
| Acrylonitrile-Styrene copolymer dispersion in polyether polyol          | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6   |
| Adiponitrile  | Z | S/P | 3 | 2G | Cont | No |    | IIB | Yes  | R | T   | A   | No  | 16.2.9  |
| Alachlor technical (90% or more)  | X | S/P | 2 | 2G | Open | No |    |     | Yes  | O | No  | AC  | No  | 15.19.6, 16.2.9   |
| Alcohol (C9-C11) poly (2.5-9) ethoxylate                                | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.9   |
| Alcohol (C6-C17) (secondary) poly(3-6)ethoxylates                       | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.9   |
| Alcohol (C6-C17) (secondary) poly(7-12)ethoxylates                      | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6, 16.2.9   |
| Alcohol (C12-C16) poly(1-6)ethoxylates                                  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.9   |
| Alcohol (C12-C16) poly(20+)ethoxylates                                  | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 16.2.9  |
| Alcohol (C12-C16) poly(7-19)ethoxylates                                 | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.9   |
| Alcohols (C13+)   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.9   |
| Alkanes (C6-C9)   | X | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6   |
| Iso- and cyclo-alkanes (C10-C11)  | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A   | No  |   |
| Iso- and cyclo-alkanes (C12+)   | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A   | No  |   |
| n-Alkanes (C10+)  | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB  | No  |   |
| Alkaryl polyethers (C9-C20)   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6   |

## Chapter 17

| a  | c | d   | e | f  | g    | h  | i' | i'' | i''' | j | k   | l   | n   | o                                      |
|--|---|-----|---|----|------|----|----|-----|------|---|-----|-----|-----|--|
| Alkenyl (C11+) amide   | X | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6, 16.2.9                |
| Alkenyl (C16-C20) succinic anhydride   | Z | S/P | 3 | 2G | Cont | No |    |     | Yes  | C | T   | No  | Yes | 15.12, 15.17, 15.19                    |
| Alkyl acrylate-vinylpyridine copolymer in toluene  | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6, 16.2.9                        |
| Alkylaryl phosphate mixtures (more than 40% Diphenyl tolyl phosphate, less than 0.02% ortho-isomers) | X | S/P | 1 | 2G | Cont | No | T1 | IIA | Yes  | C | T   | ABC | No  | 15.12, 15.17, 15.19                    |
| Alkylated (C4-C9) hindered phenols   | Y | S/P | 2 | 2G | Open | No | -  | -   | Yes  | O | No  | BD  | No  | 15.19.6, 16.2.6, 16.2.9                |
| Alkylbenzene, alkylindane, alkylindene mixture (each C12-C17)  | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6                                |
| Alkylbenzene mixtures (containing at least 50% of toluene)   | Y | S/P | 3 | 2G | Cont | No | T1 | IIA | No   | C | F-T | ABC | No  | 15.12, 15.17, 15.19.6                  |
| Alkyl (C3-C4) benzenes   | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6                                |
| Alkyl (C5-C8) benzenes   | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6                                |
| Alkyl(C9+)benzenes   | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  |  |
| Alkyl (C11-C17) benzene sulphonic acid   | Y | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6                        |
| Alkylbenzene sulphonic acid, sodium salt solution  | Y | P   | 2 | 2G | Open | No | -  | -   | NF   | O | No  | No  | No  | 16.2.9, 15.19.6, 16.2.6                |
| Alkyl (C12+) dimethylamine   | X | S/P | 1 | 2G | Cont | No | -  | -   | Yes  | C | T   | BCD | Yes | 15.12, 15.17, 15.19                    |
| Alkyl dithiocarbamate (C19-C35)  | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6, 16.2.9                |
| Alkyldithiothiadiazole (C6-C24)  | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  |  |
| Alkyl ester copolymer (C4-C20)   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6, 16.2.9                |
| Alkyl (C8-C10)/(C12-C14):(40% or less/60% or more) polyglucoside solution (55% or less)              | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | No  | No  | 15.19.6, 16.2.6, 16.2.9                |
| Alkyl (C8-C10)/(C12-C14):(60% or more/40% or less) polyglucoside solution(55% or less)               | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | No  | No  | 16.2.9, 16.2.6                         |
| Alkyl (C7-C9) nitrates   | Y | S/P | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 15.20, 16.6.1, 16.6.2, 16.6.3 |
| Alkyl(C7-C11)phenol poly(4-12) ethoxylate  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6                                |
| Alkyl (C8-C40) phenol sulphide   | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  |  |
| Alkyl (C8-C9) phenylamine in aromatic solvents   | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6                                |
| Alkyl (C9-C15) phenyl propoxylate  | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  |  |
| Alkyl (C8-C10)/(C12-C14):(50%/50%) polyglucoside solution (55% or less)                              | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | No  | No  | 16.2.9, 16.2.6                         |
| Alkyl (C12-C14) polyglucoside solution (55% or less)   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | No  | No  | 15.19.6, 16.2.9                        |
| Alkyl (C8-C10) polyglucoside solution (65% or less).   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | No  | No  | 16.2.6                                 |



## Chapter 17

| a  | c | d   | e | f  | g    | h  | i' | i'' | i''' | j | k   | l   | n   | o  |
|--|---|-----|---|----|------|----|----|-----|------|---|-----|-----|-----|--|
| Alkyl(C10-C20, saturated and unsaturated) phosphite                | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 16.2.9   |
| Alkyl sulphonic acid ester of phenol                               | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6                                |
| Allyl alcohol  | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No   | C | F-T | A   | Yes | 15.12, 15.17, 15.19                            |
| Allyl chloride   | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | C | F-T | A   | Yes | 15.12, 15.17, 15.19                            |
| Aluminium sulphate solution  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6  |
| 2-(2-Aminoethoxy) ethanol  | Z | S/P | 3 | 2G | Open | No |    |     | Yes  | O | No  | AD  | No  | 15.19.6  |
| Aminoethyldiethanolamine/Aminoethylethanolamine solution           | Z | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 16.2.9   |
| Aminoethyl ethanolamine  | Z | S/P | 3 | 2G | Open | No | T2 | IIA | Yes  | O | No  | A   | No  |  |
| N-Aminoethylpiperazine   | Z | S/P | 3 | 2G | Cont | No |    |     | Yes  | R | T   | A   | No  | 15.19.6, 16.2.9                                |
| 2-Amino-2-methyl-1-propanol  | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |  |
| Ammonia aqueous (28% or less)                                      | Y | S/P | 2 | 2G | Cont | No |    |     | NF   | R | T   | ABC | Yes |  |
| Ammonium hydrogen phosphate solution                               | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |  |
| Ammonium lignosulphonate solutions                                 | Z | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 16.2.9   |
| Ammonium nitrate solution (93% or less)                            | Z | S/P | 2 | 1G | Open | No |    |     | NF   | O | No  | No  | No  | 15.2, 15.11.4, 15.11.6, 15.18, 15.19.6, 16.2.9 |
| Ammonium polyphosphate solution                                    | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |  |
| Ammonium sulphate solution   | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |  |
| Ammonium sulphide solution (45% or less)                           | Y | S/P | 2 | 2G | Cont | No |    |     | No   | C | F-T | A   | Yes | 15.12, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3    |
| Ammonium thiosulphate solution (60% or less)                       | Z | P   | 3 | 2G | Open | No |    |     | NF   | O | No  | No  | No  | 16.2.9   |
| Amyl acetate (all isomers)   | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6  |
| n-Amyl alcohol   | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB  | No  |  |
| Amyl alcohol, primary  | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB  | No  |  |
| sec-Amyl alcohol   | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB  | No  |  |
| tert-Amyl alcohol  | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A   | No  |  |
| tert-Amyl methyl ether   | X | P   | 2 | 2G | Cont | No | T3 |     | No   | R | F   | A   | No  | 15.19.6  |
| Aniline  | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes  | C | T   | A   | No  | 15.12, 15.17, 15.19                            |
| Aryl polyolefins (C11-C50)   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6, 16.2.9                        |
| Aviation alkylates (C8 paraffins and iso-paraffins BPT 95 - 120°C) | X | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | B   | No  | 15.19.6  |
| Barium long chain (C11-C50) alkaryl sulphonate                     | Y | S/P | 2 | 2G | Open | No |    |     | Yes  | O | No  | AD  | No  | 15.12.3, 15.19, 16.2.6, 16.2.9                 |

## Chapter 17

| a  | c | d   | e | f  | g    | h     | i' | i'' | i''' | j | k   | l  | n   | o   |
|--|---|-----|---|----|------|-------|----|-----|------|---|-----|----|-----|---|
| Benzene and mixtures having 10% benzene or more (i)  | Y | S/P | 3 | 2G | Cont | No    | T1 | IIA | No   | C | F-T | AB | No  | 15.12.1, 15.17, 15.19.6, 16.2.9   |
| Benzene sulphonyl chloride   | Z | S/P | 3 | 2G | Cont | No    |    |     | Yes  | R | T   | AD | No  | 15.19.6, 16.2.9   |
| Benzenetricarboxylic acid, trioctyl ester  | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  | 15.19.6, 16.2.6   |
| Benzyl acetate   | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  |   |
| Benzyl alcohol   | Y | P   | 3 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  |   |
| Brake fluid base mix: Poly(2-8)alkylene (C2-C3) glycols/Polyalkylene (C2-C10) glycols monoalkyl (C1-C4) ethers and their borate esters | Z | P   | 3 | 2G | Open | No    | -  | -   | Yes  | O | No  | A  | No  |   |
| Bromochloromethane   | Z | S/P | 3 | 2G | Cont | No    |    |     | NF   | R | T   | No | No  |   |
| Butene oligomer  | X | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  | 15.19.6   |
| Butyl acetate (all isomers)  | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6   |
| Butyl acrylate (all isomers)   | Y | S/P | 2 | 2G | Cont | No    | T2 | IIB | No   | R | F-T | A  | No  | 15.13, 15.19.6, 16.6.1, 16.6.2  |
| tert-Butyl alcohol   | Z | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  |   |
| Butylamine (all isomers)   | Y | S/P | 2 | 2G | Cont | No    |    |     | No   | R | F-T | A  | Yes | 15.12, 15.17, 15.19.6   |
| Butylbenzene (all isomers)   | X | P   | 2 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6   |
| Butyl benzyl phthalate   | X | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  | 15.19.6   |
| Butyl butyrate (all isomers)   | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6   |
| Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture   | Y | S/P | 2 | 2G | Cont | No    |    |     | Yes  | R | No  | AD | No  | 15.13, 16.6.1, 16.6.2, 15.19.6  |
| Butylene glycol  | Z | P   | 3 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  |   |
| 1,2-Butylene oxide   | Y | S/P | 3 | 2G | Cont | Inert | T2 | IIB | No   | R | F   | AC | No  | 15.8.1 to 15.8.7, 15.8.12, 15.8.13, 15.8.16, 15.8.17, 15.8.18, 15.8.19, 15.8.21, 15.8.25, 15.8.27, 15.8.29, 15.19.6 |
| n-Butyl ether  | Y | S/P | 3 | 2G | Cont | Inert | T4 | IIB | No   | R | F-T | A  | No  | 15.4.6, 15.12, 15.19.6  |
| Butyl methacrylate   | Z | S/P | 3 | 2G | Cont | No    |    | IIA | No   | R | F-T | AD | No  | 15.13, 15.19.6, 16.6.1, 16.6.2  |
| n-Butyl propionate   | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6   |
| Butyraldehyde (all isomers)  | Y | S/P | 3 | 2G | Cont | No    | T3 | IIA | No   | R | F-T | A  | No  | 15.19.6   |
| Butyric acid   | Y | S/P | 3 | 2G | Cont | No    |    |     | Yes  | R | No  | A  | No  | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6   |
| gamma-Butyrolactone  | Y | P   | 3 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  | 15.19.6   |
| Calcium carbonate slurry   | Z | P   | 3 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  |   |

## Chapter 17

| a   | c | d   | e     | f  | g    | h         | i' | i'' | i''' | j | k   | l   | n   | o   |
|---|---|-----|-------|----|------|-----------|----|-----|------|---|-----|-----|-----|---|
| Calcium hydroxide slurry  | Z | P   | 3     | 2G | Open | No        | -  | -   | Yes  | O | No  | A   | No  | 16.2.9  |
| Calcium hypochlorite solution (15% or less)   | Y | S/P | 2     | 2G | Cont | No        |    |     | NF   | R | No  | No  | No  | 15.19.6   |
| Calcium hypochlorite solution (more than 15%)   | X | S/P | 1     | 2G | Cont | No        |    |     | NF   | R | No  | No  | No  | 15.19, 16.2.9   |
| Calcium lignosulphonate solutions   | Z | P   | 3     | 2G | Open | No        | -  | -   | Yes  | O | No  | A   | No  | 16.2.9  |
| Calcium long-chain alkaryl sulphonate (C11-C50)   | Z | P   | 3     | 2G | Open | No        | -  | -   | Yes  | O | No  | A   | No  | 16.2.9  |
| Calcium long-chain alkyl(C5-C10) phenate  | Y | P   | 3     | 2G | Open | No        |    |     | Yes  | O | No  | A   | No  |   |
| Calcium long-chain alkyl(C11-C40) phenate   | Z | P   | 3     | 2G | Open | No        |    |     | Yes  | O | No  | A   | No  |   |
| Calcium long-chain alkyl phenate sulphide (C8-C40)  | Y | P   | 2     | 2G | Open | No        |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6, 16.2.9   |
| Calcium long-chain alkyl salicylate (C13+)  | Y | P   | 2     | 2G | Open | No        |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6   |
| Calcium nitrate/Magnesium nitrate/Potassium chloride solution                                       | Z | P   | 3     | 2G | Open | No        | -  | -   | Yes  | O | No  | A   | No  | 16.2.9  |
| epsilon-Caprolactam (molten or aqueous solutions)   | Z | P   | 3     | 2G | Open | No        |    |     | Yes  | O | No  | A   | No  |   |
| Carbolic oil  | Y | S/P | 2     | 2G | Cont | No        |    |     | Yes  | C | F-T | A   | No  | 15.12, 15.19.6, 16.2.9  |
| Carbon disulphide   | Y | S/P | 2     | 1G | Cont | Pad+inert | T6 | IIC | No   | C | F-T | C   | Yes | 15.3, 15.12, 15.19  |
| Carbon tetrachloride  | Y | S/P | 2     | 2G | Cont | No        |    |     | NF   | C | T   | No  | Yes | 15.12, 15.17, 15.19.6   |
| Cashew nut shell oil (untreated)  | Y | S   | 2     | 2G | Cont | No        |    |     | Yes  | R | T   | AB  | No  | 15.19.6, 16.2.6, 16.2.9   |
| Castor oil  | Y | S/P | 2 (k) | SG | Open | No        | -  | -   | Yes  | O | No  | ABC | No  | 15.9.6, 16.2.6, 16.2.9  |
| Cetyl/Eicosyl methacrylate mixture  | Y | S/P | 2     | 2G | Open | No        |    |     | Yes  | O | No  | AD  | No  | 15.13, 16.6.1, 16.6.2, 15.19.6, 16.2.9                              |
| Chlorinated paraffins (C10-C13)   | X | P   | 1     | 2G | Open | No        |    |     | Yes  | O | No  | A   | No  | 15.19, 16.2.6   |
| Chlorinated paraffins (C14-C17) (with 50% chlorine or more, and less than 1% C13 or shorter chains) | X | P   | 1     | 2G | Open | No        | -  | -   | Yes  | O | No  | A   | No  | 15.19   |
| Chloroacetic acid (80% or less)   | Y | S/P | 2     | 2G | Cont | No        |    |     | NF   | C | No  | No  | No  | 15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.19, 16.2.9 |
| Chlorobenzene   | Y | S/P | 2     | 2G | Cont | No        | T1 | IIA | No   | R | F-T | AB  | No  | 15.19.6   |
| Chloroform  | Y | S/P | 3     | 2G | Cont | No        |    |     | NF   | R | T   | No  | Yes | 15.12, 15.19.6  |
| Chlorohydrins (crude)   | Y | S/P | 2     | 2G | Cont | No        |    | IIA | No   | C | F-T | A   | No  | 15.12, 15.19  |
| 4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt solution                                    | Y | P   | 2     | 2G | Open | No        |    |     | NF   | O | No  | No  | No  | 16.2.9  |
| o-Chloronitrobenzene  | Y | S/P | 2     | 2G | Cont | No        |    |     | Yes  | C | T   | ABD | No  | 15.12, 15.17, 15.18, 16.2.6, 16.2.9, 15.19                          |
| 1-(4-Chlorophenyl)-4,4- dimethyl-pentan-3-one   | Y | P   | 2     | 2G | Open | No        |    |     | Yes  | O | No  | ABD | No  | 15.19.6, 16.2.6, 16.2.9   |

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| a   | c | d   | e     | f  | g    | h  | i' | i'' | i''' | j | k   | l   | n   | o  |
|---|---|-----|-------|----|------|----|----|-----|------|---|-----|-----|-----|--|
| 2- or 3-Chloropropionic acid                    | Z | S/P | 3     | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 16.2.9                         |
| Chlorosulphonic acid                            | Y | S/P | 1     | 2G | Cont | No |    |     | NF   | C | T   | No  | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.16.2, 15.19 |
| m-Chlorotoluene                                 | Y | S/P | 2     | 2G | Cont | No |    |     | No   | R | F-T | AB  | No  | 15.19.6  |
| o-Chlorotoluene                                 | Y | S/P | 2     | 2G | Cont | No |    |     | No   | R | F-T | AB  | No  | 15.19.6  |
| p-Chlorotoluene                                 | Y | S/P | 2     | 2G | Cont | No |    |     | No   | R | F-T | AB  | No  | 15.19.6, 16.2.9  |
| Chlorotoluenes (mixed isomers)                  | Y | S/P | 2     | 2G | Cont | No |    |     | No   | R | F-T | AB  | No  | 15.19.6  |
| Choline chloride solutions                      | Z | P   | 3     | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |  |
| Citric acid (70% or less)                       | Z | P   | 3     | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |  |
| Coal tar  | X | S/P | 2     | 2G | Cont | No | T2 | IIA | Yes  | R | No  | BD  | No  | 15.19.6, 16.2.6, 16.2.9  |
| Coal tar naphtha solvent                        | Y | S/P | 2     | 2G | Cont | No | T3 | IIA | No   | R | F-T | AD  | No  | 15.19.6, 16.2.9  |
| Coconut oil                                     | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9  |
| Coconut oil fatty acid                          | Y | S/P | 2     | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 16.2.9, 15.19.6, 16.2.6  |
| Coconut oil fatty acid methyl ester             | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 15.19.6  |
| Copper salt of long chain (C17+) alkanolic acid | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6, 16.2.9  |
| Corn Oil  | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9  |
| Cotton seed oil                                 | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9  |
| Cresols (all isomers)                           | Y | S/P | 2     | 2G | Open | No | T1 | IIA | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.9  |
| Cresylic acid, dephenolized                     | Y | S/P | 2     | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6  |
| Cresylic acid, sodium salt solution             | Y | S/P | 2     | 2G | Open | No |    |     | Yes  | O | No  | No  | No  | 15.19.6, 16.2.9  |
| Crotonaldehyde                                  | Y | S/P | 2     | 2G | Cont | No | T3 | IIB | No   | R | F-T | A   | Yes | 15.12, 15.17, 15.19.6  |
| 1,5,9-Cyclododecatriene                         | X | S/P | 1     | 2G | Cont | No |    |     | Yes  | R | T   | A   | No  | 15.13, 15.19, 16.6.1, 16.6.2   |
| Cycloheptane                                    | X | P   | 2     | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6  |
| Cyclohexane                                     | Y | P   | 2     | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6, 16.2.9  |
| Cyclohexanol                                    | Y | P   | 2     | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.9  |
| Cyclohexanone                                   | Z | S/P | 3     | 2G | Cont | No | T2 | IIA | No   | R | F-T | A   | No  | 15.19.6  |
| Cyclohexanone, Cyclohexanol mixture             | Y | S/P | 3     | 2G | Cont | No |    |     | Yes  | R | F-T | A   | No  |  |
| Cyclohexyl acetate                              | Y | P   | 3     | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6  |

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|--|---|-----|---|----|------|-----|----|-----|------|---|-----|------|-----|------------------------------|
| Cyclohexylamine  | Y | S/P | 3 | 2G | Cont | No  | T3 | IIA | No   | R | F-T | AC   | No  | 15.19.6                      |
| 1,3-Cyclopentadiene dimer (molten)                           | Y | P   | 2 | 2G | Cont | No  |    |     | No   | R | F   | A    | No  | 15.19.6, 16.2.6, 16.2.9      |
| Cyclopentane   | Y | P   | 2 | 2G | Cont | No  |    |     | No   | R | F   | A    | No  | 15.19.6                      |
| Cyclopentene   | Y | P   | 2 | 2G | Cont | No  |    |     | No   | R | F   | A    | No  | 15.19.6                      |
| p-Cymene   | Y | P   | 2 | 2G | Cont | No  |    |     | No   | R | F   | A    | No  | 15.19.6                      |
| Decahydronaphthalene   | Y | P   | 2 | 2G | Cont | No  |    |     | No   | R | F   | AB   | No  | 15.19.6                      |
| Decanoic acid  | X | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A    | No  | 16.2.9                       |
| Decene   | X | P   | 2 | 2G | Cont | No  |    |     | No   | R | F   | A    | No  | 15.19.6                      |
| Decyl acrylate   | X | S/P | 1 | 2G | Open | No  | T3 | IIA | Yes  | O | No  | ACD  | No  | 15.13, 15.19, 16.6.1, 16.6.2 |
| Decyl alcohol (all isomers)                                  | Y | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A    | No  | 15.19.6, 16.2.9(e)           |
| Decyloxytetrahydrothiophene dioxide                          | X | S/P | 2 | 2G | Cont | No  |    |     | Yes  | R | T   | A    | No  | 15.19.6, 16.2.9              |
| Diacetone alcohol  | Z | P   | 3 | 2G | Cont | No  |    |     | No   | R | F   | A    | No  |                              |
| Dialkyl (C8-C9) diphenylamines                               | Z | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | AB   | No  |                              |
| Dialkyl (C7-C13) phthalates                                  | X | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | AB   | No  | 15.19.6, 16.2.6              |
| Dibromomethane   | Y | S/P | 2 | 2G | Cont | No  |    |     | NF   | R | T   | No   | No  | 15.12.3, 15.19               |
| Dibutylamine   | Y | S/P | 3 | 2G | Cont | No  | T2 | IIA | No   | R | F-T | ACD  | No  | 15.19.6                      |
| Dibutyl hydrogen phosphate                                   | Y | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | A    | No  | 15.19.6, 16.2.9              |
| 2,6-Di-tert-butylphenol                                      | X | P   | 1 | 2G | Open | No  | -  | -   | Yes  | O | No  | ABCD | No  | 15.19, 16.2.9                |
| Dibutyl phthalate  | X | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A    | No  | 15.19.6                      |
| Dichlorobenzene (all isomers)                                | X | S/P | 2 | 2G | Cont | No  | T1 | IIA | Yes  | R | T   | ABD  | No  | 15.19.6                      |
| 3,4-Dichloro-1-butene  | Y | S/P | 2 | 2G | Cont | No  |    |     | No   | C | F-T | ABC  | Yes | 15.12.3, 15.17, 15.19.6      |
| 1,1-Dichloroethane   | Z | S/P | 3 | 2G | Cont | No  | T2 | IIA | No   | R | F-T | A    | Yes | 15.19.6                      |
| Dichloroethyl ether  | Y | S/P | 2 | 2G | Cont | No  | T2 | IIA | No   | R | F-T | A    | No  | 15.19.6                      |
| 1,6-Dichlorohexane   | Y | S/P | 2 | 2G | Cont | No  |    |     | No   | R | T   | AB   | No  | 15.19.6                      |
| 2,2'-Dichloroisopropyl ether                                 | Y | S/P | 2 | 2G | Cont | No  |    |     | Yes  | R | T   | ACD  | No  | 15.12, 15.17, 15.19          |
| Dichloromethane  | Y | S/P | 3 | 2G | Cont | No  | T1 | IIA | Yes  | R | T   | No   | No  | 15.19.6                      |
| 2,4-Dichlorophenol   | Y | S/P | 2 | 2G | Cont | Dry |    |     | Yes  | R | T   | A    | No  | 15.19.6, 16.2.6, 16.2.9      |
| 2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution | Y | S/P | 3 | 2G | Open | No  |    |     | NF   | O | No  | No   | No  | 15.19.6, 16.2.9              |

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|---|---|-----|---|----|------|-------|----|-----|------|---|-----|-----|-----|--|
| 2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution (70% or less) | Y | S/P | 3 | 2G | Open | No    |    |     | NF   | O | No  | No  | No  | 15.19.6, 16.2.9  |
| 2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution         | Y | S/P | 3 | 2G | Open | No    |    |     | NF   | O | No  | No  | No  | 15.19.6, 16.2.6, 16.2.9                                      |
| 1,1-Dichloropropane   | Y | S/P | 2 | 2G | Cont | No    |    |     | No   | R | F-T | AB  | No  | 15.12, 15.19.6   |
| 1,2-Dichloropropane   | Y | S/P | 2 | 2G | Cont | No    | T1 | IIA | No   | R | F-T | AB  | No  | 15.12, 15.19.6   |
| 1,3-Dichloropropene   | X | S/P | 2 | 2G | Cont | No    | T2 | IIA | No   | C | F-T | AB  | Yes | 15.12, 15.17, 15.18, 15.19                                   |
| Dichloropropene/Dichloropropane mixtures                                  | X | S/P | 2 | 2G | Cont | No    |    |     | No   | C | F-T | ABD | Yes | 15.12, 15.17, 15.18, 15.19                                   |
| 2,2-Dichloropropionic acid  | Y | S/P | 3 | 2G | Cont | Dry   |    |     | Yes  | R | No  | A   | No  | 15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9 |
| Diethanolamine  | Y | S/P | 3 | 2G | Open | No    | T1 | IIA | Yes  | O | No  | A   | No  | 16.2.6, 16.2.9   |
| Diethylamine  | Y | S/P | 3 | 2G | Cont | No    | T2 | IIA | No   | R | F-T | A   | Yes | 15.12, 15.19.6   |
| Diethylaminoethanol   | Y | S/P | 2 | 2G | Cont | No    | T2 | IIA | No   | R | F-T | AC  | No  | 15.19.6  |
| 2,6-Diethylaniline  | Y | S/P | 3 | 2G | Open | No    |    |     | Yes  | O | No  | BCD | No  | 15.19.6, 16.2.9  |
| Diethylbenzene  | Y | P   | 2 | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6  |
| Diethylene glycol diethyl ether   | Z | P   | 3 | 2G | Open | No    | -  | -   | Yes  | O | No  | A   | No  |  |
| Diethylene glycol phthalate   | Y | P   | 3 | 2G | Open | No    | -  | -   | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6  |
| Diethylenetriamine  | Y | S/P | 3 | 2G | Open | No    | T2 | IIA | Yes  | O | No  | A   | No  |  |
| Diethylenetriaminepentaacetic acid, pentasodium salt solution             | Z | P   | 3 | 2G | Open | No    | -  | -   | Yes  | O | No  | A   | No  |  |
| Diethyl ether   | Z | S/P | 2 | 1G | Cont | Inert | T4 | IIB | No   | C | F-T | A   | Yes | 15.4, 15.14, 15.19   |
| Di-(2-ethylhexyl) adipate   | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6  |
| Di-(2-ethylhexyl) phosphoric acid   | Y | S/P | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AD  | No  | 15.19.6  |
| Diethyl phthalate   | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |  |
| Diethyl sulphate  | Y | S/P | 2 | 2G | Cont | No    |    |     | Yes  | C | T   | A   | No  | 15.19.6  |
| Diglycidyl ether of bisphenol A   | X | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6, 16.2.9                                      |
| Diglycidyl ether of bisphenol F   | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6  |
| Diheptyl phthalate  | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6  |
| Di-n-hexyl adipate  | X | P   | 1 | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19  |
| Dihexyl phthalate   | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6  |
| Diisobutylamine   | Y | S/P | 2 | 2G | Cont | No    |    |     | No   | R | F-T | ACD | No  | 15.12.3, 15.19.6   |

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|--|---|-----|---|----|------|----|----|-----|------|---|-----|-----|-----|----------------------------|
| Diisobutylene  | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6                    |
| Diisobutyl ketone  | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A   | No  | 15.19.6                    |
| Diisobutyl phthalate   | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6                    |
| Diisononyl adipate   | Y | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 15.19.6                    |
| Diisooctyl phthalate   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6            |
| Diisopropanolamine   | Z | S/P | 3 | 2G | Open | No | T2 | IIA | Yes  | O | No  | A   | No  | 16.2.9                     |
| Diisopropylamine   | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | C | F-T | A   | Yes | 15.12, 15.19               |
| Diisopropylbenzene (all isomers)                                   | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6                    |
| Diisopropyl-naphthalene  | Y | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 15.19.6                    |
| N,N-Dimethylacetamide  | Z | S/P | 3 | 2G | Cont | No | -  | -   | Yes  | C | T   | ACD | No  | 15.12, 15.17               |
| N,N-Dimethylacetamide solution (40% or less)                       | Z | S/P | 3 | 2G | Cont | No |    |     | Yes  | R | T   | B   | No  | 15.12.1, 15.17             |
| Dimethyl adipate   | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.9            |
| Dimethylamine solution (45% or less)                               | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No   | R | F-T | ACD | No  | 15.12, 15.19.6             |
| Dimethylamine solution (greater than 45% but not greater than 55%) | Y | S/P | 2 | 2G | Cont | No |    |     | No   | C | F-T | ACD | Yes | 15.12, 15.17, 15.19        |
| Dimethylamine solution (greater than 55% but not greater than 65%) | Y | S/P | 2 | 2G | Cont | No |    |     | No   | C | F-T | ACD | Yes | 15.12, 15.14, 15.17, 15.19 |
| N,N-Dimethylcyclohexylamine  | Y | S/P | 2 | 2G | Cont | No |    |     | No   | R | F-T | AC  | No  | 15.12, 15.17, 15.19.6      |
| Dimethyl disulphide  | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No   | R | F-T | B   | No  | 15.12.3, 15.12.4, 15.19.6  |
| N,N-Dimethyldodecylamine   | X | S/P | 1 | 2G | Open | No |    |     | Yes  | O | No  | B   | No  | 15.19                      |
| Dimethylethanolamine   | Y | S/P | 3 | 2G | Cont | No | T3 | IIA | No   | R | F-T | AD  | No  | 15.19.6                    |
| Dimethylformamide  | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No   | R | F-T | AD  | No  | 15.19.6                    |
| Dimethyl glutarate   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  |                            |
| Dimethyl hydrogen phosphite  | Y | S/P | 3 | 2G | Cont | No |    |     | Yes  | R | T   | AD  | No  | 15.12.1, 15.19.6           |
| Dimethyl octanoic acid   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 16.2.6, 16.2.9             |
| Dimethyl phthalate   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 16.2.9                     |
| Dimethylpolysiloxane   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB  | No  | 15.19.6                    |
| 2,2-Dimethylpropane-1,3-diol (molten or solution)                  | Z | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No  | A   | No  | 16.2.9                     |
| Dimethyl succinate   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A   | No  | 16.2.9                     |

## Chapter 17

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|---|---|-----|---|----|------|-----|----|-----|--------|---|------|--------------|-----|--|
| Dinitrotoluene (molten)                                     | X | S/P | 2 | 2G | Cont | No  |    |     | Yes    | C | T    | A            | No  | 15.12, 15.17, 15.19, 15.21, 16.2.6, 16.2.9, 16.6.4 |
| Dinonyl phthalate   | Y | P   | 2 | 2G | Open | No  | -  | -   | Yes    | O | No   | A            | No  | 15.19.6  |
| Diocetyl phthalate  | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | AB           | No  | 15.19.6  |
| 1,4-Dioxane   | Y | S/P | 2 | 2G | Cont | No  | T2 | IIB | No     | C | F-T  | A            | No  | 15.12, 15.19, 16.2.9                               |
| Dipentene   | Y | P   | 3 | 2G | Cont | No  |    |     | No     | R | F    | A            | No  | 15.19.6  |
| Diphenyl  | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | B            | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Diphenylamine (molten)                                      | Y | P   | 2 | 2G | Open | No  | -  | -   | Yes    | O | No   | BD           | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Diphenylamine, reaction product with 2,2,4-Trimethylpentene | Y | S/P | 1 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19, 16.2.6                                      |
| Diphenylamines, alkylated                                   | Y | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Diphenyl/Diphenyl ether mixtures                            | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | B            | No  | 15.19.6, 16.2.9                                    |
| Diphenyl ether  | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19.6, 16.2.9                                    |
| Diphenyl ether/Diphenyl phenyl ether mixture                | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19.6, 16.2.9                                    |
| Diphenylmethane diisocyanate                                | Y | S/P | 2 | 2G | Cont | Dry | -  | -   | Yes(a) | C | T(a) | ABC(b<br>JD) | No  | 15.12, 15.16.2, 15.17, 15.19.6, 16.2.6, 16.2.9     |
| Diphenylol propane-epichlorohydrin resins                   | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Di-n-propylamine  | Y | S/P | 2 | 2G | Cont | No  |    |     | No     | R | F-T  | A            | No  | 15.12.3, 15.19.6                                   |
| Dipropylene glycol  | Z | P   | 3 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  |  |
| Distilled resin oil   | Y | S/P | 2 | 2G | Cont | No  | T1 | IIA | No     | C | F-T  | ABC          | No  | 15.12, 15.17, 15.19.6                              |
| Dithiocarbamate ester (C7-C35)                              | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | AD           | No  | 15.19.6, 16.2.9                                    |
| Ditridecyl adipate  | Y | P   | 2 | 2G | Open | No  | -  | -   | Yes    | O | No   | A            | No  | 15.19.6, 16.2.6                                    |
| Ditridecyl phthalate  | Y | P   | 2 | 2G | Open | No  | -  | -   | Yes    | O | No   | A            | No  | 15.19.6  |
| Diundecyl phthalate   | Y | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | AB           | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Dodecane (all isomers)                                      | Y | P   | 2 | 2G | Cont | No  |    |     | No     | R | F    | AB           | No  | 15.19.6  |
| tert-Dodecanethiol  | X | S/P | 1 | 2G | Cont | No  | -  | -   | Yes    | C | T    | ABD          | Yes | 15.12, 15.17, 15.19                                |
| Dodecene (all isomers)                                      | X | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19.6  |
| Dodecyl alcohol   | Y | P   | 2 | 2G | Open | No  |    |     | Yes    | O | No   | A            | No  | 15.19.6, 16.2.9                                    |
| Dodecylamine/Tetradecylamine mixture                        | X | S/P | 2 | 2G | Cont | No  |    |     | Yes    | R | T    | AD           | No  | 15.19.6, 16.2.9                                    |
| Dodecylbenzene  | Z | P   | 3 | 2G | Open | No  |    |     | Yes    | O | No   | AB           | No  |  |



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|---|---|-----|---|----|------|----|----|-----|------|---|-----|----|-----|--------------------------------|
| Dodecyl diphenyl ether disulphonate solution  | X | S/P | 2 | 2G | Open | No |    |     | NF   | O | No  | No | No  | 15.19.6, 16.2.6                |
| Dodecyl hydroxypropyl sulphide  | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A  | No  | 15.19.6                        |
| Dodecyl methacrylate  | Z | S/P | 3 | 2G | Open | No |    |     | Yes  | O | No  | A  | No  | 15.13                          |
| Dodecyl/Octadecyl methacrylate (mixture)  | Z | S/P | 3 | 2G | Open | No |    |     | Yes  | R | No  | AD | No  | 15.13, 16.6.1, 16.6.2          |
| Dodecyl/Pentadecyl methacrylate mixture   | Y | S/P | 2 | 2G | Open | No |    |     | Yes  | O | No  | AD | No  | 15.13, 16.6.1, 16.6.2, 15.19.6 |
| Dodecyl phenol  | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A  | No  | 15.19.6, 16.2.6                |
| Dodecyl Xylene  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | AB | No  | 15.19.6, 16.2.6                |
| Drilling brines (containing zinc salts)   | X | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | No | No  | 15.19.6                        |
| Drilling brines, including:calcium bromide solution, calcium chloride solution and sodium chloride solution | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A  | No  |                                |
| Epichlorohydrin   | Y | S/P | 2 | 2G | Cont | No |    | IIB | No   | C | F-T | A  | Yes | 15.12, 15.17, 15.19            |
| Ethanolamine  | Y | S/P | 3 | 2G | Open | No | T2 | IIA | Yes  | O | F-T | A  | No  | 16.2.9                         |
| 2-Ethoxyethyl acetate   | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A  | No  | 15.19.6                        |
| Ethoxylated long chain (C16+) alkyloxyalkylamine  | Y | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No  | AB | No  | 15.19.6, 16.2.9                |
| Ethyl acetate   | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB | No  |                                |
| Ethyl acetoacetate  | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A  | No  |                                |
| Ethyl acrylate  | Y | S/P | 2 | 2G | Cont | No | T2 | IIB | No   | R | F-T | A  | Yes | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Ethylamine  | Y | S/P | 2 | 1G | Cont | No | T2 | IIA | No   | C | F-T | CD | Yes | 15.12, 15.14, 15.19.6          |
| Ethylamine solutions (72% or less)  | Y | S/P | 2 | 2G | Cont | No |    |     | No   | C | F-T | AC | Yes | 15.12, 15.14, 15.17, 15.19     |
| Ethylbenzene  | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A  | No  | 15.19.6                        |
| Ethyl tert-butyl ether  | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A  | No  | 15.19.6                        |
| Ethylcyclohexane  | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A  | No  | 15.19.6                        |
| N-Ethylcyclohexylamine  | Y | S/P | 2 | 2G | Cont | No |    |     | No   | R | F-T | A  | No  | 15.19.6                        |
| S-Ethyl dipropylthiocarbamate   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A  | No  | 16.2.9                         |
| Ethylene chlorohydrin   | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | C | F-T | AD | Yes | 15.12, 15.17, 15.19            |
| Ethylene cyanohydrin  | Y | S/P | 3 | 2G | Open | No |    | IIB | Yes  | O | No  | A  | No  |                                |
| Ethylenediamine   | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | R | F-T | A  | No  | 15.19.6, 16.2.9                |
| Ethylenediaminetetraacetic acid, tetrasodium salt solution  | Y | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No  | A  | No  | 15.19.6                        |

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|--|---|-----|-------|----|------|-------|----|-----|------|---|-----|-----|-----|--------------------------------|
| Ethylene dibromide   | Y | S/P | 2     | 2G | Cont | No    |    |     | NF   | C | T   | No  | Yes | 15.12, 15.19.6, 16.2.9         |
| Ethylene dichloride  | Y | S/P | 2     | 2G | Cont | No    | T2 | IIA | No   | R | F-T | AB  | No  | 15.19                          |
| Ethylene glycol  | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6                        |
| Ethylene glycol acetate  | Y | P   | 3     | 2G | Open | No    | -  | -   | Yes  | O | No  | A   | No  | 15.19.6                        |
| Ethylene glycol butyl ether acetate  | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |                                |
| Ethylene glycol diacetate  | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |                                |
| Ethylene glycol methyl ether acetate   | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6                        |
| Ethylene glycol monoalkyl ethers   | Y | S/P | 3     | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6, 16.2.9                |
| Ethylene glycol phenyl ether   | Z | P   | 3     | 2G | Open | No    | -  | -   | Yes  | O | No  | A   | No  | 16.2.9                         |
| Ethylene glycol phenyl ether/Diethylene glycol phenyl ether mixture                                | Z | P   | 3     | 2G | Open | No    | -  | -   | Yes  | O | No  | A   | No  | 16.2.9                         |
| Ethylene oxide/Propylene oxide mixture with an ethylene oxide content of not more than 30% by mass | Y | S/P | 2     | 1G | Cont | Inert | T2 | IIB | No   | C | F-T | AC  | No  | 15.8, 15.12, 15.14, 15.19      |
| Ethyl-3-ethoxypropionate   | Y | P   | 3     | 2G | Cont | No    |    |     | No   | R | No  | A   | No  | 15.19.6                        |
| 2-Ethylhexanoic acid   | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6                        |
| 2-Ethylhexyl acrylate  | Y | S/P | 3     | 2G | Open | No    | T3 | IIB | Yes  | O | No  | A   | No  | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| 2-Ethylhexylamine  | Y | S/P | 2     | 2G | Cont | No    |    |     | No   | R | F-T | A   | No  | 15.12, 15.19.6                 |
| 2-Ethyl-2-(hydroxymethyl) propane-1,3-diol (C8-C10) ester  | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6, 16.2.9        |
| Ethylidene norbornene  | Y | S/P | 2     | 2G | Cont | No    |    |     | No   | R | F-T | AD  | No  | 15.12.1, 15.19.6               |
| Ethyl methacrylate   | Y | S/P | 3     | 2G | Cont | No    | T2 | IIA | No   | R | F-T | AD  | No  | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| N-Ethylmethylallylamine  | Y | S/P | 2     | 2G | Cont | No    | T2 | IIB | No   | C | F   | AC  | Yes | 15.12.3, 15.17, 15.19          |
| 2-Ethyl-3-propylacrolein   | Y | S/P | 3     | 2G | Cont | No    |    | IIA | No   | R | F-T | A   | No  | 15.19.6, 16.2.9                |
| Ethyl toluene  | Y | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6                        |
| Fatty acid (saturated C13+)  | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.9                |
| Fatty acids, essentially linear,C6-C18, 2-ethylhexyl ester.  | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.19.6                        |
| Ferric chloride solutions  | Y | S/P | 3     | 2G | Open | No    |    |     | NF   | O | No  | No  | No  | 15.11, 15.19.6, 16.2.9         |
| Ferric nitrate/Nitric acid solution  | Y | S/P | 2     | 2G | Cont | No    |    |     | NF   | R | T   | No  | Yes | 15.11, 15.19                   |
| Fish oil   | Y | S/P | 2 (k) | 2G | Open | No    | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9        |
| Formaldehyde solutions (45% or less)   | Y | S/P | 3     | 2G | Cont | No    | T2 | IIB | No   | R | F-T | A   | Yes | 15.19.6, 16.2.9                |

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|--|---|-----|-------|----|------|-----|----|-----|------|---|------|------------|-----|---|
| Formamide  | Y | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  | 15.19.6, 16.2.9   |
| Formic acid  | Y | S/P | 3     | 2G | Cont | No  | T1 | IIA | No   | R | T(g) | A          | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9                         |
| Furfural   | Y | S/P | 3     | 2G | Cont | No  | T2 | IIB | No   | R | F-T  | A          | No  | 15.19.6   |
| Furfuryl alcohol   | Y | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  |   |
| Glutaraldehyde solutions (50% or less)                         | Y | S/P | 3     | 2G | Open | No  |    |     | NF   | O | No   | No         | No  | 15.19.6   |
| Glycerol monooleate  | Y | P   | 2     | 2G | Open | No  | -  | -   | Yes  | O | No   | A          | No  | 15.19.6, 16.2.6, 16.2.9   |
| Glyceryl triacetate  | Z | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | AB         | No  |   |
| Glycidyl ester of C10 trialkylacetic acid                      | Y | P   | 2     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  | 15.19.6   |
| Glycine, sodium salt solution                                  | Z | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  |   |
| Glycolic acid solution (70% or less)                           | Z | S/P | 3     | 2G | Open | No  | -  | -   | NF   | O | No   | No         | No  | 15.19.6, 16.2.9   |
| Glyoxal solution (40% or less)                                 | Y | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  | 15.19.6, 16.2.9   |
| Glyoxylic acid solution (50 % or less)                         | Y | S/P | 3     | 2G | Open | No  | -  | -   | Yes  | O | No   | ACD        | No  | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9, 16.6.1, 16.6.2, 16.6.3 |
| Glyphosate solution (not containing surfactant)                | Y | P   | 2     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  | 15.19.6, 16.2.9   |
| Groundnut oil  | Y | P   | 2 (k) | 2G | Open | No  | -  | -   | Yes  | O | No   | ABC        | No  | 15.19.6, 16.2.6, 16.2.9   |
| Heptane (all isomers)  | X | P   | 2     | 2G | Cont | No  |    |     | No   | R | F    | A          | No  | 15.19.6, 16.2.9   |
| n-Heptanoic acid   | Z | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | AB         | No  |   |
| Heptanol (all isomers) (d)                                     | Y | P   | 3     | 2G | Cont | No  |    |     | No   | R | F    | A          | No  | 15.19.6   |
| Heptene (all isomers)  | Y | P   | 3     | 2G | Cont | No  |    |     | No   | R | F    | A          | No  | 15.19.6   |
| Heptyl acetate   | Y | P   | 2     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  | 15.19.6   |
| 1-Hexadecylnaphthalene / 1,4-bis(hexadecyl)naphthalene mixture | Y | P   | 2     | 2G | Open | No  |    |     | Yes  | O | No   | AB         | No  | 15.19.6, 16.2.6   |
| Hexamethylenediamine adipate (50% in water)                    | Z | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  |   |
| Hexamethylenediamine (molten)                                  | Y | S/P | 2     | 2G | Cont | No  |    |     | Yes  | C | T    | C          | Yes | 15.12, 15.17, 15.18, 15.19.6, 16.2.9  |
| Hexamethylenediamine solution                                  | Y | S/P | 3     | 2G | Cont | No  |    |     | Yes  | R | T    | A          | No  | 15.19.6   |
| Hexamethylene diisocyanate                                     | Y | S/P | 2     | 1G | Cont | Dry | T1 | IIB | Yes  | C | T    | AC(b)<br>D | Yes | 15.12, 15.17, 15.16.2, 15.18, 15.19   |
| Hexamethylene glycol   | Z | P   | 3     | 2G | Open | No  |    |     | Yes  | O | No   | A          | No  |   |
| Hexamethyleneimine   | Y | S/P | 2     | 2G | Cont | No  |    |     | No   | R | F-T  | AC         | No  | 15.19.6   |

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|--|---|-----|-------|----|------|-------|----|-----|------|---|-----|------|-----|--|
| Hexane (all isomers)   | Y | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A    | No  | 15.19.6                                    |
| 1,6-Hexanediol, distillation overheads                                 | Y | S/P | 3     | 2G | Cont | No    | -  | -   | Yes  | R | T   | ABCD | No  | 15.12.3, 15.12.4, 15.19.6, 16.2.9          |
| Hexanoic acid  | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | AB   | No  | 15.19.6                                    |
| Hexanol  | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | AB   | No  | 15.19.6                                    |
| Hexene (all isomers)   | Y | P   | 3     | 2G | Cont | No    |    |     | No   | R | F   | A    | No  | 15.19.6                                    |
| Hexyl acetate  | Y | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A    | No  | 15.19.6                                    |
| Hydrochloric acid  | Z | S/P | 3     | 1G | Cont | No    |    |     | NF   | R | T   | No   | Yes | 15.11                                      |
| Hydrogen peroxide solutions (over 60% but not over 70% by mass)        | Y | S/P | 2     | 2G | Cont | No    |    |     | NF   | C | No  | No   | No  | 15.5.1, 15.19.6                            |
| Hydrogen peroxide solutions (over 8% but not over 60% by mass)         | Y | S/P | 3     | 2G | Cont | No    |    |     | NF   | C | No  | No   | No  | 15.5.2, 15.18, 15.19.6                     |
| 2-Hydroxyethyl acrylate  | Y | S/P | 2     | 2G | Cont | No    |    |     | Yes  | C | T   | A    | No  | 15.12, 15.13, 15.19.6, 16.6.1, 16.6.2      |
| N-(Hydroxyethyl)ethylenediaminetriacetic acid, trisodium salt solution | Y | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A    | No  | 15.19.6                                    |
| 2-Hydroxy-4-(methylthio)butanoic acid                                  | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A    | No  |  |
| Illipe oil   | Y | P   | 2 (k) | 2G | Open | No    | -  | -   | Yes  | O | No  | ABC  | No  | 15.19.6, 16.2.6, 16.2.9                    |
| Isoamyl alcohol  | Z | P   | 3     | 2G | Cont | No    |    |     | No   | R | F   | AB   | No  |  |
| Isobutyl alcohol   | Z | P   | 3     | 2G | Cont | No    |    |     | No   | R | F   | AB   | No  |  |
| Isobutyl formate   | Z | P   | 3     | 2G | Cont | No    |    |     | No   | R | F   | AB   | No  |  |
| Isobutyl methacrylate  | Z | S/P | 3     | 2G | Cont | No    |    | IIA | No   | C | F-T | BD   | Yes | 15.12, 15.13, 15.17, 15.19, 16.6.1, 16.6.2 |
| Isophorone   | Y | S/P | 3     | 2G | Cont | No    |    |     | Yes  | R | No  | A    | No  |  |
| Isophoronediamine  | Y | S/P | 3     | 2G | Cont | No    |    |     | Yes  | R | T   | A    | No  | 16.2.9                                     |
| Isophorone diisocyanate  | X | S/P | 2     | 2G | Cont | Dry   |    |     | Yes  | C | T   | ABD  | No  | 15.12, 15.16.2, 15.17, 15.19.6             |
| Isoprene   | Y | S/P | 3     | 2G | Cont | No    | T3 | IIB | No   | R | F   | B    | No  | 15.13, 15.14, 15.19.6, 16.6.1, 16.6.2      |
| Isopropanolamine   | Y | S/P | 3     | 2G | Open | No    | T2 | IIA | Yes  | O | F-T | A    | No  | 16.2.9, 15.19.6, 16.2.6                    |
| Isopropyl acetate  | Z | P   | 3     | 2G | Cont | No    |    |     | No   | R | F   | AB   | No  |  |
| Isopropylamine   | Y | S/P | 2     | 2G | Cont | No    | T2 | IIA | No   | C | F-T | CD   | Yes | 15.12, 15.14, 15.19                        |
| Isopropylamine (70% or less) solution                                  | Y | S/P | 2     | 2G | Cont | No    |    |     | No   | C | F-T | CD   | E   | 15.12, 15.19.6, 16.2.9                     |
| Isopropylcyclohexane   | Y | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A    | No  | 15.19.6, 16.2.9                            |
| Isopropyl ether  | Y | S/P | 3     | 2G | Cont | Inert |    |     | No   | R | F   | A    | No  | 15.4.6, 15.13.3, 15.19.6                   |
| Lactic acid  | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A    | No  |  |

## Chapter 17

| a   | c | d   | e     | f  | g    | h  | i' | i'' | i''' | j | k   | l     | n   | o   |
|---|---|-----|-------|----|------|----|----|-----|------|---|-----|-------|-----|---|
| Lactonitrile solution (80% or less)   | Y | S/P | 2     | 1G | Cont | No |    |     | Yes  | C | T   | ACD   | Yes | 15.12, 15.13, 15.17, 15.18, 15.19, 16.6.1, 16.2.2, 16.6.3 |
| Lard  | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | O | No  | ABC   | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| Latex, ammonia (1% or less), inhibited  | Y | P   | 3     | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| Latex: Carboxylated styrene-Butadiene copolymer; Styrene-Butadiene rubber                                     | Z | P   | 3     | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 16.2.9  |
| Lauric acid   | X | P   | 2     | 2G | Open | No |    |     | Yes  | O | No  | A     | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| Ligninsulphonic acid, sodium salt solution  | Z | P   | 3     | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 16.2.9  |
| Linseed oil   | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | O | No  | ABC   | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| Liquid chemical wastes  | X | S/P | 2     | 2G | Cont | No |    |     | No   | C | F-T | A     | Yes | 15.12, 15.19.6, 20.5.1                                    |
| Long-chain alkaryl polyether (C11-C20)  | Y | P   | 2     | 2G | Open | No |    |     | Yes  | O | No  | AB    | No  | 16.2.6, 16.2.9  |
| Long-chain alkaryl sulphonic acid (C16-C60)   | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 15.19.6, 16.2.9   |
| Long-chain alkylphenate/Phenol sulphide mixture   | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| L-Lysine solution (60% or less)   | Z | P   | 3     | 2G | Open | No |    |     | Yes  | O | No  | A     | No  |   |
| Magnesium chloride solution   | Z | P   | 3     | 2G | Open | No |    |     | Yes  | O | No  | A     | No  |   |
| Magnesium long-chain alkaryl sulphonate (C11-C50)   | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| Magnesium long-chain alkyl salicylate (C11+)  | Y | P   | 2     | 2G | Open | No |    |     | Yes  | O | No  | AB    | No  | 15.19.6, 16.2.6, 16.2.6                                   |
| Maleic anhydride  | Y | S/P | 3     | 2G | Cont | No |    |     | Yes  | R | No  | AC(f) | No  | 16.2.9  |
| Mango kernel oil  | Y | P   | 2 (k) | 2G | Open | No | -  | -   | Yes  | O | No  | ABC   | No  | 15.19.6, 16.2.6, 16.2.9                                   |
| Mercaptobenzothiazol, sodium salt solution  | X | S/P | 2     | 2G | Open | No |    |     | NF   | O | No  | No    | No  | 15.19.6, 16.2.9   |
| Mesityl oxide   | Z | S/P | 3     | 2G | Cont | No | T2 | IIB | No   | R | F-T | A     | No  | 15.19.6   |
| Metam sodium solution   | X | S/P | 1     | 2G | Open | No |    |     | NF   | O | No  | No    | No  | 15.19, 16.2.9   |
| Methacrylic acid - alkoxy (alkylene oxide) methacrylate copolymer, sodium salt aqueous solution (45% or less) | Z | S/P | 3     | 2G | Open | No | -  | -   | NF   | O | No  | AC    | No  | 16.2.9  |
| Methacrylic acid  | Y | S/P | 3     | 2G | Cont | No |    |     | Yes  | R | T   | A     | No  | 15.13, 16.6.1, 15.19.6, 16.2.9                            |
| Methacrylic resin in ethylene dichloride  | Y | S/P | 2     | 2G | Cont | No | T2 | IIA | No   | R | F-T | AB    | No  | 15.19, 16.2.9   |
| Methacrylonitrile   | Y | S/P | 2     | 2G | Cont | No |    |     | No   | C | F-T | A     | Yes | 15.12, 15.13, 15.17, 15.19                                |
| 3-Methoxy-1-butanol   | Z | P   | 3     | 2G | Cont | No |    |     | No   | R | F   | A     | No  |   |
| 3-Methoxybutyl acetate  | Y | P   | 3     | 2G | Open | No |    |     | Yes  | O | No  | AB    | No  | 15.19.6   |
| N-(2-Methoxy-1-methyl ethyl)-2-ethyl-6-methyl chloroacetanilide   | X | P   | 1     | 2G | Open | No |    |     | Yes  | O | No  | A     | No  | 15.19, 16.2.6   |

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|--|---|-----|---|----|------|----|----|-----|------|---|-----|------|-----|--------------------------------|
| Methyl acetate                               | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  |                                |
| Methyl acetoacetate                          | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A    | No  |                                |
| Methyl acrylate                              | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No   | R | F-T | A    | Yes | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Methyl alcohol                               | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6                        |
| Methylamine solutions (42% or less)          | Y | S/P | 2 | 2G | Cont | No |    |     | No   | C | F-T | ACD  | Yes | 15.12, 15.17, 15.19            |
| Methylamyl acetate                           | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6                        |
| Methylamyl alcohol                           | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6                        |
| Methyl amyl ketone                           | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6                        |
| Methylbutenol                                | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6, 16.2.9                |
| Methyl tert-butyl ether                      | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB   | No  |                                |
| Methyl butyl ketone                          | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB   | No  | 15.19.6                        |
| Methylbutynol                                | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  |                                |
| Methyl butyrate                              | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6                        |
| Methylcyclohexane                            | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A    | No  | 15.19.6                        |
| Methylcyclopentadiene dimer                  | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | B    | No  | 15.19.6                        |
| Methylcyclopentadienyl manganese tricarbonyl | X | S/P | 1 | 1G | Cont | No | -  | -   | Yes  | C | T   | ABCD | Yes | 15.12, 15.18, 15.19, 16.2.9    |
| Methyl diethanolamine                        | Y | S/P | 3 | 2G | Open | No |    |     | Yes  | O | No  | A    | No  | 16.2.6                         |
| 2-Methyl-6-ethyl aniline                     | Y | S/P | 3 | 2G | Open | No |    |     | Yes  | O | No  | AD   | No  |                                |
| Methyl ethyl ketone                          | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | A    | No  |                                |
| 2-Methyl-5-ethyl pyridine                    | Y | S/P | 3 | 2G | Open | No |    | IIA | Yes  | O | No  | AD   | No  | 15.19.6                        |
| Methyl formate                               | Z | S/P | 2 | 2G | Cont | No |    |     | No   | R | F-T | A    | Yes | 15.12, 15.14, 15.19            |
| 2-Methyl-2-hydroxy-3-butyne                  | Z | S/P | 3 | 2G | Cont | No |    | IIA | No   | R | F-T | ABD  | No  | 15.19.6, 16.2.9                |
| Methyl isobutyl ketone                       | Z | P   | 3 | 2G | Cont | No |    |     | No   | R | F   | AB   | No  |                                |
| Methyl methacrylate                          | Y | S/P | 2 | 2G | Cont | No | T2 | IIA | No   | R | F-T | A    | No  | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| 3-Methyl-3-methoxybutanol                    | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A    | No  |                                |
| Methyl naphthalene (molten)                  | X | S/P | 2 | 2G | Cont | No |    |     | Yes  | R | No  | AD   | No  | 15.19.6                        |
| 2-Methyl-1,3-propanediol                     | Z | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No  | A    | No  |                                |
| 2-Methylpyridine                             | Z | S/P | 2 | 2G | Cont | No |    |     | No   | C | F   | A    | No  | 15.12.3, 15.19.6               |

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|--|---|-----|---|----|------|----|----|-----|------|---|-----|-------|-----|---|
| 3-Methylpyridine   | Z | S/P | 2 | 2G | Cont | No |    |     | No   | C | F   | AC    | No  | 15.12.3, 15.19                          |
| 4-Methylpyridine   | Z | S/P | 2 | 2G | Cont | No |    |     | No   | C | F-T | A     | No  | 15.12.3, 15.19, 16.2.9                  |
| N-Methyl-2-pyrrolidone   | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A     | No  | 15.19.6                                 |
| Methyl salicylate  | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A     | No  | 15.19.6                                 |
| alpha-Methylstyrene  | Y | S/P | 2 | 2G | Cont | No | T1 | IIB | No   | R | F-T | AD(j) | No  | 15.13, 15.19.6, 16.6.1, 16.6.2          |
| 3-(methylthio)propionaldehyde  | Y | S/P | 2 | 2G | Cont | No | T3 | IIA | No   | C | F-T | BC    | Yes | 15.12, 15.17, 15.19                     |
| Morpholine   | Y | S/P | 3 | 2G | Cont | No | T2 | IIA | No   | R | F   | A     | No  | 15.19.6                                 |
| Motor fuel anti-knock compounds (containing lead alkyls)               | X | S/P | 1 | 1G | Cont | No | T4 | IIA | No   | C | F-T | AC    | Yes | 15.6, 15.12, 15.18, 15.19               |
| Myrcene  | X | P   | 2 | 2G | Cont | No | -  | -   | No   | R | F   | A     | No  | 15.19.6, 16.2.9                         |
| Naphthalene (molten)   | X | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes  | R | No  | AD    | No  | 15.19.6, 16.2.9                         |
| Naphthalenesulphonic acid-Formaldehyde copolymer, sodium salt solution | Z | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No  | A     | No  | 16.2.9                                  |
| Neodecanoic acid   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A     | No  |   |
| Nitrating acid (mixture of sulphuric and nitric acids)                 | Y | S/P | 2 | 2G | Cont | No |    |     | NF   | C | T   | No    | Yes | 15.11, 15.16.2, 15.17, 15.19            |
| Nitric acid (70% and over)   | Y | S/P | 2 | 2G | Cont | No |    |     | NF   | C | T   | No    | Yes | 15.11, 15.19                            |
| Nitric acid (less than 70%)  | Y | S/P | 2 | 2G | Cont | No |    |     | NF   | R | T   | No    | Yes | 15.11, 15.19                            |
| Nitrilotriacetic acid, trisodium salt solution                         | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | A     | No  | 15.19.6                                 |
| Nitrobenzene   | Y | S/P | 2 | 2G | Cont | No | T1 | IIA | Yes  | C | T   | AD    | No  | 15.12, 15.17, 15.18, 15.19, 16.2.9      |
| Nitroethane  | Y | S/P | 3 | 2G | Cont | No |    | IIB | No   | R | F-T | A(f)  | No  | 15.19.6, 16.6.1, 16.6.2, 16.6.4         |
| Nitroethane(80%)/ Nitropropane(20%)                                    | Y | S/P | 3 | 2G | Cont | No |    | IIB | No   | R | F-T | A(f)  | No  | 15.19.6, 16.6.1, 16.6.2, 16.6.3         |
| Nitroethane, 1-Nitropropane (each 15% or more) mixture                 | Y | P   | 3 | 2G | Cont | No | -  | -   | No   | R | F   | A     | No  | 15.19.6, 16.6.1, 16.6.2, 16.6.3, 16.2.6 |
| o-Nitrophenol (molten)   | Y | S/P | 2 | 2G | Cont | No |    |     | Yes  | C | T   | AD    | No  | 15.12, 15.19.6, 16.2.6, 16.2.9          |
| 1- or 2-Nitropropane   | Y | S/P | 3 | 2G | Cont | No | T2 | IIB | No   | R | F-T | A     | No  | 15.19.6                                 |
| Nitropropane (60%)/Nitroethane (40%) mixture                           | Y | S/P | 3 | 2G | Cont | No |    |     | No   | R | F-T | A(f)  | No  | 15.19.6                                 |
| o- or p-Nitrotoluenes  | Y | S/P | 2 | 2G | Cont | No |    | IIB | Yes  | C | T   | AB    | No  | 15.12, 15.17, 15.19.6                   |
| Nonane (all isomers)   | X | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | BC    | No  | 15.19.6                                 |
| Nonanoic acid (all isomers)  | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No  | AB    | No  | 15.19.6, 16.2.9                         |
| Nonene (all isomers)   | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F   | A     | No  | 15.19.6                                 |
| Nonyl alcohol (all isomers)  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No  | A     | No  | 15.19.6                                 |

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|--|---|-----|---|----|------|----|----|-----|------|---|----|----|-----|--|
| Nonyl methacrylate monomer   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No | AB | No  | 15.19.6, 16.2.9  |
| Nonylphenol  | X | P   | 1 | 2G | Open | No |    |     | Yes  | O | No | A  | No  | 15.19, 16.2.6, 16.2.9                                      |
| Nonylphenol poly(4+)ethoxylate   | Y | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No | A  | No  | 15.19.6, 16.2.6  |
| Noxious liquid, NF, (1) n.o.s. (trade name ....., contains ....) ST1, Cat. X | X | P   | 1 | 2G | Open | No | -  | -   | Yes  | O | No | A  | No  | 15.19, 16.2.6  |
| Noxious liquid, F, (2) n.o.s. (trade name ....., contains ....) ST1, Cat. X  | X | P   | 1 | 2G | Cont | No | T3 | IIA | No   | R | F  | A  | No  | 15.19, 16.2.6  |
| Noxious liquid, NF, (3) n.o.s. (trade name ....., contains ....) ST2, Cat. X | X | P   | 2 | 2G | Open | No | -  |     | Yes  | O | No | A  | No  | 15.19, 16.2.6  |
| Noxious liquid, F, (4) n.o.s. (trade name ....., contains ....) ST2, Cat. X  | X | P   | 2 | 2G | Cont | No | T3 | IIA | No   | R | F  | A  | No  | 15.19, 16.2.6  |
| Noxious liquid, NF, (5) n.o.s. (trade name ....., contains ....) ST2, Cat. Y | Y | P   | 2 | 2G | Open | No | -  |     | Yes  | O | No | A  | No  | 15.19, 16.2.6, 16.2.9(l)                                   |
| Noxious liquid, F, (6) n.o.s. (trade name ....., contains ....) ST2, Cat. Y  | Y | P   | 2 | 2G | Cont | No | T3 | IIA | No   | R | F  | A  | No  | 15.19, 16.2.6, 16.2.9(l)                                   |
| Noxious liquid, NF, (7) n.o.s. (trade name ....., contains ....) ST3, Cat. Y | Y | P   | 3 | 2G | Open | No | -  | -   | Yes  | O | No | A  | No  | 15.19, 16.2.6, 16.2.9(l)                                   |
| Noxious liquid, F, (8) n.o.s. (trade name ....., contains ....) ST3, Cat. Y  | Y | P   | 3 | 2G | Cont | No | T3 | IIA | No   | R | F  | A  | No  | 15.19, 16.2.6, 16.2.9(l)                                   |
| Noxious liquid, NF, (9) n.o.s. (trade name ....., contains ....) ST3, Cat. Z | Z | P   | 3 | 2G | Open | No | -  |     | Yes  | O | No | A  | No  |  |
| Noxious liquid, F, (10) n.o.s. (trade name ....., contains ....) ST3, Cat. Z | Z | P   | 3 | 2G | Cont | No | T3 | IIA | No   | R | F  | A  | No  |  |
| Octane (all isomers)   | X | P   | 2 | 2G | Cont | No |    |     | No   | R | F  | A  | No  | 15.19.6  |
| Octanoic acid (all isomers)  | Z | P   | 3 | 2G | Open | No |    |     | Yes  | O | No | AB | No  |  |
| Octanol (all isomers)  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No | A  | No  |  |
| Octene (all isomers)   | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F  | A  | No  | 15.19.6  |
| n-Octyl acetate  | Y | P   | 3 | 2G | Open | No |    |     | Yes  | O | No | A  | No  | 15.19.6, 16.2.9  |
| Octyl aldehydes  | Y | P   | 2 | 2G | Cont | No |    |     | No   | R | F  | A  | No  | 15.19.6, 16.2.9  |
| Octyl decyl adipate  | Y | P   | 2 | 2G | Open | No | -  | -   | Yes  | O | No | A  | No  | 15.19.6, 16.2.9  |
| Olefin-Alkyl ester copolymer (molecular weight 2000+)                        | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No | AB | No  | 15.19.6, 16.2.6, 16.2.9                                    |
| Olefin mixtures (C5-C7)  | Y | P   | 3 | 2G | Cont | No |    |     | No   | R | F  | A  | No  | 15.19.6  |
| Olefin mixtures (C5-C15)   | X | P   | 2 | 2G | Cont | No |    |     | No   | R | F  | A  | No  | 15.19.6  |
| Olefins (C13+, all isomers)  | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No | AB | No  | 15.19.6, 16.2.9  |
| alpha-Olefins (C6-C18) mixtures  | X | P   | 2 | 2G | Cont | No |    |     | No   | R | F  | A  | No  | 15.19.6, 16.2.9  |
| Oleic acid   | Y | P   | 2 | 2G | Open | No |    |     | Yes  | O | No | AB | No  | 15.19.6, 16.2.9  |
| Oleum  | Y | S/P | 2 | 2G | Cont | No |    |     | NF   | C | T  | No | Yes | 15.11.2 to 15.11.8, 15.12.1, 15.16.2, 15.17, 15.19, 16.2.6 |



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| a  | c | d   | e     | f  | g    | h  | i' | i'' | i''' | j    | k   | l   | n  | o  |
|--|---|-----|-------|----|------|----|----|-----|------|------|-----|-----|----|--|
| Oleylamine   | X | S/P | 2     | 2G | Cont | No |    |     | Yes  | R    | T   | A   | No | 15.19.6, 16.2.9  |
| Olive oil  | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | Open | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Oxygenated aliphatic hydrocarbon mixture                   | Z | S/P | 3     | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No |  |
| Palm acid oil  | Y | S/P | 2     | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm fatty acid distillate                                 | Y | S/P | 2     | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm kernel oil  | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | Open | No  | AB  | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm kernel olein  | Y | P   | 2 (k) | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm kernel stearin  | Y | P   | 2 (k) | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm oil   | Y | S/P | 2 (k) | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm oil fatty acid methyl ester                           | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O    | No  | A   | No | 15.19.6, 16.2.9  |
| Palm olein   | Y | P   | 2 (k) | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Palm stearin   | Y | P   | 2 (k) | 2G | Open | No | -  | -   | Yes  | O    | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9  |
| Paraffin wax   | Y | P   | 2     | 2G | Open | No |    |     | Yes  | O    | No  | AB  | No | 15.19.6, 16.2.6, 16.2.9  |
| Paraldehyde  | Z | S/P | 3     | 2G | Cont | No | T3 | IIB | No   | R    | F   | A   | No | 15.19.6, 16.2.9  |
| Paraldehyde-ammonia reaction product                       | Y | S/P | 2     | 2G | Cont | No |    |     | No   | C    | F-T | A   | No | 15.12.3, 15.19   |
| Pentachloroethane  | Y | S/P | 2     | 2G | Cont | No |    |     | NF   | R    | T   | No  | No | 15.12, 15.17, 15.19.6  |
| 1,3-Pentadiene   | Y | S/P | 3     | 2G | Cont | No |    |     | No   | R    | F-T | AB  | No | 15.13, 15.19.6, 16.6.1, 16.6.2, 16.6.3                               |
| Pentane (all isomers)                                      | Y | P   | 3     | 2G | Cont | No |    |     | No   | R    | F   | A   | No | 15.14, 15.19.6   |
| Pentanoic acid   | Y | P   | 3     | 2G | Open | No |    |     | Yes  | O    | No  | AB  | No | 15.19.6  |
| n-Pentanoic acid (64%)/2-Methyl butyric acid (36%) mixture | Y | S/P | 2     | 2G | Open | No | T2 |     | Yes  | C    | No  | AD  | No | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.19 |
| Pentene (all isomers)                                      | Y | P   | 3     | 2G | Cont | No |    |     | No   | R    | F   | A   | No | 15.14, 15.19.6   |
| n-Pentyl propionate  | Y | P   | 3     | 2G | Cont | No |    |     | No   | R    | F   | A   | No | 15.19.6  |
| Perchloroethylene  | Y | S/P | 2     | 2G | Cont | No |    |     | NF   | R    | T   | No  | No | 15.12.1, 15.12.2, 15.19.6  |
| Petrolatum   | Y | P   | 2     | 2G | Open | No | -  | -   | Yes  | O    | No  | A   | No | 15.19.6, 16.2.6, 16.2.9  |
| Phenol   | Y | S/P | 2     | 2G | Cont | No | T1 | IIA | Yes  | C    | T   | A   | No | 15.12, 15.19, 16.2.9   |
| 1-Phenyl-1-xylyl ethane                                    | Y | P   | 3     | 2G | Open | No |    |     | Yes  | O    | No  | AB  | No |  |
| Phosphate esters, alkyl (C12-C14) amine                    | Y | P   | 2     | 2G | Cont | No | -  | -   | No   | R    | F   | A   | No | 15.19.6, 16.2.6, 16.2.9  |

## Chapter 17

| a   | c | d   | e | f  | g    | h                      | i' | i'' | i'''   | j | k    | l  | n   | o   |
|---|---|-----|---|----|------|------------------------|----|-----|--------|---|------|----|-----|---|
| Phosphoric acid   | Z | S/P | 3 | 2G | Open | No                     |    |     | NF     | O | No   | No | No  | 15.11.1, 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 16.2.9 |
| Phosphorus, yellow or white   | X | S/P | 1 | 1G | Cont | Pad+(vent<br>or inert) |    |     | No(c)  | C | No   | C  | Yes | 15.7, 15.19, 16.2.9   |
| Phthalic anhydride (molten)   | Y | S/P | 2 | 2G | Cont | No                     | T1 | IIA | Yes    | R | No   | AD | No  | 16.2.9, 15.19.6, 16.2.6   |
| alpha-Pinene  | X | P   | 2 | 2G | Cont | No                     |    |     | No     | R | F    | A  | No  | 15.19.6   |
| beta-Pinene   | X | P   | 2 | 2G | Cont | No                     |    |     | No     | R | F    | A  | No  | 15.19.6   |
| Pine oil  | X | P   | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | A  | No  | 16.2.6, 16.2.9  |
| Polyacrylic acid solution (40% or less)                               | Z | S/P | 3 | 2G | Open | No                     | -  | -   | Yes    | O | No   | AC | No  |   |
| Polyalkyl (C18-C22) acrylate in xylene                                | Y | P   | 2 | 2G | Cont | No                     |    |     | No     | R | F    | AB | No  | 15.19.6, 16.2.6, 16.2.9   |
| Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether                       | Z | P   | 3 | 2G | Open | No                     | -  | -   | Yes    | O | No   | A  | No  |   |
| Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether acetate              | Y | P   | 2 | 2G | Open | No                     | -  | -   | Yes    | O | No   | A  | No  | 15.19.6   |
| Polyalkyl (C10-C20) methacrylate                                      | Y | P   | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | AB | No  | 15.19.6, 16.2.6, 16.2.9   |
| Polyalkyl (C10-C18) methacrylate/ethylene-propylene copolymer mixture | Y | P   | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | AB | No  | 15.19.6, 16.2.6, 16.2.9   |
| Polybutene  | Y | P   | 2 | 2G | Open | No                     | -  | -   | Yes    | O | No   | A  | No  | 15.19.6, 16.2.6   |
| Polybutenyl succinimide   | Y | P   | 2 | 2G | Open | No                     | -  | -   | Yes    | O | No   | A  | No  | 15.19.6, 16.2.6, 16.2.9   |
| Poly(2+)cyclic aromatics  | X | P   | 1 | 2G | Cont | No                     |    |     | Yes    | R | No   | AD | No  | 15.19, 16.2.6, 16.2.9   |
| Polyethylene glycol   | Z | P   | 3 | 2G | Open | No                     |    |     | Yes    | O | No   | A  | No  |   |
| Polyethylene glycol dimethyl ether                                    | Z | P   | 3 | 2G | Open | No                     |    |     | Yes    | O | No   | A  | No  |   |
| Polyethylene polyamines   | Y | S/P | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | A  | No  | 16.2.9, 15.19.6   |
| Polyferric sulphate solution  | Y | S/P | 3 | 2G | Open | No                     |    |     | NF     | O | No   | No | No  |   |
| Poly(iminoethylene)-graft-N-poly(ethyleneoxy) solution (90% or less)  | Z | P   | 3 | 2G | Open | No                     | -  | -   | NF     | O | No   | AC | No  | 16.2.9  |
| Polyisobutenamine in aliphatic (C10-C14) solvent                      | Y | P   | 3 | 2G | Open | No                     | T3 | IIA | Yes    | O | No   | A  | No  |   |
| Polyisobutenyl anhydride adduct                                       | Z | P   | 3 | 2G | Open | No                     |    |     | Yes    | O | No   | AB | No  |   |
| Poly(4+)isobutylene   | Y | P   | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | AB | No  | 15.19.6, 16.2.9   |
| Polymethylene polyphenyl isocyanate                                   | Y | S/P | 2 | 2G | Cont | Dry                    |    |     | Yes(a) | C | T(a) | A  | No  | 15.12, 15.16.2, 15.19.6, 16.2.9                                       |
| Polyolefin (molecular weight 300+)                                    | Y | S/P | 2 | 2G | Open | No                     | -  | -   | Yes    | O | No   | A  | No  | 15.19.6, 16.2.6, 16.2.9   |
| Polyolefin amide alkeneamine (C17+)                                   | Y | P   | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | AB | No  | 15.19.6, 16.2.6   |
| Polyolefin amide alkeneamine borate (C28-C250)                        | Y | P   | 2 | 2G | Open | No                     |    |     | Yes    | O | No   | AB | No  | 15.19.6, 16.2.6, 16.2.9   |

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|--|---|-----|---|----|------|-------|----|-----|------|---|-----|----|-----|---|
| Polyolefinamine (C28-C250)                                 | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  | 16.2.9  |
| Polyolefinamine in alkyl (C2-C4) benzenes                  | Y | P   | 2 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Polyolefinamine in aromatic solvent                        | Y | P   | 2 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Polyolefin aminoester salts (mw 2000+)                     | Y | P   | 2 | 2G | Open | No    | -  | -   | Yes  | O | No  | A  | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Polyolefin anhydride                                       | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Polyolefin ester (C28-C250)                                | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Polyolefin phenolic amine (C28-C250)                       | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Polyolefin phosphorusulphide, barium derivative (C28-C250) | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | AB | No  | 16.2.6, 16.2.9  |
| Poly(20)oxyethylene sorbitan monooleate                    | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Poly(5+)propylene  | Y | P   | 3 | 2G | Open | No    | -  | -   | Yes  | O | No  | A  | No  | 15.19.6, 16.2.9   |
| Polypropylene glycol                                       | Z | P   | 3 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  |   |
| Polysiloxane   | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | AB | No  | 15.19.6, 16.2.9   |
| Potassium chloride solution (10% or more)                  | Z | P   | 3 | 2G | Open | No    | -  | -   | Yes  | O | No  | A  | No  | 16.2.9  |
| Potassium hydroxide solution                               | Y | S/P | 3 | 2G | Open | No    |    |     | NF   | O | No  | No | No  | 15.19.6   |
| Potassium oleate   | Y | P   | 2 | 2G | Open | No    |    |     | Yes  | O | No  | A  | No  | 15.19.6, 16.2.6, 16.2.9                                       |
| Potassium thiosulphate (50% or less)                       | Y | P   | 3 | 2G | Open | No    |    |     | NF   | O | No  | No | No  | 16.2.9  |
| n-Propanolamine  | Y | S/P | 3 | 2G | Open | No    |    |     | Yes  | O | No  | AD | No  | 16.2.9, 15.19.6   |
| beta-Propiolactone   | Y | S/P | 2 | 2G | Cont | No    |    | IIA | Yes  | R | T   | A  | No  |   |
| Propionaldehyde  | Y | S/P | 3 | 2G | Cont | No    |    |     | No   | R | F-T | A  | Yes | 15.17, 15.19.6  |
| Propionic acid   | Y | S/P | 3 | 2G | Cont | No    | T1 | IIA | No   | R | F   | A  | Yes | 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6 |
| Propionic anhydride  | Y | S/P | 3 | 2G | Cont | No    | T2 | IIA | Yes  | R | T   | A  | No  |   |
| Propionitrile  | Y | S/P | 2 | 1G | Cont | No    | T1 | IIB | No   | C | F-T | AD | Yes | 15.12, 15.17, 15.18, 15.19                                    |
| n-Propyl acetate   | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | AB | No  | 15.19.6   |
| n-Propyl alcohol   | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6   |
| n-Propylamine  | Z | S/P | 2 | 2G | Cont | Inert | T2 | IIA | No   | C | F-T | AD | Yes | 15.12, 15.19  |
| Propylbenzene (all isomers)                                | Y | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  | 15.19.6   |
| Propylene glycol methyl ether acetate                      | Z | P   | 3 | 2G | Cont | No    |    |     | No   | R | F   | A  | No  |   |

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|--|---|-----|-------|----|------|-------------------|----|-----|------|---|-----|-----|-----|--|
| Propylene glycol monoalkyl ether   | Z | P   | 3     | 2G | Cont | No                |    |     | No   | R | F   | AB  | No  |  |
| Propylene glycol phenyl ether  | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | AB  | No  |  |
| Propylene oxide  | Y | S/P | 2     | 2G | Cont | Inert             | T2 | IIB | No   | C | F-T | AC  | No  | 15.8, 15.12.1, 15.14, 15.19                        |
| Propylene tetramer   | X | P   | 2     | 2G | Cont | No                |    |     | No   | R | F   | A   | No  | 15.19.6  |
| Propylene trimer   | Y | P   | 2     | 2G | Cont | No                |    |     | No   | R | F   | A   | No  | 15.19.6  |
| Pyridine   | Y | S/P | 2     | 2G | Cont | No                | T1 | IIA | No   | R | F   | A   | No  | 15.19.6  |
| Pyrolysis gasoline (containing benzene)                                      | Y | S/P | 2     | 2G | Cont | No                | T3 | IIA | No   | C | F-T | AB  | No  | 15.12, 15.17, 15.19.6                              |
| Rapeseed oil   | Y | S/P | 2 (k) | 2G | Open | No                | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Rape seed oil fatty acid methyl esters                                       | Y | P   | 2     | 2G | Open | No                | -  | -   | Yes  | O | No  | A   | No  | 15.19.6  |
| Rice bran oil  | Y | S/P | 2 (k) | 2G | Open | No                | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Rosin  | Y | P   | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Safflower oil  | Y | S/P | 2 (k) | 2G | Open | No                | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Sodium alkyl (C14-C17) sulphonates (60-65% solution)                         | Y | P   | 2     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 16.2.6, 15.19.6, 16.2.9                            |
| Sodium aluminosilicate slurry  | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | AB  | No  |  |
| Sodium benzoate  | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No  |  |
| Sodium borohydride (15% or less)/Sodium hydroxide solution                   | Y | S/P | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 15.19.6, 16.2.6, 16.2.9                            |
| Sodium carbonate solution  | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No  |  |
| Sodium chlorate solution (50% or less)                                       | Z | S/P | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 15.9, 15.19.6, 16.2.9                              |
| Sodium dichromate solution (70% or less)                                     | Y | S/P | 2     | 2G | Open | No                |    |     | NF   | C | No  | No  | No  | 15.12.3, 15.19                                     |
| Sodium hydrogen sulphide (6% or less)/Sodium carbonate (3% or less) solution | Z | P   | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 15.19.6, 16.2.9                                    |
| Sodium hydrogen sulphite solution (45% or less)                              | Z | S/P | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 16.2.9   |
| Sodium hydrosulphide/Ammonium sulphide solution                              | Y | S/P | 2     | 2G | Cont | No                |    |     | No   | C | F-T | A   | Yes | 15.12, 15.14, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3 |
| Sodium hydrosulphide solution (45% or less)                                  | Z | S/P | 3     | 2G | Cont | Vent or pad (gas) |    |     | NF   | R | T   | No  | No  | 15.19.6, 16.2.9                                    |
| Sodium hydroxide solution  | Y | S/P | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 16.2.6, 16.2.9                                     |
| Sodium hypochlorite solution (15% or less)                                   | Y | S/P | 2     | 2G | Cont | No                | -  | -   | NF   | R | No  | No  | No  | 15.19.6  |
| Sodium nitrite solution  | Y | S/P | 2     | 2G | Open | No                |    |     | NF   | O | No  | No  | No  | 15.12.3.1, 15.12.3.2, 15.19, 16.2.9                |
| Sodium petroleum sulphonate  | Y | S/P | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6                                    |

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|---|---|-----|-------|----|------|-------------------|----|-----|------|---|-----|-----|----|--------------------------------|
| Sodium poly(4+)acrylate solutions                   | Z | P   | 3     | 2G | Open | No                | -  | -   | Yes  | O | No  | A   | No | 16.2.9                         |
| Sodium silicate solution                            | Y | P   | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No | 16.2.9                         |
| Sodium sulphide solution (15% or less)              | Y | S/P | 3     | 2G | Cont | No                |    |     | NF   | C | T   | No  | No | 15.19.6, 16.2.9                |
| Sodium sulphite solution (25% or less)              | Y | P   | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No | 15.19.6, 16.2.9                |
| Sodium thiocyanate solution (56% or less)           | Y | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | No  | No | 15.19.6, 16.2.9                |
| Soyabean oil  | Y | S/P | 2 (k) | 2G | Open | No                | -  | -   | Yes  | O | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9        |
| Styrene monomer                                     | Y | S/P | 3     | 2G | Cont | No                | T1 | IIA | No   | R | F   | AB  | No | 15.13, 15.19.6, 16.6.1, 16.6.2 |
| Sulphohydrocarbon (C3-C88)                          | Y | P   | 2     | 2G | Open | No                | -  | -   | Yes  | O | No  | A   | No | 15.19.6, 16.2.6, 16.2.9        |
| Sulpholane  | Y | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No | 15.19.6, 16.2.9                |
| Sulphonated polyacrylate solution                   | Z | P   | 3     | 2G | Cont | No                |    |     | No   | R | F   | A   | No |                                |
| Sulphur (molten)                                    | Z | S   | 3     | 1G | Open | Vent or pad (gas) | T3 |     | Yes  | O | F-T | No  | No | 15.10, 16.2.9                  |
| Sulphuric acid                                      | Y | S/P | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No | 15.11, 15.16.2, 15.19.6        |
| Sulphuric acid, spent                               | Y | S/P | 3     | 2G | Open | No                |    |     | NF   | O | No  | No  | No | 15.11, 15.16.2, 15.19.6        |
| Sulphurized fat (C14-C20)                           | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | AB  | No |                                |
| Sulphurized polyolefinamide alkene (C28-C250) amine | Z | P   | 3     | 2G | Open | No                | -  | -   | Yes  | O | No  | A   | No |                                |
| Sunflower seed oil                                  | Y | S/P | 2 (k) | 2G | Open | No                | -  | -   | Yes  | O | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9        |
| Tall oil (crude and distilled)                      | Y | P   | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No | 15.19.6, 16.2.6, 16.2.9        |
| Tall oil fatty acid (resin acids less than 20%)     | Y | P   | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No | 16.2.9, 15.19.6, 16.2.6        |
| Tallow  | Y | P   | 2 (k) | 2G | Open | No                | -  | -   | Yes  | O | No  | ABC | No | 15.19.6, 16.2.6, 16.2.9        |
| Tallow fatty acid                                   | Y | P   | 2     | 2G | Open | No                | -  | -   | Yes  | O | No  | A   | No | 15.19.6, 16.2.6, 16.2.9        |
| Tetrachloroethane                                   | Y | S/P | 2     | 2G | Cont | No                |    |     | NF   | R | T   | No  | No | 15.12, 15.17, 15.19.6          |
| Tetraethylene glycol                                | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No |                                |
| Tetraethylene pentamine                             | Y | S/P | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No |                                |
| Tetrahydrofuran                                     | Z | S   | 3     | 2G | Cont | No                | T3 | IIB | No   | R | F-T | A   | No | 15.19.6                        |
| Tetrahydronaphthalene                               | Y | P   | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No |                                |
| Tetramethylbenzene (all isomers)                    | X | P   | 2     | 2G | Open | No                |    |     | Yes  | O | No  | A   | No | 16.2.9                         |
| Titanium dioxide slurry                             | Z | P   | 3     | 2G | Open | No                |    |     | Yes  | O | No  | AB  | No |                                |

## Chapter 17

| a  | c | d   | e | f  | g    | h   | i' | i'' | i''' | j | k   | l          | n   | o  |
|--|---|-----|---|----|------|-----|----|-----|------|---|-----|------------|-----|--|
| Toluene  | Y | P   | 3 | 2G | Cont | No  |    |     | No   | R | F   | A          | No  | 15.19.6  |
| Toluenediamine   | Y | S/P | 2 | 2G | Cont | No  |    |     | Yes  | C | T   | AD         | Yes | 15.12, 15.17, 15.19, 16.2.9, 16.2.6  |
| Toluene diisocyanate                                       | Y | S/P | 2 | 2G | Cont | Dry | T1 | IIA | Yes  | C | F-T | AC(b)<br>D | Yes | 15.12, 15.16.2, 15.17, 15.19, 16.2.9   |
| o-Toluidine  | Y | S/P | 2 | 2G | Cont | No  |    |     | Yes  | C | T   | A          | No  | 15.12, 15.17, 15.19  |
| Tributyl phosphate   | Y | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  | 15.19.6  |
| 1,2,3-Trichlorobenzene (molten)                            | X | S/P | 1 | 2G | Cont | No  |    |     | Yes  | C | T   | ACD        | Yes | 15.12.1, 15.17, 15.19, 16.2.9, 16.2.6  |
| 1,2,4-Trichlorobenzene                                     | X | S/P | 1 | 2G | Cont | No  |    |     | Yes  | R | T   | AB         | No  | 15.19, 16.2.9  |
| 1,1,1-Trichloroethane                                      | Y | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  |  |
| 1,1,2-Trichloroethane                                      | Y | S/P | 3 | 2G | Cont | No  |    |     | NF   | R | T   | No         | No  | 15.12.1, 15.19.6   |
| Trichloroethylene  | Y | S/P | 2 | 2G | Cont | No  | T2 | IIA | Yes  | R | T   | No         | No  | 15.12, 15.17, 15.19.6  |
| 1,2,3-Trichloropropane                                     | Y | S/P | 2 | 2G | Cont | No  |    |     | Yes  | C | T   | ABD        | No  | 15.12, 15.17, 15.19  |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane                      | Y | P   | 2 | 2G | Open | No  |    |     | NF   | O | No  | No         | No  |  |
| Tricresyl phosphate (containing 1% or more ortho-isomer)   | Y | S/P | 1 | 2G | Cont | No  | T2 | IIA | Yes  | C | No  | AB         | No  | 15.12.3, 15.19, 16.2.6   |
| Tricresyl phosphate (containing less than 1% ortho-isomer) | Y | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  | 15.19.6, 16.2.6  |
| Tridecane  | Y | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | AB         | No  | 15.19.6  |
| Tridecanoic acid   | Y | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  | 15.19.6, 16.2.6, 16.2.9  |
| Tridecyl acetate   | Z | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | AB         | No  |  |
| Triethanolamine  | Z | S/P | 3 | 2G | Open | No  |    | IIA | Yes  | O | No  | A          | No  | 16.2.9   |
| Triethylamine  | Y | S/P | 2 | 2G | Cont | No  | T2 | IIA | No   | R | F-T | AC         | Yes | 15.12, 15.19.6   |
| Triethylbenzene  | X | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  | 15.19.6  |
| Triethylenetetramine                                       | Y | S/P | 2 | 2G | Open | No  | T2 | IIA | Yes  | O | No  | A          | No  |  |
| Triethyl phosphate   | Z | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  |  |
| Triethylphosphite  | Z | S/P | 3 | 2G | Cont | No  |    |     | No   | R | F-T | AB         | No  | 15.12.1, 15.19.6, 16.2.9   |
| Triisopropanolamine  | Z | P   | 3 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  |  |
| Triisopropylated phenyl phosphates                         | X | P   | 2 | 2G | Open | No  |    |     | Yes  | O | No  | A          | No  | 15.19.6, 16.2.6  |
| Trimethylacetic acid                                       | Y | S/P | 2 | 2G | Cont | No  |    |     | Yes  | R | No  | A          | No  | 15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.6, 16.2.9 |
| Trimethylamine solution (30% or less)                      | Z | S/P | 2 | 2G | Cont | No  |    |     | No   | C | F-T | AC         | Yes | 15.12, 15.14, 15.19, 16.2.9  |

## Chapter 17

| a   | c | d   | e     | f  | g    | h     | i' | i'' | i''' | j | k   | l   | n   | o   |
|---|---|-----|-------|----|------|-------|----|-----|------|---|-----|-----|-----|---|
| Trimethylbenzene (all isomers)  | X | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6                                   |
| 2,2,4-Trimethyl-1,3-pentanediol diisobutyrate                         | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  |   |
| 2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate                         | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |   |
| 1,3,5-Trioxane  | Y | S/P | 3     | 2G | Cont | No    |    |     | No   | R | F   | AD  | No  | 15.19.6, 16.2.9                           |
| Tripropylene glycol   | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |   |
| Trixylyl phosphate  | X | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.6                           |
| Tung oil  | Y | S/P | 2 (k) | 2G | Open | No    | -  | -   | Yes  | O | No  | ABC | No  | 15.19.6, 16.2.6, 16.2.9                   |
| Turpentine  | X | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6                                   |
| Undecanoic acid   | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 16.2.6, 16.2.9                            |
| 1-Undecene  | X | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6                                   |
| Undecyl alcohol   | X | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6, 16.2.9                           |
| Urea/Ammonium nitrate solution  | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |   |
| Urea/Ammonium nitrate solution (containing less than 1% free ammonia) | Z | S/P | 3     | 2G | Cont | No    |    |     | NF   | R | T   | A   | No  | 16.2.9                                    |
| Urea/Ammonium phosphate solution                                      | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  | 15.19.6                                   |
| Urea solution   | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |   |
| Valeraldehyde (all isomers)   | Y | S/P | 3     | 2G | Cont | Inert | T3 | IIB | No   | R | F-T | A   | No  | 15.4.6, 15.19.6                           |
| Vegetable protein solution (hydrolysed)                               | Z | P   | 3     | 2G | Open | No    |    |     | Yes  | O | No  | A   | No  |   |
| Vinyl acetate   | Y | S/P | 3     | 2G | Cont | No    | T2 | IIA | No   | R | F   | A   | No  | 15.13, 15.19.6, 16.6.1, 16.6.2            |
| Vinyl ethyl ether   | Z | S/P | 2     | 1G | Cont | Inert | T3 | IIB | No   | C | F-T | A   | Yes | 15.4, 15.13, 15.14, 15.19, 16.6.1, 16.6.2 |
| Vinylidene chloride   | Y | S/P | 2     | 2G | Cont | Inert | T2 | IIA | No   | R | F-T | B   | Yes | 15.13, 15.14, 15.19.6, 16.6.1, 16.6.2     |
| Vinyl neodecanoate  | Y | S/P | 2     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 15.13, 15.19.6, 16.6.1, 16.6.2            |
| Vinyltoluene  | Y | S/P | 2     | 2G | Cont | No    |    | IIA | No   | R | F   | AB  | No  | 15.13, 15.19.6, 16.6.1, 16.6.2            |
| Waxes   | Y | P   | 2     | 2G | Open | No    | -  | -   | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.6, 16.2.9                   |
| White spirit, low (15-20%) aromatic                                   | Y | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6, 16.2.9                           |
| Xylenes   | Y | P   | 2     | 2G | Cont | No    |    |     | No   | R | F   | A   | No  | 15.19.6, 16.2.9 (h)                       |
| Xylenes/ethylbenzene (10% or more) mixture                            | Y | P   | 2     | 2G | Cont | No    | -  | -   | No   | R | F   | A   | No  | 15.19.6                                   |
| Xylenol   | Y | S/P | 2     | 2G | Open | No    |    | IIA | Yes  | O | No  | AB  | No  | 15.19.6, 16.2.9                           |
| Zinc alkaryl dithiophosphate (C7-C16)                                 | Y | P   | 2     | 2G | Open | No    |    |     | Yes  | O | No  | AB  | No  | 16.2.6, 16.2.9                            |

## Chapter 17

| <b>a</b>                            | <b>c</b> | <b>d</b> | <b>e</b> | <b>f</b> | <b>g</b> | <b>h</b> | <b>i'</b> | <b>i''</b> | <b>i'''</b> | <b>j</b> | <b>k</b> | <b>l</b> | <b>n</b> | <b>o</b>        |
|-------------------------------------|----------|----------|----------|----------|----------|----------|-----------|------------|-------------|----------|----------|----------|----------|-----------------|
| Zinc alkenyl carboxamide            | Y        | P        | 2        | 2G       | Open     | No       |           |            | Yes         | O        | No       | AB       | No       | 15.19.6, 16.2.6 |
| Zinc alkyl dithiophosphate (C3-C14) | Y        | P        | 2        | 2G       | Open     | No       |           |            | Yes         | O        | No       | AB       | No       | 15.19.6, 16.2.6 |



- a If the product to be carried contains flammable solvents such that the flashpoint does not exceed 60°C, then special electrical systems and a flammable-vapour detector shall be provided.
- b Although water is suitable for extinguishing open-air fires involving chemicals to which this footnote applies, water shall not be allowed to contaminate closed tanks containing these chemicals because of the risk of hazardous gas generation.
- c Phosphorus, yellow or white is carried above its autoignition temperature and therefore flashpoint is not appropriate. Electrical equipment requirements may be similar to those for substances with a flashpoint above 60°C.
- d Requirements are based on those isomers having a flashpoint of 60°C, or less; some isomers have a flashpoint greater than 60°C, and therefore the requirements based on flammability would not apply to such isomers.
- e Applies to n-decyl alcohol only.
- f Dry chemical shall not be used as fire extinguishing media.
- g Confined spaces shall be tested for both formic acid vapours and carbon monoxide gas, a decomposition product.
- h Applies to p-xylene only.
- i For mixtures containing no other components with safety hazards and where the pollution category is Y or less
- j only certain alcohol-resistant foams are effective
- k Requirements for Ship Type identified in *column e* might be subject to regulation 4.1.3 of Annex II of MARPOL 73/78
- l Applicable when the melting point is equal to or greater than 0°C.

## **CHAPTER 18**

### **LIST OF PRODUCTS TO WHICH THE CODE DOES NOT APPLY**

18.1 The following are products, which have been reviewed for their safety and pollution hazards and determined not to present hazards to such an extent as to warrant application of the Code.

18.2 Although the products listed in this chapter fall outside the scope of the Code, the attention of Administrations is drawn to the fact that some safety precautions may be needed for their safe transportation. Accordingly, Administrations shall prescribe appropriate safety requirements.

18.3 Some liquid substances are identified as falling into Pollution Category Z and, therefore, subject to certain requirements of Annex II of MARPOL 73/78.

18.4 Liquid mixtures which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II as falling into Pollution Category Z or OS, and which do not present safety hazards, may be carried under the appropriate entry in this chapter for “Noxious or Non-Noxious Liquid Substances, not otherwise specified (n.o.s.)”.

#### **EXPLANATORY NOTES**

**Product name**                      The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code.

**Pollution Category**              The letter Z means the Pollution Category assigned to each product under Annex II of MARPOL 73/78. OS means the product was evaluated and found to fall outside Categories X, Y, or Z.

## Chapter 18

| <b>Product name</b>   | <b>Pollution Category</b> |
|---|---------------------------|
| Acetone   | Z                         |
| Alcoholic beverages, n.o.s.   | Z                         |
| Apple juice   | OS                        |
| n-Butyl alcohol   | Z                         |
| sec-Butyl alcohol   | Z                         |
| Calcium nitrate solutions (50% or less)                                       | Z                         |
| Clay slurry   | OS                        |
| Coal slurry   | OS                        |
| Diethylene glycol   | Z                         |
| Ethyl alcohol   | Z                         |
| Ethylene carbonate  | Z                         |
| Glucose solution  | OS                        |
| Glycerine   | Z                         |
| Hexamethylenetetramine solutions  | Z                         |
| Hexylene glycol   | Z                         |
| Isopropyl alcohol   | Z                         |
| Kaolin slurry   | OS                        |
| Lecithin  | OS                        |
| Magnesium hydroxide slurry  | Z                         |
| N-Methylglucamine solution (70% or less)                                      | Z                         |
| Methyl propyl ketone  | Z                         |
| Molasses  | OS                        |
| Noxious liquid, (11) n.o.s. (trade name ..., contains ...) Cat. Z             | Z                         |
| Non-noxious liquid, (12) n.o.s. (trade name ..., contains ...) Cat. OS        | OS                        |
| Polyaluminium chloride solution   | Z                         |
| Polyglycerin, sodium salt solution (containing less than 3% sodium hydroxide) | Z                         |
| Potassium formate solutions   | Z                         |
| Propylene carbonate   | Z                         |
| Propylene glycol  | Z                         |
| Sodium acetate solutions  | Z                         |
| Sodium sulphate solutions   | Z                         |
| Sorbitol solution   | OS                        |
| Tetraethyl silicate monomer/oligomer (20% in ethanol)                         | Z                         |

**Chapter 18**

| <b>Product name</b> | <b>Pollution Category</b> |
|---------------------|---------------------------|
| Triethylene glycol  | Z                         |
| Water               | OS                        |

## CHAPTER 19 INDEX OF PRODUCTS CARRIED IN BULK

19.1 The first column of the Index of Products Carried in Bulk (hereafter referred to as “the Index”) provides the so called Index Name. Where the Index Name is in capital and in bold, the Index Name is identical to the Product Name in either chapter 17 or chapter 18. The second column listing the relevant Product Name is therefore empty. Where the Index Name is in non-bold lower case it reflects a synonym for which the Product Name in either chapter 17 or chapter 18 is given in the second column. The relevant chapter of the IBC Code is reflected in the third column. The fourth column gives the UN Numbers of products, which were available up to February 2001.\*

19.2 The Index has been developed for information purposes only. None of the Index Names indicated in non-bold lower case in the first column shall be used as Product Name on the shipping document.

19.3 Prefixes forming an integral part of the name are shown in ordinary (roman) type and are taken into account in determining the alphabetical order of entries. These include such prefixes as:

Mono Di Tri Tetra Penta Iso Bis Neo Ortho Cyclo

19.4 Prefixes that are disregarded for purposes of alphabetical order are in italics and include the following:

|          |                 |
|----------|-----------------|
| n-       | (normal-)       |
| sec-     | (secondary-)    |
| tert-    | (tertiary-)     |
| o-       | (ortho-)        |
| m-       | (meta-)         |
| p-       | (para-)         |
| N-       |                 |
| O-       |                 |
| sym-     | (symmetrical)   |
| uns-     | (unsymmetrical) |
| dl-      |                 |
| cis-     |                 |
| trans-   |                 |
| (E)-     |                 |
| (Z)-     |                 |
| alpha-   | ( $\alpha$ -)   |
| beta-    | ( $\beta$ -)    |
| gamma-   | ( $\gamma$ -)   |
| epsilon- | ( $\epsilon$ -) |

**Note: the following pages are not numbered as they are database generated.**

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\* The reason for this decision is given in paragraph 7.10 of BLG 6/16.

| <b>Index Name</b>  | <b>Product Name</b>                        | <b>Chapter</b> | <b>UN No.</b> |
|--|--|----------------|---------------|
| Abietic anhydride  | <b>ROSIN</b>                               | 17             |               |
| acedimethylamide   | <b>N,N-DIMETHYLACETAMIDE</b>               | 17             |               |
| Acetaldehyde cyanohydrin   | <b>LACTONITRILE SOLUTION (80% OR LESS)</b> | 17             |               |
| Acetaldehyde trimer  | <b>PARALDEHYDE</b>                         | 17             |               |
| <b>ACETIC ACID</b>   |  | 17             |               |
| Acetic acid anhydride  | <b>ACETIC ANHYDRIDE</b>                    | 17             |               |
| Acetic acid, ethenyl ester   | <b>VINYL ACETATE</b>                       | 17             |               |
| Acetic acid, methyl ester  | <b>METHYL ACETATE</b>                      | 17             |               |
| Acetic acid, vinyl ester   | <b>VINYL ACETATE</b>                       | 17             |               |
| <b>ACETIC ANHYDRIDE</b>  |  | 17             | 1715          |
| Acetic ester   | <b>ETHYL ACETATE</b>                       | 17             |               |
| Acetic ether   | <b>ETHYL ACETATE</b>                       | 17             |               |
| Acetic oxide   | <b>ACETIC ANHYDRIDE</b>                    | 17             |               |
| Acetoacetic acid, methyl ester   | <b>METHYL ACETOACETATE</b>                 | 17             |               |
| Acetoacetic ester  | <b>ETHYL ACETOACETATE</b>                  | 17             |               |
| <b>ACETOCHLOR</b>  |  | 17             |               |
| <b>ACETONE</b>   |  | 18             |               |
| <b>ACETONE CYANOHYDRIN</b>   |  | 17             | 1541          |
| <b>ACETONITRILE</b>  |  | 17             | 1648          |
| Acetyl anhydride   | <b>ACETIC ANHYDRIDE</b>                    | 17             |               |
| Acetylene tetrachloride  | <b>TETRACHLOROETHANE</b>                   | 17             |               |
| Acetyl ether   | <b>ACETIC ANHYDRIDE</b>                    | 17             |               |
| Acetyl oxide   | <b>ACETIC ANHYDRIDE</b>                    | 17             |               |
| <b>ACID OIL MIXTURE FROM SOYABEAN, CORN (MAIZE) AND SUNFLOWER OIL REFINING</b> |  | 17             |               |
| Acintene   | <b>BETA-PINENE</b>                         | 17             |               |
| Acroleic acid  | <b>ACRYLIC ACID</b>                        | 17             |               |
| <b>ACRYLAMIDE SOLUTION (50% OR LESS)</b>                                       |  | 17             | 2074          |
| <b>ACRYLIC ACID</b>  |  | 17             | 2218          |
| Acrylic acid, 2-hydroxyethyl ester   | <b>2-HYDROXYETHYL ACRYLATE</b>             | 17             |               |
| Acrylic amide solution, 50% or less  | <b>ACRYLAMIDE SOLUTION (50% OR LESS)</b>   | 17             |               |
| Acrylic resin monomer  | <b>METHYL METHACRYLATE</b>                 | 17             |               |
| <b>ACRYLONITRILE</b>   |  | 17             | 1093          |
| <b>ACRYLONITRILE-STYRENE COPOLYMER DISPERSION IN POLYETHER POLYOL</b>          |  | 17             |               |
| Adipic acid, bis(2-ethylhexyl) ester   | <b>DI-(2-ETHYLHEXYL) ADIPATE</b>           | 17             |               |
| <b>ADIPONITRILE</b>  |  | 17             | 2205          |
| <b>ALACHLOR TECHNICAL (90% OR MORE)</b>  |  | 17             |               |
| Alcohol  | <b>ETHYL ALCOHOL</b>                       | 18             |               |
| Alcohol, C10   | <b>DECYL ALCOHOL (ALL ISOMERS)</b>         | 17             |               |
| Alcohol, C11   | <b>UNDECYL ALCOHOL</b>                     | 17             |               |
| Alcohol, C12   | <b>DODECYL ALCOHOL</b>                     | 17             |               |
| Alcohol, C7  | <b>HEPTANOL (ALL ISOMERS) (D)</b>          | 17             |               |
| Alcohol, C8  | <b>OCTANOL (ALL ISOMERS)</b>               | 17             |               |
| Alcohol, C9  | <b>NONYL ALCOHOL (ALL ISOMERS)</b>         | 17             |               |
| <b>ALCOHOLIC BEVERAGES, N.O.S.</b>   |  | 18             |               |
| <b>ALCOHOL (C9-C11) POLY (2.5-9) ETHOXYLATE</b>                                |  | 17             |               |
| <b>ALCOHOL (C6-C17) (SECONDARY) POLY(3-6)ETHOXYLATES</b>                       |  | 17             |               |
| <b>ALCOHOL (C6-C17) (SECONDARY) POLY(7-12)ETHOXYLATES</b>                      |  | 17             |               |
| <b>ALCOHOL (C12-C16) POLY(1-6)ETHOXYLATES</b>                                  |  | 17             |               |

| <b>Index Name</b>   | <b>Product Name</b>                                      | <b>Chapter</b> | <b>UN No.</b> |
|---|--|----------------|---------------|
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| <b>POLY(20+)ETHOXYLATES</b>   |  |                |               |
| <b>ALCOHOL (C12-C16) POLY(7-19)ETHOXYLATES</b>  |  | 17             |               |
| <b>ALCOHOLS (C13+)</b>  |  | 17             |               |
| Alcohols, C13 - C15   | <b>ALCOHOLS (C13+)</b>                                   | 17             |               |
| Aldehyde collidine  | <b>2-METHYL-5-ETHYL PYRIDINE</b>                         | 17             |               |
| Aldehydine  | <b>2-METHYL-5-ETHYL PYRIDINE</b>                         | 17             |               |
| <b>ALKANES (C6-C9)</b>  |  | 17             |               |
| <b>ISO- AND CYCLO-ALKANES (C10-C11)</b>   |  | 17             |               |
| <b>ISO- AND CYCLO-ALKANES (C12+)</b>  |  | 17             |               |
| <b>N-ALKANES (C10+)</b>   |  | 17             |               |
| Alkane(C10-C18)sulfonic acid, phenyl ester  | <b>ALKYL SULPHONIC ACID ESTER OF PHENOL</b>              | 17             |               |
| <b>ALKARYL POLYETHERS (C9-C20)</b>  |  | 17             |               |
| <b>ALKENYL (C11+) AMIDE</b>   |  | 17             |               |
| <b>ALKENYL (C16-C20) SUCCINIC ANHYDRIDE</b>   |  | 17             |               |
| <b>ALKYL ACRYLATE-VINYLPYRIDINE COPOLYMER IN TOLUENE</b>  |  | 17             |               |
| <b>ALKYLARYL PHOSPHATE MIXTURES (MORE THAN 40% DIPHENYL TOLYL PHOSPHATE, LESS THAN 0.02% ORTHO-ISOMERS)</b> |  | 17             |               |
| <b>ALKYLATED (C4-C9) HINDERED PHENOLS</b>   |  | 17             |               |
| <b>ALKYLBENZENE, ALKYLINDANE, ALKYLINDENE MIXTURE (EACH C12-C17)</b>  |  | 17             |               |
| <b>ALKYLBENZENE MIXTURES (CONTAINING AT LEAST 50% OF TOLUENE)</b>   |  | 17             |               |
| <b>ALKYL (C3-C4) BENZENES</b>   |  | 17             |               |
| <b>ALKYL (C5-C8) BENZENES</b>   |  | 17             |               |
| <b>ALKYL(C9+)BENZENES</b>   |  | 17             |               |
| <b>ALKYL (C11-C17) BENZENE SULPHONIC ACID</b>   |  | 17             | 2584, 258     |
| <b>ALKYLBENZENE SULPHONIC ACID, SODIUM SALT SOLUTION</b>  |  | 17             |               |
| <b>ALKYL (C12+) DIMETHYLAMINE</b>   |  | 17             | 2735          |
| <b>ALKYL DITHIOCARBAMATE (C19-C35)</b>  |  | 17             |               |
| <b>ALKYLDITHIOTHIAZOLE (C6-C24)</b>   |  | 17             |               |
| <b>ALKYL ESTER COPOLYMER (C4-C20)</b>   |  | 17             |               |
| <b>ALKYL (C8-C10)/(C12-C14):(40% OR LESS/60% OR MORE) POLYGLUCOSIDE SOLUTION (55% OR LESS)</b>              |  | 17             |               |
| <b>ALKYL (C8-C10)/(C12-C14):(60% OR MORE/40% OR LESS) POLYGLUCOSIDE SOLUTION(55% OR LESS)</b>               |  | 17             |               |
| <b>ALKYL (C7-C9) NITRATES</b>   |  | 17             |               |
| 2,2'- [3-(Alkyl(C16-C18)oxy)propylimino]diethanol   | <b>ETHOXYLATED LONG CHAIN (C16+) ALKYL OXYALKYLAMINE</b> | 17             |               |
| <b>ALKYL(C7-C11)PHENOL POLY(4-12) ETHOXYLATE</b>  |  | 17             |               |
| <b>ALKYL (C8-C40) PHENOL SULPHIDE</b>   |  | 17             |               |
| <b>ALKYL (C8-C9) PHENYLAMINE IN AROMATIC SOLVENTS</b>   |  | 17             | 1993          |
| <b>ALKYL (C9-C15) PHENYL PROPOXYLATE</b>  |  | 17             |               |
| <b>ALKYL (C8-C10)/(C12-C14):(50%/50%) POLYGLUCOSIDE SOLUTION (55% OR LESS)</b>                              |  | 17             |               |

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| <b>ALKYL (C12-C14) POLYGLUCOSIDE SOLUTION (55% OR LESS)</b>     |  | 17             |               |
| <b>ALKYL (C8-C10) POLYGLUCOSIDE SOLUTION (65% OR LESS).</b>     |  | 17             |               |
| <b>ALKYL(C10-C20, SATURATED AND UNSATURATED) PHOSPHITE</b>      |  | 17             |               |
| <b>ALKYL SULPHONIC ACID ESTER OF PHENOL</b>                     |  | 17             |               |
| 3-Alky(C16-C18)oxy-N,N'-bis(2-hydroxyethyl)propan-1-amine       | <b>ETHOXYLATED LONG CHAIN (C16+) ALKYL OXYALKYLAMINE</b> | 17             |               |
| <b>ALLYL ALCOHOL</b>  |  | 17             | 1098          |
| <b>ALLYL CHLORIDE</b>   |  | 17             | 1100          |
| Aluminium silicate hydroxide                                    | <b>KAOLIN SLURRY</b>                                     | 18             |               |
| <b>ALUMINIUM SULPHATE SOLUTION</b>                              |  | 17             |               |
| Aminoacetic acid, sodium salt solution                          | <b>GLYCINE, SODIUM SALT SOLUTION</b>                     | 17             |               |
| 1-Amino-3-aminomethyl-3,5,5-trimethylcyclohexane                | <b>ISOPHORONEDIAMINE</b>                                 | 17             |               |
| Aminobenzene  | <b>ANILINE</b>   | 17             |               |
| 1-Aminobutane   | <b>BUTYLAMINE (ALL ISOMERS)</b>                          | 17             |               |
| 2-Aminobutane   | <b>BUTYLAMINE (ALL ISOMERS)</b>                          | 17             |               |
| Aminocyclohexane  | <b>CYCLOHEXYLAMINE</b>                                   | 17             |               |
| Aminoethane   | <b>ETHYLAMINE</b>  | 17             |               |
| Aminoethane solutions, 72% or less                              | <b>ETHYLAMINE SOLUTIONS (72% OR LESS)</b>                | 17             |               |
| 2-Aminoethanol  | <b>ETHANOLAMINE</b>                                      | 17             |               |
| <b>2-(2-AMINOETHOXY) ETHANOL</b>                                |  | 17             | 3055          |
| 2-(2-Aminoethylamino)ethanol                                    | <b>AMINOETHYL ETHANOLAMINE</b>                           | 17             |               |
| <b>AMINOETHYLDIETHANOLAMINE/AMINOETHYLETHANOLAMINE SOLUTION</b> |  | 17             |               |
| <b>AMINOETHYL ETHANOLAMINE</b>                                  |  | 17             |               |
| N-(2-aminoethyl)ethylenediamine                                 | <b>DIETHYLENETRIAMINE</b>                                | 17             |               |
| 1-(2-Aminoethyl)piperazine                                      | <b>N-AMINOETHYLPIPERAZINE</b>                            | 17             |               |
| <b>N-AMINOETHYLPIPERAZINE</b>                                   |  | 17             | 2815          |
| 2-Aminoisobutane  | <b>BUTYLAMINE (ALL ISOMERS)</b>                          | 17             |               |
| Aminomethane  | <b>METHYLAMINE SOLUTIONS (42% OR LESS)</b>               | 17             |               |
| Aminomethane solutions, 42% or less                             | <b>METHYLAMINE SOLUTIONS (42% OR LESS)</b>               | 17             |               |
| 1-Amino-2-methylbenzene   | <b>O-TOLUIDINE</b>                                       | 17             |               |
| 2-Amino-1-methylbenzene   | <b>O-TOLUIDINE</b>                                       | 17             |               |
| <b>2-AMINO-2-METHYL-1-PROPANOL</b>                              |  | 17             |               |
| 3-Aminomethyl-3,5,5-trimethylcyclohexylamine                    | <b>ISOPHORONEDIAMINE</b>                                 | 17             |               |
| Aminophen   | <b>ANILINE</b>   | 17             |               |
| 1-Aminopropane  | <b>N-PROPYLAMINE</b>                                     | 17             |               |
| 2-Aminopropane  | <b>ISOPROPYLAMINE</b>                                    | 17             |               |
| 2-Aminopropane (70% or less) solution                           | <b>ISOPROPYLAMINE (70% OR LESS) SOLUTION</b>             | 17             |               |
| 1-Amino-2-propanol  | <b>ISOPROPANOLAMINE</b>                                  | 17             |               |
| 1-Aminopropan-2-ol  | <b>ISOPROPANOLAMINE</b>                                  | 17             |               |
| 3-Aminopropan-1-ol  | <b>N-PROPANOLAMINE</b>                                   | 17             |               |
| 2-Aminotoluene  | <b>O-TOLUIDINE</b>                                       | 17             |               |
| o-Aminotoluene  | <b>O-TOLUIDINE</b>                                       | 17             |               |
| 5-Amino-1,3,3-trimethylcyclohexylmethylamine                    | <b>ISOPHORONEDIAMINE</b>                                 | 17             |               |
| <b>AMMONIA AQUEOUS (28% OR LESS)</b>                            |  | 17             | 2672          |
| Ammonia water, 28% or less                                      | <b>AMMONIA AQUEOUS (28% OR LESS)</b>                     | 17             |               |
| <b>AMMONIUM HYDROGEN PHOSPHATE SOLUTION</b>                     |  | 17             |               |
| Ammonium hydroxide, 28% or less                                 | <b>AMMONIA AQUEOUS (28% OR LESS)</b>                     | 17             |               |



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| <b>AMMONIUM LIGNOSULPHONATE SOLUTIONS</b>                                 |   | 17             |               |
| <b>AMMONIUM NITRATE SOLUTION (93% OR LESS)</b>                            |   | 17             |               |
| <b>AMMONIUM POLYPHOSPHATE SOLUTION</b>                                    |   | 17             |               |
| <b>AMMONIUM SULPHATE SOLUTION</b>   |   | 17             |               |
| <b>AMMONIUM SULPHIDE SOLUTION (45% OR LESS)</b>                           |   | 17             | 2683          |
| <b>AMMONIUM THIOSULPHATE SOLUTION (60% OR LESS)</b>                       |   | 17             |               |
| <b>AMYL ACETATE (ALL ISOMERS)</b>   |   | 17             | 1104          |
| Amyl acetate, commercial  | <b>AMYL ACETATE (ALL ISOMERS)</b>                 | 17             |               |
| n-Amyl acetate  | <b>AMYL ACETATE (ALL ISOMERS)</b>                 | 17             |               |
| sec-Amyl acetate  | <b>AMYL ACETATE (ALL ISOMERS)</b>                 | 17             |               |
| Amylacetic ester  | <b>AMYL ACETATE (ALL ISOMERS)</b>                 | 17             |               |
| Amyl alcohol  | <b>N-AMYL ALCOHOL</b>                             | 17             |               |
| <b>N-AMYL ALCOHOL</b>   |   | 17             |               |
| <b>AMYL ALCOHOL, PRIMARY</b>  |   | 17             |               |
| <b>SEC-AMYL ALCOHOL</b>   |   | 17             |               |
| <b>TERT-AMYL ALCOHOL</b>  |   | 17             |               |
| Amyl aldehyde   | <b>VALERALDEHYDE (ALL ISOMERS)</b>                | 17             |               |
| Amyl carbinol   | <b>HEXANOL</b>                                    | 17             |               |
| alpha-n-Amylene   | <b>PENTENE (ALL ISOMERS)</b>                      | 17             |               |
| Amylene hydrate   | <b>TERT-AMYL ALCOHOL</b>                          | 17             |               |
| tert-Amylenes   | <b>PENTENE (ALL ISOMERS)</b>                      | 17             |               |
| Amyl hydrate  | <b>N-AMYL ALCOHOL</b>                             | 17             |               |
| Amyl hydride  | <b>PENTANE (ALL ISOMERS)</b>                      | 17             |               |
| <b>TERT-AMYL METHYL ETHER</b>   |   | 17             | 1993          |
| n-Amyl methyl ketone  | <b>METHYL AMYL KETONE</b>                         | 17             |               |
| n-Amyl propionate   | <b>N-PENTYL PROPIONATE</b>                        | 17             |               |
| Anaesthetic ether   | <b>DIETHYL ETHER</b>                              | 17             |               |
| <b>ANILINE</b>  |   | 17             | 1547          |
| Aniline oil   | <b>ANILINE</b>                                    | 17             |               |
| Anilinobenzene  | <b>DIPHENYLAMINE (MOLTEN)</b>                     | 17             |               |
| Anthracene oil (coal tar fraction)  | <b>COAL TAR</b>                                   | 17             |               |
| Ant oil, artificial   | <b>FURFURAL</b>                                   | 17             |               |
| <b>APPLE JUICE</b>  |   | 18             |               |
| Aqua fortis   | <b>NITRIC ACID (70% AND OVER)</b>                 | 17             |               |
| Argilla   | <b>KAOLIN SLURRY</b>                              | 18             |               |
| <b>ARYL POLYOLEFINS (C11-C50)</b>   |   | 17             |               |
| <b>AVIATION ALKYLATES (C8 PARAFFINS AND ISO-PARAFFINS BPT 95 - 120°C)</b> |   | 17             |               |
| Azacycloheptane   | <b>HEXAMETHYLENEIMINE</b>                         | 17             |               |
| 3-Azapentane-1,5-diamine  | <b>DIETHYLENTRIAMINE</b>                          | 17             |               |
| Azepane   | <b>HEXAMETHYLENEIMINE</b>                         | 17             |               |
| Azotic acid   | <b>NITRIC ACID (70% AND OVER)</b>                 | 17             |               |
| Banana oil  | <b>AMYL ACETATE (ALL ISOMERS)</b>                 | 17             |               |
| <b>BARIUM LONG CHAIN (C11-C50) ALKARYL SULPHONATE</b>                     |   | 17             | 2810          |
| Basic calcium alkyl salicylate in approximately 30% mineral oil           | <b>CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)</b> | 17             |               |
| Battery acid  | <b>SULPHURIC ACID</b>                             | 17             |               |
| Behenyl alcohol   | <b>ALCOHOLS (C13+)</b>                            | 17             |               |
| Benzenamine   | <b>2-METHYL-5-ETHYL PYRIDINE</b>                  | 17             |               |

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| 1,2-Benzenedicarboxylic acid, diethyl ester                        | <b>DIETHYL PHTHALATE</b>   | 17             |               |
| 1,2-Benzenedicarboxylic acid, diundecyl ester                      | <b>DIUNDECYL PHTHALATE</b>   | 17             |               |
| <b>BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)</b>         |  | 17             | 1114          |
| <b>BENZENE SULPHONYL CHLORIDE</b>                                  |  | 17             | 2225          |
| <b>BENZENETRICARBOXYLIC ACID, TRIOCTYL ESTER</b>                   |  | 17             |               |
| Benzenol   | <b>PHENOL</b>  | 17             |               |
| Benzol   | <b>BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)</b>           | 17             |               |
| Benzole  | <b>BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)</b>           | 17             |               |
| Benzophenol  | <b>PHENOL</b>  | 17             |               |
| Benzothiazole-2-thiol(, sodium salt)                               | <b>MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION</b>                     | 17             |               |
| 2-Benzothiazolethiol(, sodium salt)                                | <b>MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION</b>                     | 17             |               |
| (2-Benzothiazolylthio) sodium solution                             | <b>MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION</b>                     | 17             |               |
| <b>BENZYL ACETATE</b>  |  | 17             |               |
| <b>BENZYL ALCOHOL</b>  |  | 17             |               |
| Benzyl butyl phthalate   | <b>BUTYL BENZYL PHTHALATE</b>  | 17             |               |
| Betaprone  | <b>BETA-PROPIOLACTONE</b>  | 17             |               |
| Betula oil   | <b>METHYL SALICYLATE</b>   | 17             |               |
| Biformyl   | <b>GLYOXAL SOLUTION (40% OR LESS)</b>                                | 17             |               |
| Bihexyl  | <b>DODECANE (ALL ISOMERS)</b>  | 17             |               |
| Biphenyl   | <b>DIPHENYL</b>  | 17             |               |
| Bis(methylcyclopentadiene)   | <b>METHYLCYCLOPENTADIENE DIMER</b>                                   | 17             |               |
| 2,5-Bis(alkyl(C7+)thio)-1,3,4-thiadiazole                          | <b>ALKYLDITHIOTHIA DIAZOLE (C6-C24)</b>                              | 17             |               |
| Bis(2-aminoethyl)amine   | <b>DIETHYLENETRIAMINE</b>  | 17             |               |
| N,N'-Bis(2-aminoethyl)ethane-1,2-diamine                           | <b>TRIETHYLENETETRAMINE</b>  | 17             |               |
| N,N'-Bis(2-aminoethyl)ethylenediamine                              | <b>TRIETHYLENETETRAMINE</b>  | 17             |               |
| N,N-Bis(2-(bis(carboxymethyl)amino)ethyl)glycine, pentasodium salt | <b>DIETHYLENETRIAMINEPENTAACETIC ACID, PENTASODIUM SALT SOLUTION</b> | 17             |               |
| N,N- Bis(carboxymethyl)glycine trisodium salt                      | <b>NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION</b>                | 17             |               |
| Bis(chloroethyl) ether   | <b>DICHLOROETHYL ETHER</b>   | 17             |               |
| Bis(2-chloroethyl) ether   | <b>DICHLOROETHYL ETHER</b>   | 17             |               |
| Bis (2-chloroisopropyl) ether                                      | <b>2,2'-DICHLOROISOPROPYL ETHER</b>                                  | 17             |               |
| Bis(2-chloro-1-methylethyl) ether                                  | <b>2,2'-DICHLOROISOPROPYL ETHER</b>                                  | 17             |               |
| 1,1-Bis[4-(2,3-epoxypropoxy)phenyl]ethane                          | <b>DIGLYCIDYL ETHER OF BISPHENOL A</b>                               | 17             |               |
| Bis[2-(2,3-epoxypropoxy)phenyl]methane                             | <b>DIGLYCIDYL ETHER OF BISPHENOL F</b>                               | 17             |               |
| Bis(2-ethoxyethyl) ether   | <b>DIETHYLENE GLYCOL DIETHYL ETHER</b>                               | 17             |               |
| Bis(2-ethylhexyl) adipate  | <b>DI-(2-ETHYLHEXYL) ADIPATE</b>                                     | 17             |               |
| Bis(2-ethylhexyl) hydrogen phosphate                               | <b>DI-(2-ETHYLHEXYL) PHOSPHORIC ACID</b>                             | 17             |               |
| Bis(2-ethylhexyl) phthalate  | <b>DIOCTYL PHTHALATE</b>   | 17             |               |
| Bis(2-hydroxyethyl)amine   | <b>DIETHANOLAMINE</b>  | 17             |               |
| Bis(2-hydroxyethyl)ammonium 2,4-dichlorophenoxyacetate             | <b>2,4-DICHLOROPHENOXYACETIC ACID, DIETHANOLAMINE SALT SOLUTION</b>  | 17             |               |
| Bis(2-hydroxyethyl) ether  | <b>DIETHYLENE GLYCOL</b>   | 18             |               |
| Bis(2-hydroxypropyl)amine  | <b>DIISOPROPANOLAMINE</b>  | 17             |               |
| Bis(6-methylheptyl) phthalate                                      | <b>DIOCTYL PHTHALATE</b>   | 17             |               |
| Blackstrap molasses  | <b>MOLASSES</b>  | 18             |               |
| Bolus alba   | <b>KAOLIN SLURRY</b>   | 18             |               |
| <b>BRAKE FLUID BASE MIX: POLY(2-8)ALKYLENE (C2-C3)</b>             |  | 17             |               |
| <b>GLYCOLS/POLYALKYLENE (C2-C10)</b>                               |  |                |               |
| <b>GLYCOLS MONOALKYL (C1-C4) ETHERS AND THEIR BORATE ESTERS</b>    |  |                |               |

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| Bran oil                            | FURFURAL   | 17             |               |
| Brimstone                           | SULPHUR (MOLTEN)   | 17             |               |
| <b>BROMOCHLOROMETHANE</b>           |  | 17             |               |
| Butaldehyde                         | BUTYRALDEHYDE (ALL ISOMERS)                              | 17             |               |
| Butanal                             | BUTYRALDEHYDE (ALL ISOMERS)                              | 17             |               |
| n-Butanal                           | BUTYRALDEHYDE (ALL ISOMERS)                              | 17             |               |
| Butane-1,3-diol                     | BUTYLENE GLYCOL  | 17             |               |
| Butane -1,4-diol                    | BUTYLENE GLYCOL  | 17             |               |
| Butane-2,3-diol                     | BUTYLENE GLYCOL  | 17             |               |
| 1,3-Butanediol                      | BUTYLENE GLYCOL  | 17             |               |
| 1,4-Butanediol                      | BUTYLENE GLYCOL  | 17             |               |
| 2,3-Butanediol                      | BUTYLENE GLYCOL  | 17             |               |
| Butanoic acid                       | BUTYRIC ACID   | 17             |               |
| Butanol                             | N-BUTYL ALCOHOL  | 18             |               |
| Butanol-1                           | N-BUTYL ALCOHOL  | 18             |               |
| Butan-1-ol                          | N-BUTYL ALCOHOL  | 18             |               |
| Butan-2-ol                          | SEC-BUTYL ALCOHOL  | 18             |               |
| 1-Butanol                           | N-BUTYL ALCOHOL  | 18             |               |
| 2-Butanol                           | SEC-BUTYL ALCOHOL  | 18             |               |
| Butanol acetate                     | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| 2-Butanol acetate                   | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| Butan-4-olide                       | GAMMA-BUTYROLACTONE                                      | 17             |               |
| 1,4-Butanolide                      | GAMMA-BUTYROLACTONE                                      | 17             |               |
| n-Butanol                           | N-BUTYL ALCOHOL  | 18             |               |
| sec-Butanol                         | SEC-BUTYL ALCOHOL  | 18             |               |
| tert-Butanol                        | TERT-BUTYL ALCOHOL                                       | 17             |               |
| Butan-2-one                         | METHYL ETHYL KETONE                                      | 17             |               |
| 2-Butanone                          | METHYL ETHYL KETONE                                      | 17             |               |
| 2-Butenal                           | CROTONALDEHYDE   | 17             |               |
| Butene dimer                        | OCTENE (ALL ISOMERS)                                     | 17             |               |
| <b>BUTENE OLIGOMER</b>              |  | 17             |               |
| 1-Butoxybutane                      | N-BUTYL ETHER  | 17             |               |
| 2-Butoxyethanol                     | ETHYLENE GLYCOL MONOALKYL ETHERS                         | 17             |               |
| 2-tert-butoxyethanol                | ETHYLENE GLYCOL MONOALKYL ETHERS                         | 17             |               |
| 2-(2-Butoxyethoxy)ethanol           | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| 2-(2-Butoxyethoxy)ethyl acetate     | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| 2-Butoxyethyl acetate               | ETHYLENE GLYCOL BUTYL ETHER ACETATE                      | 17             |               |
| 1-Butoxypropan-2-ol                 | PROPYLENE GLYCOL MONOALKYL ETHER                         | 17             |               |
| Butyl acetate                       | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| <b>BUTYL ACETATE (ALL ISOMERS)</b>  |  | 17             | 1123          |
| n-Butyl acetate                     | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| sec-Butyl acetate                   | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| tert-Butyl acetate                  | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| <b>BUTYL ACRYLATE (ALL ISOMERS)</b> |  | 17             | 2348          |
| n-Butyl acrylate                    | BUTYL ACRYLATE (ALL ISOMERS)                             | 17             |               |
| Butyl alcohol                       | N-BUTYL ALCOHOL  | 18             |               |
| <b>N-BUTYL ALCOHOL</b>              |  | 18             |               |
| <b>SEC-BUTYL ALCOHOL</b>            |  | 18             |               |
| <b>TERT-BUTYL ALCOHOL</b>           |  | 17             |               |
| n-Butyl aldehyde                    | BUTYRALDEHYDE (ALL ISOMERS)                              | 17             |               |
| <b>BUTYLAMINE (ALL ISOMERS)</b>     |  | 17             | 1125, 121     |
| n-Butylamine                        | BUTYLAMINE (ALL ISOMERS)                                 | 17             |               |

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| sec-Butylamine   | BUTYLAMINE (ALL ISOMERS)                                 | 17             |               |
| tert-Butylamine  | BUTYLAMINE (ALL ISOMERS)                                 | 17             |               |
| <b>BUTYLBENZENE (ALL ISOMERS)</b>                                    |  | 17             | 2709          |
| tert-Butylbenzene  | BUTYLBENZENE (ALL ISOMERS)                               | 17             |               |
| <b>BUTYL BENZYL PHTHALATE</b>  |  | 17             |               |
| Butyl butanoate  | BUTYL BUTYRATE (ALL ISOMERS)                             | 17             |               |
| <b>BUTYL BUTYRATE (ALL ISOMERS)</b>                                  |  | 17             |               |
| n-Butyl butyrate   | BUTYL BUTYRATE (ALL ISOMERS)                             | 17             |               |
| n-Butylcarbinol  | N-AMYL ALCOHOL   | 17             |               |
| Butyl carbitol   | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Butyl carbitol acetate   | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| Butyl cellosolve   | ETHYLENE GLYCOL MONOALKYL ETHERS                         | 17             |               |
| Butyl cellosolve acetate   | ETHYLENE GLYCOL BUTYL ETHER ACETATE                      | 17             |               |
| <b>BUTYL/DECYL/CETYL/EICOSYL METHACRYLATE MIXTURE</b>                |  | 17             |               |
| Butyl/decyl/hexadecyl/icosyl methacrylate mixture                    | BUTYL/DECYL/CETYL/EICOSYL METHACRYLATE MIXTURE           | 17             |               |
| Butyl diglycol acetate   | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| <b>BUTYLENE GLYCOL</b>   |  | 17             |               |
| alpha-Butylene glycol  | BUTYLENE GLYCOL  | 17             |               |
| beta-Butylene glycol   | BUTYLENE GLYCOL  | 17             |               |
| Butylene glycol momomethyl ether                                     | 3-METHOXY-1-BUTANOL                                      | 17             |               |
| Butylene glycol monomethyl ether acetate                             | 3-METHOXYBUTYL ACETATE                                   | 17             |               |
| Butylene oxide   | TETRAHYDROFURAN  | 17             |               |
| <b>1,2-BUTYLENE OXIDE</b>  |  | 17             | 3022          |
| Butyl ester  | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| Butyl ethanoate  | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| Butyl ether  | N-BUTYL ETHER  | 17             |               |
| <b>N-BUTYL ETHER</b>   |  | 17             | 1149          |
| Butylethylacetic acid  | OCTANOIC ACID (ALL ISOMERS)                              | 17             |               |
| Butylethylene  | HEXENE (ALL ISOMERS)                                     | 17             |               |
| tert-Butyl ethyl ether   | ETHYL TERT-BUTYL ETHER                                   | 17             |               |
| Butylic ether  | BUTYL ACETATE (ALL ISOMERS)                              | 17             |               |
| iso-Butyl ketone   | DIISOBUTYL KETONE  | 17             |               |
| <b>BUTYL METHACRYLATE</b>  |  | 17             |               |
| tert-Butyl methyl ether  | METHYL TERT-BUTYL ETHER                                  | 17             |               |
| Butyl methyl ketone  | METHYL BUTYL KETONE                                      | 17             |               |
| Butyl phthalate  | DIBUTYL PHTHALATE  | 17             |               |
| <b>N-BUTYL PROPIONATE</b>  |  | 17             | 1914          |
| <b>BUTYRALDEHYDE (ALL ISOMERS)</b>                                   |  | 17             | 1129          |
| n-Butyraldehyde  | BUTYRALDEHYDE (ALL ISOMERS)                              | 17             |               |
| <b>BUTYRIC ACID</b>  |  | 17             | 2820          |
| n-Butyric acid   | BUTYRIC ACID   | 17             |               |
| Butyric alcohol  | N-BUTYL ALCOHOL  | 18             |               |
| Butyric aldehyde   | BUTYRALDEHYDE (ALL ISOMERS)                              | 17             |               |
| <b>GAMMA-BUTYROLACTONE</b>   |  | 17             |               |
| Cajeputene   | DIPENTENE  | 17             |               |
| Calcium alkyl(longchain) salicylate (overbased) in mineral oil (LOA) | CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)               | 17             |               |
| Calcium alkyl salicylate   | CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)               | 17             |               |
| Calcium bis(O-alkylsalicylate)                                       | CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)               | 17             |               |
| Calcium bromide / zinc bromide solution                              | DRILLING BRINES (CONTAINING ZINC SALTS)                  | 17             |               |
| <b>CALCIUM CARBONATE SLURRY</b>                                      |  | 17             |               |

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| <b>CALCIUM HYDROXIDE SLURRY</b>   |  | 17             |               |
| <b>CALCIUM HYPOCHLORITE SOLUTION (15% OR LESS)</b>                      |  | 17             |               |
| <b>CALCIUM HYPOCHLORITE SOLUTION (MORE THAN 15%)</b>                    |  | 17             |               |
| <b>CALCIUM LIGNOSULPHONATE SOLUTIONS</b>                                |  | 17             |               |
| <b>CALCIUM LONG-CHAIN ALKARYL SULPHONATE (C11-C50)</b>                  |  | 17             |               |
| <b>CALCIUM LONG-CHAIN ALKYL(C5-C10) PHENATE</b>                         |  | 17             |               |
| <b>CALCIUM LONG-CHAIN ALKYL(C11-C40) PHENATE</b>                        |  | 17             |               |
| <b>CALCIUM LONG-CHAIN ALKYL PHENATE SULPHIDE (C8-C40)</b>               |  | 17             |               |
| <b>CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)</b>                       |  | 17             |               |
| <b>CALCIUM NITRATE/MAGNESIUM NITRATE/POTASSIUM CHLORIDE SOLUTION</b>    |  | 17             |               |
| <b>CALCIUM NITRATE SOLUTIONS (50% OR LESS)</b>                          |  | 18             | 1454          |
| Cane molasses   | <b>MOLASSES</b>  | 18             |               |
| Capric acid   | <b>DECANOIC ACID</b>   | 17             |               |
| Caproic acid  | <b>HEXANOIC ACID</b>   | 17             |               |
| alpha-Caproic acid  | <b>OCTANOIC ACID (ALL ISOMERS)</b>                                   | 17             |               |
| Caprolactam   | <b>EPSILON-CAPROLACTAM (MOLTEN OR AQUEOUS SOLUTIONS)</b>             | 17             |               |
| <b>EPSILON-CAPROLACTAM (MOLTEN OR AQUEOUS SOLUTIONS)</b>                |  | 17             |               |
| Caproyl alcohol   | <b>HEXANOL</b>   | 17             |               |
| Capryl alcohol  | <b>OCTANOL (ALL ISOMERS)</b>   | 17             |               |
| Caprylic acid   | <b>OCTANOIC ACID (ALL ISOMERS)</b>                                   | 17             |               |
| Caprylyl acetate  | <b>N-OCTYL ACETATE</b>   | 17             |               |
| Carbamide   | <b>UREA SOLUTION</b>   | 17             |               |
| Carbinol  | <b>METHYL ALCOHOL</b>  | 17             |               |
| Carbitol acetate  | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE</b>      | 17             |               |
| Carbitol solvent  | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>               | 17             |               |
| Carbolic acid   | <b>PHENOL</b>  | 17             |               |
| <b>CARBOLIC OIL</b>   |  | 17             |               |
| Carbon bisulphide   | <b>CARBON DISULPHIDE</b>   | 17             |               |
| <b>CARBON DISULPHIDE</b>  |  | 17             | 1131          |
| <b>CARBON TETRACHLORIDE</b>   |  | 17             | 1846          |
| Carbonyldiamide   | <b>UREA SOLUTION</b>   | 17             |               |
| Carbonyldiamine   | <b>UREA SOLUTION</b>   | 17             |               |
| 1,3-Carbonyl dioxopropane   | <b>PROPYLENE CARBONATE</b>   | 18             |               |
| Carboxyethyliminobis(ethylenenitrilo)tetraacetic acid, pentasodium salt | <b>DIETHYLENETRIAMINEPENTAACETIC ACID, PENTASODIUM SALT SOLUTION</b> | 17             |               |
| <b>CASHEW NUT SHELL OIL (UNTREATED)</b>                                 |  | 17             |               |
| <b>CASTOR OIL</b>   |  | 17             |               |
| Caustic potash solution   | <b>POTASSIUM HYDROXIDE SOLUTION</b>                                  | 17             |               |
| Caustic soda  | <b>SODIUM HYDROXIDE SOLUTION</b>                                     | 17             |               |
| Caustic soda solution   | <b>SODIUM HYDROXIDE SOLUTION</b>                                     | 17             |               |
| Cellosolve acetate  | <b>2-ETHOXYETHYL ACETATE</b>   | 17             |               |
| Cellosolve solvent  | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                              | 17             |               |

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| <b>CETYL/EICOSYL METHACRYLATE MIXTURE</b>  |  | 17             |               |
| Cetyl / stearyl alcohol  | <b>ALCOHOLS (C13+)</b>   | 17             |               |
| China clay   | <b>KAOLIN SLURRY</b>   | 18             |               |
| <b>CHLORINATED PARAFFINS (C10-C13)</b>   |  | 17             |               |
| <b>CHLORINATED PARAFFINS (C14-C17) (WITH 50% CHLORINE OR MORE, AND LESS THAN 1% C13 OR SHORTER CHAINS)</b> |  | 17             |               |
| <b>CHLOROACETIC ACID (80% OR LESS)</b>   |  | 17             | 1750          |
| alpha-Chloroallyl chloride   | <b>1,3-DICHLOROPROPENE</b>   | 17             |               |
| Chloroallylene   | <b>ALLYL CHLORIDE</b>  | 17             |               |
| <b>CHLOROBENZENE</b>   |  | 17             | 1134          |
| Chlorobenzol   | <b>CHLOROBENZENE</b>   | 17             |               |
| Chlorobromomethane   | <b>BROMOCHLOROMETHANE</b>  | 17             |               |
| 1-Chloro-2-(beta-chloroethoxy)ethane   | <b>DICHLOROETHYL ETHER</b>   | 17             |               |
| 1-Chloro-2,3-epoxypropane  | <b>EPICHLOROHYDRIN</b>   | 17             |               |
| Chloroethanol-2  | <b>ETHYLENE CHLOROHYDRIN</b>   | 17             |               |
| 2-Chloroethanol  | <b>ETHYLENE CHLOROHYDRIN</b>   | 17             |               |
| 2-Chloro-N-ethoxymethyl-6'-ethylacet-o-toluidide   | <b>ACETOCHLOR</b>  | 17             |               |
| 2-Chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl)acetamide  | <b>ACETOCHLOR</b>  | 17             |               |
| 2-Chloroethyl alcohol  | <b>ETHYLENE CHLOROHYDRIN</b>   | 17             |               |
| beta-Chloroethyl alcohol   | <b>ETHYLENE CHLOROHYDRIN</b>   | 17             |               |
| Chloroethyl ether  | <b>DICHLOROETHYL ETHER</b>   | 17             |               |
| 2-Chloro-6'-ethyl-N-(2-methoxy-1-methylethyl)acet-o-toluidide  | <b>N-(2-METHOXY-1-METHYL ETHYL)-2-ETHYL-6-METHYL CHLOROACETANILIDE</b> | 17             |               |
| 2-Chloro-N-(2-ethyl-6-methylphenyl)-N-(2-methoxy-1-methylethyl)acetamide                                   | <b>N-(2-METHOXY-1-METHYL ETHYL)-2-ETHYL-6-METHYL CHLOROACETANILIDE</b> | 17             |               |
| <b>CHLOROFORM</b>  |  | 17             | 1888          |
| <b>CHLOROHYDRINS (CRUDE)</b>   |  | 17             |               |
| m-Chloromethylbenzene  | <b>M-CHLOROTOLUENE</b>   | 17             |               |
| o-Chloromethylbenzene  | <b>O-CHLOROTOLUENE</b>   | 17             |               |
| p-Chloromethylbenzene  | <b>P-CHLOROTOLUENE</b>   | 17             |               |
| Chloromethylethylene oxide   | <b>EPICHLOROHYDRIN</b>   | 17             |               |
| (2-Chloro-1-methylethyl) ether   | <b>2,2'-DICHLOROISOPROPYL ETHER</b>                                    | 17             |               |
| 2-Chloro-1-methylethyl ether   | <b>2,2'-DICHLOROISOPROPYL ETHER</b>                                    | 17             |               |
| Chloromethyloxirane  | <b>EPICHLOROHYDRIN</b>   | 17             |               |
| <b>4-CHLORO-2-METHYLPHENOXYACETIC ACID, DIMETHYLAMINE SALT SOLUTION</b>                                    |  | 17             |               |
| 1-Chloro-2-nitrobenzene  | <b>O-CHLORONITROBENZENE</b>  | 17             |               |
| <b>O-CHLORONITROBENZENE</b>  |  | 17             | 1578          |
| <b>1-(4-CHLOROPHENYL)-4,4- DIMETHYL-PENTAN-3-ONE</b>   |  | 17             |               |
| 2- or 3- Chloropropanoic acid  | <b>2- OR 3-CHLOROPROPIONIC ACID</b>                                    | 17             |               |
| 3-Chloropropene  | <b>ALLYL CHLORIDE</b>  | 17             |               |
| <b>2- OR 3-CHLOROPROPIONIC ACID</b>  |  | 17             | 2511          |
| alpha- or beta- Chloropropionic acid   | <b>2- OR 3-CHLOROPROPIONIC ACID</b>                                    | 17             |               |
| 3-Chloropropylene  | <b>ALLYL CHLORIDE</b>  | 17             |               |
| alpha-Chloropropylene  | <b>ALLYL CHLORIDE</b>  | 17             |               |
| Chloropropylene oxide  | <b>EPICHLOROHYDRIN</b>   | 17             |               |
| <b>CHLOROSULPHONIC ACID</b>  |  | 17             | 1754          |
| Chlorosulphuric acid   | <b>CHLOROSULPHONIC ACID</b>  | 17             |               |
| 3-Chlorotoluene  | <b>M-CHLOROTOLUENE</b>   | 17             |               |
| 4-Chlorotoluene  | <b>P-CHLOROTOLUENE</b>   | 17             |               |
| <b>M-CHLOROTOLUENE</b>   |  | 17             | 2238          |

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| <b>O-CHLOROTOLUENE</b>                                |  | 17             | 2238          |
| <b>P-CHLOROTOLUENE</b>                                |  | 17             | 2238          |
| <b>CHLOROTOLUENES (MIXED ISOMERS)</b>                 |  | 17             | 2238          |
| <b>CHOLINE CHLORIDE SOLUTIONS</b>                     |  | 17             |               |
| Cinene  | <b>DIPENTENE</b>                           | 17             |               |
| Cinnamene   | <b>STYRENE MONOMER</b>                     | 17             |               |
| Cinnamol  | <b>STYRENE MONOMER</b>                     | 17             |               |
| cis-Butenedioic anhydride                             | <b>MALEIC ANHYDRIDE</b>                    | 17             |               |
| cis-9-Octadecenoic acid                               | <b>OLEIC ACID</b>                          | 17             |               |
| cis-1,3-Pentadiene                                    | <b>1,3-PENTADIENE</b>                      | 17             |               |
| cis-trans-1,3-Pentadiene                              | <b>1,3-PENTADIENE</b>                      | 17             |               |
| <b>CITRIC ACID (70% OR LESS)</b>                      |  | 17             |               |
| <b>CLAY SLURRY</b>                                    |  | 18             |               |
| Cleaning solvents                                     | <b>WHITE SPIRIT, LOW (15-20%) AROMATIC</b> | 17             |               |
| <b>COAL SLURRY</b>                                    |  | 18             |               |
| <b>COAL TAR</b>                                       |  | 17             |               |
| Coal tar distillate                                   | <b>COAL TAR NAPHTHA SOLVENT</b>            | 17             |               |
| <b>COAL TAR NAPHTHA SOLVENT</b>                       |  | 17             |               |
| <b>COCONUT OIL</b>                                    |  | 17             |               |
| <b>COCONUT OIL FATTY ACID</b>                         |  | 17             |               |
| <b>COCONUT OIL FATTY ACID METHYL ESTER</b>            |  | 17             |               |
| Colamine  | <b>ETHANOLAMINE</b>                        | 17             |               |
| Cologne spirits                                       | <b>ETHYL ALCOHOL</b>                       | 18             |               |
| Colonial spirit                                       | <b>METHYL ALCOHOL</b>                      | 17             |               |
| Colophony   | <b>ROSIN</b>                               | 17             |               |
| Columbian spirit                                      | <b>METHYL ALCOHOL</b>                      | 17             |               |
| Columbian spirits                                     | <b>METHYL ALCOHOL</b>                      | 17             |               |
| <b>COPPER SALT OF LONG CHAIN (C17+) ALKANOIC ACID</b> |  | 17             |               |
| <b>CORN OIL</b>                                       |  | 17             |               |
| <b>COTTON SEED OIL</b>                                |  | 17             |               |
| Creosote salts  | <b>NAPHTHALENE (MOLTEN)</b>                | 17             |               |
| <b>CRESOLS (ALL ISOMERS)</b>                          |  | 17             | 2076          |
| <b>CRESYLIC ACID, DEPHENOLIZED</b>                    |  | 17             |               |
| Cresylic acids  | <b>CRESOLS (ALL ISOMERS)</b>               | 17             |               |
| <b>CRESYLIC ACID, SODIUM SALT SOLUTION</b>            |  | 17             |               |
| Cresylols   | <b>CRESOLS (ALL ISOMERS)</b>               | 17             |               |
| <b>CROTONALDEHYDE</b>                                 |  | 17             | 1143          |
| Crotonic aldehyde                                     | <b>CROTONALDEHYDE</b>                      | 17             |               |
| Cumene  | <b>PROPYLBENZENE (ALL ISOMERS)</b>         | 17             |               |
| Cumol   | <b>PROPYLBENZENE (ALL ISOMERS)</b>         | 17             |               |
| Cyanoethylene   | <b>ACRYLONITRILE</b>                       | 17             |               |
| 2-Cyano-2-propanol                                    | <b>ACETONE CYANOHYDRIN</b>                 | 17             |               |
| 2-Cyanopropan-2-ol                                    | <b>ACETONE CYANOHYDRIN</b>                 | 17             |               |
| 2-cyanopropene-1                                      | <b>METHACRYLONITRILE</b>                   | 17             |               |
| Cyclic propylene carbonate                            | <b>PROPYLENE CARBONATE</b>                 | 18             |               |
| <b>1,5,9-CYCLODODECATRIENE</b>                        |  | 17             |               |
| <b>CYCLOHEPTANE</b>                                   |  | 17             | 2241          |
| Cyclohexamethylenimine                                | <b>HEXAMETHYLENEIMINE</b>                  | 17             |               |
| <b>CYCLOHEXANE</b>                                    |  | 17             | 1145          |
| <b>CYCLOHEXANOL</b>                                   |  | 17             |               |
| <b>CYCLOHEXANONE</b>                                  |  | 17             | 1915          |

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| <b>CYCLOHEXANONE, CYCLOHEXANOL MIXTURE</b>    |  | 17             |               |
| Cyclohexatriene                               | <b>BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)</b> | 17             |               |
| <b>CYCLOHEXYL ACETATE</b>                     |  | 17             | 2243          |
| <b>CYCLOHEXYLAMINE</b>                        |  | 17             | 2357          |
| Cyclohexyldimethylamine                       | <b>N,N-DIMETHYLCYCLOHEXYLAMINE</b>                         | 17             |               |
| Cyclohexyl(ethyl)amine                        | <b>N-ETHYLCYCLOHEXYLAMINE</b>                              | 17             |               |
| Cyclohexyl ketone                             | <b>CYCLOHEXANONE</b>                                       | 17             |               |
| Cyclohexylmethane                             | <b>METHYLCYCLOHEXANE</b>                                   | 17             |               |
| <b>1,3-CYCLOPENTADIENE DIMER (MOLTEN)</b>     |  | 17             |               |
| <b>CYCLOPENTANE</b>                           |  | 17             | 1146          |
| <b>CYCLOPENTENE</b>                           |  | 17             | 2246          |
| Cyclotetramethylene oxide                     | <b>TETRAHYDROFURAN</b>                                     | 17             |               |
| <b>P-CYMENE</b>                               |  | 17             | 2046          |
| Cymol   | <b>P-CYMENE</b>  | 17             |               |
| Dalapon (ISO)                                 | <b>2,2-DICHLOROPROPIONIC ACID</b>                          | 17             |               |
| Deanol  | <b>DIMETHYLETHANOLAMINE</b>                                | 17             |               |
| <b>DECAHYDRONAPHTHALENE</b>                   |  | 17             |               |
| <b>DECANOIC ACID</b>                          |  | 17             |               |
| Decan-1-ol                                    | <b>DECYL ALCOHOL (ALL ISOMERS)</b>                         | 17             |               |
| n-Decanol                                     | <b>DECYL ALCOHOL (ALL ISOMERS)</b>                         | 17             |               |
| <b>DECENE</b>                                 |  | 17             |               |
| Decoic acid                                   | <b>DECANOIC ACID</b>                                       | 17             |               |
| <b>DECYL ACRYLATE</b>                         |  | 17             |               |
| Decyl alcohol                                 | <b>DECYL ALCOHOL (ALL ISOMERS)</b>                         | 17             |               |
| <b>DECYL ALCOHOL (ALL ISOMERS)</b>            |  | 17             |               |
| Decylbenzene                                  | <b>ALKYL(C9+)BENZENES</b>                                  | 17             |               |
| Decylic acid                                  | <b>DECANOIC ACID</b>                                       | 17             |               |
| Decyl octyl adipate                           | <b>OCTYL DECYL ADIPATE</b>                                 | 17             |               |
| <b>DECYLOXYTETRAHYDROTHIOPHENE DIOXIDE</b>    |  | 17             |               |
| 1-Deoxy-1-methylamino-D-glucitol              | <b>N-METHYLGLUCAMINE SOLUTION (70% OR LESS)</b>            | 18             |               |
| Detergent alkylate                            | <b>ALKYL(C9+)BENZENES</b>                                  | 17             |               |
| Diacetic ester                                | <b>ETHYL ACETOACETATE</b>                                  | 17             |               |
| Diacetone                                     | <b>DIACETONE ALCOHOL</b>                                   | 17             |               |
| <b>DIACETONE ALCOHOL</b>                      |  | 17             |               |
| Di[alkyl/alkenyl(C10-C20)] hydrogen phosphite | <b>ALKYL(C10-C20, SATURATED AND UNSATURATED) PHOSPHITE</b> | 17             |               |
| <b>DIALKYL (C8-C9) DIPHENYLAMINES</b>         |  | 17             |               |
| <b>DIALKYL (C7-C13) PHTHALATES</b>            |  | 17             |               |
| 1,2-Diaminoethane                             | <b>ETHYLENEDIAMINE</b>                                     | 17             |               |
| 1,6-Diaminohexane                             | <b>HEXAMETHYLENEDIAMINE (MOLTEN)</b>                       | 17             |               |
| 1,6-Diaminohexane solutions                   | <b>HEXAMETHYLENEDIAMINE SOLUTION</b>                       | 17             |               |
| 2,6-Diaminohexanioc acid                      | <b>L-LYSINE SOLUTION (60% OR LESS)</b>                     | 17             |               |
| Diaminotoluene                                | <b>TOLUENEDIAMINE</b>                                      | 17             |               |
| 2,4-Diaminotoluene                            | <b>TOLUENEDIAMINE</b>                                      | 17             |               |
| 2,6-Diaminotoluene                            | <b>TOLUENEDIAMINE</b>                                      | 17             |               |
| 4,6-Diamino-3,5,5-trimethylcyclohex-2-enone   | <b>ISOPHORONEDIAMINE</b>                                   | 17             |               |
| 3,6-Diazaoctane-1,8-diamine                   | <b>TRIETHYLENETETRAMINE</b>                                | 17             |               |
| 1,2-Dibromoethane                             | <b>ETHYLENE DIBROMIDE</b>                                  | 17             |               |
| <b>DIBROMOMETHANE</b>                         |  | 17             |               |
| <b>DIBUTYLAMINE</b>                           |  | 17             |               |



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| Dibutylbenzene-1,2-dicarboxylate   | <b>DIBUTYL PHTHALATE</b>                        | 17             |               |
| Dibutyl carbinol   | <b>NONYL ALCOHOL (ALL ISOMERS)</b>              | 17             |               |
| Dibutyl ether  | <b>N-BUTYL ETHER</b>                            | 17             |               |
| n-Dibutyl ether  | <b>N-BUTYL ETHER</b>                            | 17             |               |
| Dibutyl hydrogen phosphite   | <b>DIBUTYL HYDROGEN PHOSPHATE</b>               | 17             |               |
| <b>DIBUTYL HYDROGEN PHOSPHATE</b>  |   | 17             |               |
| <b>2,6-DI-TERT-BUTYLPHENOL</b>   |   | 17             |               |
| Dibutyl phosphonate  | <b>DIBUTYL HYDROGEN PHOSPHATE</b>               | 17             |               |
| <b>DIBUTYL PHTHALATE</b>   |   | 17             |               |
| Dibutyl ortho-phthalate  | <b>DIBUTYL PHTHALATE</b>                        | 17             |               |
| <b>DICHLOROBENZENE (ALL ISOMERS)</b>   |   | 17             |               |
| 1,2-Dichlorobenzene  | <b>DICHLOROBENZENE (ALL ISOMERS)</b>            | 17             |               |
| m-Dichlorobenzene  | <b>DICHLOROBENZENE (ALL ISOMERS)</b>            | 17             |               |
| o-Dichlorobenzene  | <b>DICHLOROBENZENE (ALL ISOMERS)</b>            | 17             |               |
| <b>3,4-DICHLORO-1-BUTENE</b>   |   | 17             |               |
| 3,4-Dichlorobut-1-ene  | <b>3,4-DICHLORO-1-BUTENE</b>                    | 17             |               |
| 2,2'-Dichlorodiethyl ether   | <b>DICHLOROETHYL ETHER</b>                      | 17             |               |
| Dichlorodiisopropyl ether  | <b>2,2'-DICHLOROISOPROPYL ETHER</b>             | 17             |               |
| <b>1,1-DICHLOROETHANE</b>  |   | 17             | 2362          |
| 1,2-Dichloroethane   | <b>ETHYLENE DICHLORIDE</b>                      | 17             |               |
| 1,1-Dichloroethene   | <b>VINYLDENE CHLORIDE</b>                       | 17             |               |
| Dichloroether  | <b>DICHLOROETHYL ETHER</b>                      | 17             |               |
| 1,1-Dichloroethylene   | <b>VINYLDENE CHLORIDE</b>                       | 17             |               |
| <b>DICHLOROETHYL ETHER</b>   |   | 17             | 1916          |
| 2,2'-Dichloroethyl ether   | <b>DICHLOROETHYL ETHER</b>                      | 17             |               |
| Dichloroethyl oxide  | <b>DICHLOROETHYL ETHER</b>                      | 17             |               |
| <b>1,6-DICHLOROHEXANE</b>  |   | 17             |               |
| <b>2,2'-DICHLOROISOPROPYL ETHER</b>  |   | 17             | 2490          |
| <b>DICHLOROMETHANE</b>   |   | 17             | 1593          |
| <b>2,4-DICHLOROPHENOL</b>  |   | 17             | 2021          |
| <b>2,4-DICHLOROPHENOXYACETIC ACID, DIETHANOLAMINE SALT SOLUTION</b>              |   | 17             |               |
| <b>2,4-DICHLOROPHENOXYACETIC ACID, DIMETHYLAMINE SALT SOLUTION (70% OR LESS)</b> |   | 17             |               |
| <b>2,4-DICHLOROPHENOXYACETIC ACID, TRISOPROPANOLAMINE SALT SOLUTION</b>          |   | 17             |               |
| <b>1,1-DICHLOROPROPANE</b>   |   | 17             |               |
| <b>1,2-DICHLOROPROPANE</b>   |   | 17             | 1279          |
| Dichloropropane / dichloropropene mixtures                                       | <b>DICHLOROPROPENE/DICHLOROPROPANE MIXTURES</b> | 17             |               |
| 2,2-Dichloropropanoic acid   | <b>2,2-DICHLOROPROPIONIC ACID</b>               | 17             |               |
| <b>1,3-DICHLOROPROPENE</b>   |   | 17             | 2047          |
| <b>DICHLOROPROPENE/DICHLOROPROPANE MIXTURES</b>                                  |   | 17             |               |
| <b>2,2-DICHLOROPROPIONIC ACID</b>  |   | 17             |               |
| Dichloropropylene  | <b>1,3-DICHLOROPROPENE</b>                      | 17             |               |
| 1,4-Dicyanobutane  | <b>ADIPONITRILE</b>                             | 17             |               |
| Dicyclopentadiene  | <b>1,3-CYCLOPENTADIENE DIMER (MOLTEN)</b>       | 17             |               |
| Didecyl phthalate  | <b>DIALKYL (C7-C13) PHTHALATES</b>              | 17             |               |
| Didodecyl phthalate  | <b>DIALKYL (C7-C13) PHTHALATES</b>              | 17             |               |
| <b>DIETHANOLAMINE</b>  |   | 17             |               |
| <b>DIETHYLAMINE</b>  |   | 17             | 1154          |
| <b>DIETHYLAMINOETHANOL</b>   |   | 17             | 2686          |

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| 2-Diethylaminoethanol  | DIETHYLAMINOETHANOL                                      | 17             |               |
| <b>2,6-DIETHYLANILINE</b>  |  | 17             |               |
| <b>DIETHYLBENZENE</b>  |  | 17             | 2049          |
| Diethylcarbitol  | DIETHYLENE GLYCOL DIETHYL ETHER                          | 17             |               |
| Diethyl 'carbitol'   | DIETHYLENE GLYCOL DIETHYL ETHER                          | 17             |               |
| 1,4-Diethylene dioxide   | 1,4-DIOXANE  | 17             |               |
| Diethylene ether   | 1,4-DIOXANE  | 17             |               |
| <b>DIETHYLENE GLYCOL</b>   |  | 18             |               |
| Diethylene glycol butyl ether  | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Diethylene glycol butyl ether acetate                                | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| <b>DIETHYLENE GLYCOL DIETHYL ETHER</b>                               |  | 17             |               |
| Diethylene glycol ethyl ether  | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Diethylene glycol ethyl ether acetate                                | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| Diethylene glycol methyl ether                                       | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Diethylene glycol methyl ether acetate                               | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| Diethylene glycol monobutyl ether                                    | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Diethylene glycol monobutyl ether acetate                            | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| Diethylene glycol monoethyl ether                                    | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Diethylene glycol monoethyl ether acetate                            | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| Diethylene glycol monomethyl ether                                   | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Diethylene glycol monomethyl ether acetate                           | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| <b>DIETHYLENE GLYCOL PHTHALATE</b>                                   |  | 17             |               |
| Diethylene oxide   | 1,4-DIOXANE  | 17             |               |
| <b>DIETHYLENETRIAMINE</b>  |  | 17             | 2079          |
| <b>DIETHYLENETRIAMINEPENTAACETIC ACID, PENTASODIUM SALT SOLUTION</b> |  | 17             |               |
| N,N-Diethylethanamine  | TRIETHYLAMINE  | 17             |               |
| Diethylethanamine  | DIETHYLAMINOETHANOL                                      | 17             |               |
| N,N-Diethylethanamine  | DIETHYLAMINOETHANOL                                      | 17             |               |
| <b>DIETHYL ETHER</b>   |  | 17             | 1155          |
| N,N-Diethylethylamine  | TRIETHYLAMINE  | 17             |               |
| <b>DI-(2-ETHYLHEXYL) ADIPATE</b>                                     |  | 17             |               |
| <b>DI-(2-ETHYLHEXYL) PHOSPHORIC ACID</b>                             |  | 17             | 1902          |
| Diethyl oxide  | DIETHYL ETHER  | 17             |               |
| <b>DIETHYL PHTHALATE</b>   |  | 17             |               |
| <b>DIETHYL SULPHATE</b>  |  | 17             | 1594          |
| Diformyl   | GLYOXAL SOLUTION (40% OR LESS)                           | 17             |               |
| <b>DIGLYCIDYL ETHER OF BISPHENOL A</b>                               |  | 17             |               |
| <b>DIGLYCIDYL ETHER OF BISPHENOL F</b>                               |  | 17             |               |
| Diglycol   | DIETHYLENE GLYCOL  | 18             |               |
| Diglycolamine  | 2-(2-AMINOETHOXY) ETHANOL                                | 17             |               |
| Diglycol phthalate   | DIETHYLENE GLYCOL PHTHALATE                              | 17             |               |
| <b>DIHEPTYL PHTHALATE</b>  |  | 17             |               |
| Dihexyl  | DODECANE (ALL ISOMERS)                                   | 17             |               |
| <b>DI-N-HEXYL ADIPATE</b>  |  | 17             |               |
| <b>DIHEXYL PHTHALATE</b>   |  | 17             |               |
| 1,3-Dihydroisobenzofuran-1,3-dione                                   | PHTHALIC ANHYDRIDE (MOLTEN)                              | 17             |               |
| 2,3-Dihydroxybutane  | BUTYLENE GLYCOL  | 17             |               |
| 2,2'-Dihydroxydiethylamine   | DIETHANOLAMINE   | 17             |               |

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| Di-(2-hydroxyethyl)amine  | <b>DIETHANOLAMINE</b>              | 17             |               |
| Dihydroxyethyl ether  | <b>DIETHYLENE GLYCOL</b>           | 18             |               |
| Dihydroxyhexane   | <b>HEXAMETHYLENE GLYCOL</b>        | 17             |               |
| 1,2-Dihydroxypropane  | <b>PROPYLENE GLYCOL</b>            | 18             |               |
| Diisobutene   | <b>DIISOBUTYLENE</b>               | 17             |               |
| <b>DIISOBUTYLAMINE</b>  |                                    | 17             | 2361          |
| Diisobutylcarbinol  | <b>NONYL ALCOHOL (ALL ISOMERS)</b> | 17             |               |
| <b>DIISOBUTYLENE</b>  |                                    | 17             | 2050          |
| alpha-Diisobutylene   | <b>DIISOBUTYLENE</b>               | 17             |               |
| beta-Diisobutylene  | <b>DIISOBUTYLENE</b>               | 17             |               |
| <b>DIISOBUTYL KETONE</b>  |                                    | 17             |               |
| <b>DIISOBUTYL PHTHALATE</b>   |                                    | 17             |               |
| 2,4-diisocyanato-1-methylbenzene  | <b>TOLUENE DIISOCYANATE</b>        | 17             |               |
| 2,4-Diisocyanatotoluene   | <b>TOLUENE DIISOCYANATE</b>        | 17             |               |
| Diisodecyl phthalate  | <b>DIALKYL (C7-C13) PHTHALATES</b> | 17             |               |
| <b>DIISONONYL ADIPATE</b>   |                                    | 17             |               |
| Diisononyl phthalate  | <b>DIALKYL (C7-C13) PHTHALATES</b> | 17             |               |
| <b>DIISOCTYL PHTHALATE</b>  |                                    | 17             |               |
| <b>DIISOPROPANOLAMINE</b>   |                                    | 17             |               |
| Diisopropylacetone  | <b>DIISOBUTYL KETONE</b>           | 17             |               |
| <b>DIISOPROPYLAMINE</b>   |                                    | 17             | 1158          |
| <b>DIISOPROPYLBENZENE (ALL ISOMERS)</b>                                   |                                    | 17             |               |
| Diisopropyl ether   | <b>ISOPROPYL ETHER</b>             | 17             |               |
| <b>DIISOPROPYLNAPHTHALENE</b>   |                                    | 17             | 3082          |
| Diisopropyl oxide   | <b>ISOPROPYL ETHER</b>             | 17             |               |
| <b>N,N-DIMETHYLACETAMIDE</b>  |                                    | 17             |               |
| <b>N,N-DIMETHYLACETAMIDE SOLUTION (40% OR LESS)</b>                       |                                    | 17             |               |
| Dimethylacetylene carbinol  | <b>2-METHYL-2-HYDROXY-3-BUTYNE</b> | 17             |               |
| <b>DIMETHYL ADIPATE</b>   |                                    | 17             |               |
| <b>DIMETHYLAMINE SOLUTION (45% OR LESS)</b>                               |                                    | 17             | 1160          |
| <b>DIMETHYLAMINE SOLUTION (GREATER THAN 45% BUT NOT GREATER THAN 55%)</b> |                                    | 17             | 1160          |
| <b>DIMETHYLAMINE SOLUTION (GREATER THAN 55% BUT NOT GREATER THAN 65%)</b> |                                    | 17             | 1160          |
| Dimethylaminoethanol  | <b>DIMETHYLETHANOLAMINE</b>        | 17             |               |
| 2-Dimethylaminoethanol  | <b>DIMETHYLETHANOLAMINE</b>        | 17             |               |
| Dimethylbenzenes  | <b>XYLENES</b>                     | 17             |               |
| 1,3-Dimethylbutanol   | <b>METHYLAMYL ALCOHOL</b>          | 17             |               |
| 1,3-Dimethylbutan-1-ol  | <b>METHYLAMYL ALCOHOL</b>          | 17             |               |
| 1,3-Dimethylbutyl acetate   | <b>METHYLAMYL ACETATE</b>          | 17             |               |
| Dimethylcarbinol  | <b>ISOPROPYL ALCOHOL</b>           | 18             |               |
| <b>N,N-DIMETHYLCYCLOHEXYLAMINE</b>  |                                    | 17             | 2264          |
| <b>DIMETHYL DISULPHIDE</b>  |                                    | 17             | 2381          |
| N,N-Dimethyldodecanamine  | <b>ALKYL (C12+) DIMETHYLAMINE</b>  | 17             |               |
| N,N-Dimethyldodecan-1-amine   | <b>N,N-DIMETHYLDODECYLAMINE</b>    | 17             |               |
| <b>N,N-DIMETHYLDODECYLAMINE</b>   |                                    | 17             |               |
| 1,1-Dimethylethanol   | <b>TERT-BUTYL ALCOHOL</b>          | 17             |               |
| <b>DIMETHYLETHANOLAMINE</b>   |                                    | 17             | 2051          |
| 1,1-Dimethylethyl alcohol   | <b>TERT-BUTYL ALCOHOL</b>          | 17             |               |
| Dimethyl ethyl carbinol   | <b>TERT-AMYL ALCOHOL</b>           | 17             |               |
| 1,1-dimethylethyl methyl ether  | <b>METHYL TERT-BUTYL ETHER</b>     | 17             |               |
| Dimethyl formaldehyde   | <b>ACETONE</b>                     | 18             |               |

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| <b>DIMETHYLFORMAMIDE</b>  |   | 17             | 2265          |
| <b>DIMETHYL GLUTARATE</b>   |   | 17             |               |
| 2,6-Dimethyl-4-heptanone  | <b>DIISOBUTYL KETONE</b>  | 17             |               |
| 2,6-Dimethylheptan-4-one  | <b>DIISOBUTYL KETONE</b>  | 17             |               |
| N,N-Dimethylhexanamine  | <b>ALKYL (C12+) DIMETHYLAMINE</b>                                   | 17             |               |
| <b>DIMETHYL HYDROGEN PHOSPHITE</b>  |   | 17             |               |
| Dimethylhydroxybenzenes   | <b>XYLENOL</b>  | 17             |               |
| 1,1'-Dimethyl-2,2'-iminodiethanol   | <b>DIISOPROPANOLAMINE</b>   | 17             |               |
| Dimethyl ketal  | <b>ACETONE</b>  | 18             |               |
| Dimethyl ketone   | <b>ACETONE</b>  | 18             |               |
| Dimethyl laurylamine  | <b>N,N-DIMETHYLDODECYLAMINE</b>                                     | 17             |               |
| N,N-Dimethylmethanamine   | <b>TRIMETHYLAMINE SOLUTION (30% OR LESS)</b>                        | 17             |               |
| N,N-Dimethylmethylamine   | <b>TRIMETHYLAMINE SOLUTION (30% OR LESS)</b>                        | 17             |               |
| 6,6-Dimethyl-2-methylenebicyclo[3.1.1]heptane   | <b>BETA-PINENE</b>  | 17             |               |
| <b>DIMETHYL OCTANOIC ACID</b>   |   | 17             |               |
| 2,2-Dimethyloctanoic acid   | <b>NEODECANOIC ACID</b>   | 17             |               |
| 2,3-Dimethylphenol  | <b>XYLENOL</b>  | 17             |               |
| 2,4-Dimethylphenol  | <b>XYLENOL</b>  | 17             |               |
| 2,5-Dimethylphenol  | <b>XYLENOL</b>  | 17             |               |
| 2,6-Dimethylphenol  | <b>XYLENOL</b>  | 17             |               |
| 3,4-Dimethylphenol  | <b>XYLENOL</b>  | 17             |               |
| 3,5-Dimethylphenol  | <b>XYLENOL</b>  | 17             |               |
| Dimethylphenols   | <b>XYLENOL</b>  | 17             |               |
| Dimethylphenyl phosphate (3:1)  | <b>TRIXYLYL PHOSPHATE</b>   | 17             |               |
| <b>DIMETHYL PHTHALATE</b>   |   | 17             |               |
| <b>DIMETHYLPOLYSILOXANE</b>   |   | 17             |               |
| 2,2-Dimethylpropane   | <b>PENTANE (ALL ISOMERS)</b>  | 17             |               |
| <b>2,2-DIMETHYLPROPANE-1,3-DIOL (MOLTEN OR SOLUTION)</b>                                      |   | 17             |               |
| 2,2-Dimethylpropanoic acid  | <b>TRIMETHYLACETIC ACID</b>   | 17             |               |
| 1,1-Dimethylpropargyl alcohol   | <b>2-METHYL-2-HYDROXY-3-BUTYNE</b>                                  | 17             |               |
| 2,2-Dimethylpropionic acid  | <b>TRIMETHYLACETIC ACID</b>   | 17             |               |
| 1,1-Dimethylpropynol  | <b>2-METHYL-2-HYDROXY-3-BUTYNE</b>                                  | 17             |               |
| <b>DIMETHYL SUCCINATE</b>   |   | 17             |               |
| N,N-Dimethyltetradecanamine   | <b>ALKYL (C12+) DIMETHYLAMINE</b>                                   | 17             |               |
| Dimethyltetradecylamine   | <b>ALKYL (C12+) DIMETHYLAMINE</b>                                   | 17             |               |
| dimethyl-p-tolyloxy}poly[oxy-p-phenyleneisopropylidene-p-phenyleneoxy(2-hydroxytrimethylene)] | <b>DIGLYCIDYL ETHER OF BISPHENOL A</b>                              | 17             |               |
| 3,9-Dimethyltricyclo[5.2.1.0;2,6]deca-3,8-diene   | <b>METHYLCYCLOPENTADIENE DIMER</b>                                  | 17             |               |
| Dimethyltrimethylene glycol   | <b>2,2-DIMETHYLPROPANE-1,3-DIOL (MOLTEN OR SOLUTION)</b>            | 17             |               |
| Dimetylacetamide acetate  | <b>N,N-DIMETHYLACETAMIDE</b>  | 17             |               |
| <b>DINITROTOLUENE (MOLTEN)</b>  |   | 17             | 1600          |
| Dinonyl phthalate   | <b>DIALKYL (C7-C13) PHTHALATES</b>                                  | 17             |               |
| <b>DINONYL PHTHALATE</b>  |   | 17             |               |
| 3,6-Dioxaooctane-1,8-diol   | <b>TRIETHYLENE GLYCOL</b>   | 18             |               |
| Diocetyl adipate  | <b>DI-(2-ETHYLHEXYL) ADIPATE</b>                                    | 17             |               |
| Diocetyl hydrogen phosphate   | <b>DI-(2-ETHYLHEXYL) PHOSPHORIC ACID</b>                            | 17             |               |
| Diocetyl phosphoric acid  | <b>DI-(2-ETHYLHEXYL) PHOSPHORIC ACID</b>                            | 17             |               |
| <b>DIOCTYL PHTHALATE</b>  |   | 17             |               |
| 2,4-D-diolamine   | <b>2,4-DICHLOROPHENOXYACETIC ACID, DIETHANOLAMINE SALT SOLUTION</b> | 17             |               |
| 1,4-Dioxan  | <b>1,4-DIOXANE</b>  | 17             |               |
| <b>1,4-DIOXANE</b>  |   | 17             | 1165          |

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| Dioxolanone  | <b>PROPYLENE CARBONATE</b>                             | 18             |               |
| 1,3-Dioxolan-2-one   | <b>ETHYLENE CARBONATE</b>                              | 18             |               |
| Dioxolone-2  | <b>ETHYLENE CARBONATE</b>                              | 18             |               |
| 1,1-Dioxothiolan   | <b>SULPHOLANE</b>                                      | 17             |               |
| Dioxyethylene ether  | <b>1,4-DIOXANE</b>                                     | 17             |               |
| <b>DIPENTENE</b>   |  | 17             | 2052          |
| <b>DIPHENYL</b>  |  | 17             |               |
| <b>DIPHENYLAMINE (MOLTEN)</b>                                      |  | 17             |               |
| <b>DIPHENYLAMINE, REACTION PRODUCT WITH 2,2,4-TRIMETHYLPENTENE</b> |  | 17             |               |
| <b>DIPHENYLAMINES, ALKYLATED</b>                                   |  | 17             |               |
| <b>DIPHENYL/DIPHENYL ETHER MIXTURES</b>                            |  | 17             |               |
| Diphenyl/diphenyl oxide mixtures                                   | <b>DIPHENYL/DIPHENYL ETHER MIXTURES</b>                | 17             |               |
| Diphenyl dodecyl ether disulphonate solution                       | <b>DODECYL DIPHENYL ETHER DISULPHONATE SOLUTION</b>    | 17             |               |
| Diphenyl dodecyl oxide disulphonate solution                       | <b>DODECYL DIPHENYL ETHER DISULPHONATE SOLUTION</b>    | 17             |               |
| <b>DIPHENYL ETHER</b>  |  | 17             |               |
| <b>DIPHENYL ETHER/DIPHENYL PHENYL ETHER MIXTURE</b>                |  | 17             |               |
| <b>DIPHENYLMETHANE DIISOCYANATE</b>                                |  | 17             | 2489          |
| <b>DIPHENYLOL PROPANE-EPICHLOROHYDRIN RESINS</b>                   |  | 17             |               |
| Diphenyl oxide   | <b>DIPHENYL ETHER</b>                                  | 17             |               |
| Diphenyl oxide / diphenyl phenyl ether mixture                     | <b>DIPHENYL ETHER/DIPHENYL PHENYL ETHER MIXTURE</b>    | 17             |               |
| Dipropylamine  | <b>DI-N-PROPYLAMINE</b>                                | 17             |               |
| <b>DI-N-PROPYLAMINE</b>  |  | 17             | 2383          |
| n-Dipropylamine  | <b>DI-N-PROPYLAMINE</b>                                | 17             |               |
| <b>DIPROPYLENE GLYCOL</b>  |  | 17             |               |
| Dipropylene glycol methyl ether                                    | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b> | 17             |               |
| Dipropylene glycol monomethyl ether                                | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b> | 17             |               |
| Disodium carbonate   | <b>SODIUM CARBONATE SOLUTION</b>                       | 17             |               |
| Distillates (Petroleum), Steam Cracked, C8 - C12 Fraction          | <b>DISTILLED RESIN OIL</b>                             | 17             |               |
| <b>DISTILLED RESIN OIL</b>   |  | 17             |               |
| <b>DITHIOCARBAMATE ESTER (C7-C35)</b>                              |  | 17             |               |
| <b>DITRIDECYL ADIPATE</b>  |  | 17             |               |
| Ditridecyl adipate   | <b>DITRIDECYL ADIPATE</b>                              | 17             |               |
| <b>DITRIDECYL PHTHALATE</b>  |  | 17             |               |
| <b>DIUNDECYL PHTHALATE</b>   |  | 17             |               |
| dl-Lactic acid   | <b>LACTIC ACID</b>                                     | 17             |               |
| dl-p-Mentha-1,8-diene  | <b>DIPENTENE</b>                                       | 17             |               |
| Docosan-1-ol   | <b>ALCOHOLS (C13+)</b>                                 | 17             |               |
| 1-Docosanol  | <b>ALCOHOLS (C13+)</b>                                 | 17             |               |
| <b>DODECANE (ALL ISOMERS)</b>                                      |  | 17             |               |
| <b>TERT-DODECANETHIOL</b>  |  | 17             |               |
| Dodecanoic acid  | <b>LAURIC ACID</b>                                     | 17             |               |
| Dodecan-1-ol   | <b>DODECYL ALCOHOL</b>                                 | 17             |               |
| 1-Dodecanol  | <b>DODECYL ALCOHOL</b>                                 | 17             |               |
| n-Dodecanol  | <b>DODECYL ALCOHOL</b>                                 | 17             |               |
| <b>DODECENE (ALL ISOMERS)</b>                                      |  | 17             |               |
| <b>DODECYL ALCOHOL</b>   |  | 17             |               |
| n-Dodecyl alcohol  | <b>DODECYL ALCOHOL</b>                                 | 17             |               |
| <b>DODECYLAMINE/TETRADECYLAMINE MIXTURE</b>                        |  | 17             |               |
| <b>DODECYLBENZENE</b>  |  | 17             |               |

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| Dodecylbenzenesulphonic acid (contains 1.5% sulphuric acid)   | <b>ALKYL (C11-C17) BENZENE SULPHONIC ACID</b>       | 17             |               |
| Dodecyldimethylamine  | <b>ALKYL (C12+) DIMETHYLAMINE</b>                   | 17             |               |
| <b>DODECYL DIPHENYL ETHER DISULPHONATE SOLUTION</b>   |   | 17             |               |
| Dodecyl diphenyl oxide disulphonate solution  | <b>DODECYL DIPHENYL ETHER DISULPHONATE SOLUTION</b> | 17             |               |
| Dodecylene  | <b>DODECENE (ALL ISOMERS)</b>                       | 17             |               |
| <b>DODECYL HYDROXYPROPYL SULPHIDE</b>   |   | 17             |               |
| Dodecylic acid  | <b>LAURIC ACID</b>                                  | 17             |               |
| tert-Dodecyl mercaptan  | <b>TERT-DODECANETHIOL</b>                           | 17             |               |
| <b>DODECYL METHACRYLATE</b>   |   | 17             |               |
| Dodecyl-2-methyl-2-propenoate   | <b>DODECYL METHACRYLATE</b>                         | 17             |               |
| Dodecyl-2-methylprop-2-enoate   | <b>DODECYL METHACRYLATE</b>                         | 17             |               |
| <b>DODECYL/OCTADECYL METHACRYLATE (MIXTURE)</b>   |   | 17             |               |
| <b>DODECYL/PENTADECYL METHACRYLATE MIXTURE</b>  |   | 17             |               |
| <b>DODECYL PHENOL</b>   |   | 17             |               |
| 2-Dodecylthio-1-methylethanol   | <b>DODECYL HYDROXYPROPYL SULPHIDE</b>               | 17             |               |
| 1-Dodecylthioprop-2-ol  | <b>DODECYL HYDROXYPROPYL SULPHIDE</b>               | 17             |               |
| <b>DODECYL XYLENE</b>   |   | 17             |               |
| Drilling brine: potassium chloride solution   | <b>POTASSIUM CHLORIDE SOLUTION (10% OR MORE)</b>    | 17             |               |
| <b>DRILLING BRINES (CONTAINING ZINC SALTS)</b>  |   | 17             |               |
| <b>DRILLING BRINES, INCLUDING: CALCIUM BROMIDE SOLUTION, CALCIUM CHLORIDE SOLUTION AND SODIUM CHLORIDE SOLUTION</b> |   | 17             |               |
| Dutch liquid  | <b>ETHYLENE DICHLORIDE</b>                          | 17             |               |
| Dutch oil   | <b>ETHYLENE DICHLORIDE</b>                          | 17             |               |
| (E)-But-2-enal  | <b>CROTONALDEHYDE</b>                               | 17             |               |
| Enanthic acid   | <b>N-HEPTANOIC ACID</b>                             | 17             |               |
| Enanthyl alcohol  | <b>HEPTANOL (ALL ISOMERS) (D)</b>                   | 17             |               |
| Enanthylic acid   | <b>N-HEPTANOIC ACID</b>                             | 17             |               |
| Engravers' acid   | <b>NITRIC ACID (70% AND OVER)</b>                   | 17             |               |
| E-1,3-Pentadiene  | <b>1,3-PENTADIENE</b>                               | 17             |               |
| <b>EPICHLOROHYDRIN</b>  |   | 17             | 2023          |
| 1,2-Epoxybutane   | <b>1,2-BUTYLENE OXIDE</b>                           | 17             |               |
| 1,4-epoxybutane   | <b>TETRAHYDROFURAN</b>                              | 17             |               |
| 1,2-Epoxypropane  | <b>PROPYLENE OXIDE</b>                              | 17             |               |
| 2,3-Epoxy propyl ester of mixed trialkyl acetic acids   | <b>GLYCIDYL ESTER OF C10 TRIALKYLACETIC ACID</b>    | 17             |               |
| 2,3-Epoxypropyl neodecanoate  | <b>GLYCIDYL ESTER OF C10 TRIALKYLACETIC ACID</b>    | 17             |               |
| alpha-2,3-epoxypropyl-omega-{alpha-[4-(2,3-epoxypropoxy)phenyl]-p-tolyloxy}=  | <b>DIGLYCIDYL ETHER OF BISPHENOL F</b>              | 17             |               |
| alpha-2,3-epoxypropyl-omega-{alpha-[4-(2,3-epoxypropyl)phenyl]-alpha.alpha-EPTC                                     | <b>DIGLYCIDYL ETHER OF BISPHENOL A</b>              | 17             |               |
| Essence of Mirbane  | <b>S-ETHYL DIPROPYLTHIOCARBAMATE</b>                | 17             |               |
| Essence of Myrbane  | <b>NITROBENZENE</b>                                 | 17             |               |
| Ethanamine solutions, 72% or less   | <b>NITROBENZENE</b>                                 | 17             |               |
| Ethancarbonitrile   | <b>ETHYLAMINE SOLUTIONS (72% OR LESS)</b>           | 17             |               |
| Ethanedial  | <b>PROPIONITRILE</b>                                | 17             |               |
| 1,2-Ethanediol  | <b>GLYOXAL SOLUTION (40% OR LESS)</b>               | 17             |               |
| Ethanoic acid   | <b>ETHYLENE GLYCOL</b>                              | 17             |               |
|   | <b>ACETIC ACID</b>                                  | 17             |               |

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| Ethanoic anhydride  | ACETIC ANHYDRIDE   | 17             |               |
| Ethanol   | ETHYL ALCOHOL  | 18             |               |
| <b>ETHANOLAMINE</b>   |  | 17             | 2491          |
| ethenyl acetate   | VINYL ACETATE  | 17             |               |
| ethenyl ethanoate   | VINYL ACETATE  | 17             |               |
| Ether   | DIETHYL ETHER  | 17             |               |
| Ethynyl trichloride   | TRICHLOROETHYLENE  | 17             |               |
| 2-Ethoxyethanol   | ETHYLENE GLYCOL MONOALKYL ETHERS                           | 17             |               |
| 2-(2-Ethoxyethoxy)ethanol   | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER            | 17             |               |
| 2-(2-Ethoxyethoxy)ethyl acetate                                   | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE   | 17             |               |
| <b>2-ETHOXYETHYL ACETATE</b>                                      |  | 17             | 1172          |
| <b>ETHOXYLATED LONG CHAIN (C16+)</b>                              |  | 17             |               |
| <b>ALKYLOXYALKYLAMINE</b>   |  |                |               |
| 2-Ethoxy-2-methylpropane  | ETHYL TERT-BUTYL ETHER                                     | 17             |               |
| 1-Ethoxypropan-2-ol   | PROPYLENE GLYCOL MONOALKYL ETHER                           | 17             |               |
| <b>ETHYL ACETATE</b>  |  | 17             |               |
| <b>ETHYL ACETOACETATE</b>   |  | 17             |               |
| Ethyl acetone   | METHYL PROPYL KETONE                                       | 18             |               |
| <b>ETHYL ACRYLATE</b>   |  | 17             | 1917          |
| <b>ETHYL ALCOHOL</b>  |  | 18             |               |
| <b>ETHYLAMINE</b>   |  | 17             | 1036          |
| <b>ETHYLAMINE SOLUTIONS (72% OR LESS)</b>                         |  | 17             | 2270          |
| Ethylaminocyclohexane   | N-ETHYLCYCLOHEXYLAMINE                                     | 17             |               |
| <b>ETHYLBENZENE</b>   |  | 17             | 1175          |
| Ethyl benzol  | ETHYLBENZENE   | 17             |               |
| <b>ETHYL TERT-BUTYL ETHER</b>                                     |  | 17             | 1993          |
| 2-Ethylcaproic acid   | 2-ETHYLHEXANOIC ACID                                       | 17             |               |
| Ethyl carbinol  | N-PROPYL ALCOHOL   | 17             |               |
| Ethyl cyanide   | PROPIONITRILE  | 17             |               |
| <b>ETHYLCYCLOHEXANE</b>   |  | 17             |               |
| Ethyl(cyclohexyl)amine  | N-ETHYLCYCLOHEXYLAMINE                                     | 17             |               |
| <b>N-ETHYLCYCLOHEXYLAMINE</b>                                     |  | 17             |               |
| Ethyldimethylmethane  | PENTANE (ALL ISOMERS)                                      | 17             |               |
| S-Ethyl dipropylcarbamoithoate                                    | S-ETHYL DIPROPYLTHIOCARBAMATE                              | 17             |               |
| S-Ethyl dipropyldithiocarbamate                                   | S-ETHYL DIPROPYLTHIOCARBAMATE                              | 17             |               |
| <b>S-ETHYL DIPROPYLTHIOCARBAMATE</b>                              |  | 17             |               |
| Ethylene alcohol  | ETHYLENE GLYCOL  | 17             |               |
| Ethylene bisiminodiacetic acid tetrasodium salt solution          | ETHYLENEDIAMINETETRAACETIC ACID, TETRASODIUM SALT SOLUTION | 17             |               |
| Ethylene bromide  | ETHYLENE DIBROMIDE   | 17             |               |
| <b>ETHYLENE CARBONATE</b>   |  | 18             |               |
| Ethylenecarboxylic acid   | ACRYLIC ACID   | 17             |               |
| Ethylene chloride   | ETHYLENE DICHLORIDE  | 17             |               |
| <b>ETHYLENE CHLOROHYDRIN</b>                                      |  | 17             | 1135          |
| <b>ETHYLENE CYANOHYDRIN</b>                                       |  | 17             |               |
| Ethylene diacetate  | ETHYLENE GLYCOL DIACETATE                                  | 17             |               |
| <b>ETHYLENEDIAMINE</b>  |  | 17             | 1604          |
| <b>ETHYLENEDIAMINETETRAACETIC ACID, TETRASODIUM SALT SOLUTION</b> |  | 17             |               |
| <b>ETHYLENE DIBROMIDE</b>   |  | 17             | 1605          |
| <b>ETHYLENE DICHLORIDE</b>  |  | 17             | 1184          |
| 2,2'-Ethylenedi-iminodi(ethylamine)                               | TRIEthyLENETETRAMINE                                       | 17             |               |

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| Ethylenedinitrilotetraacetic acid tetrasodium salt solution   | <b>ETHYLENEDIAMINETETRAACETIC ACID, TETRASODIUM SALT SOLUTION</b> | 17             |               |
| 2,2'-Ethylenedioxydiethanol   | <b>TRIETHYLENE GLYCOL</b>   | 18             |               |
| <b>ETHYLENE GLYCOL</b>  |   | 17             |               |
| <b>ETHYLENE GLYCOL ACETATE</b>  |   | 17             |               |
| Ethylene glycol acrylate  | <b>2-HYDROXYETHYL ACRYLATE</b>                                    | 17             |               |
| Ethylene glycol butyl ether   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| <b>ETHYLENE GLYCOL BUTYL ETHER ACETATE</b>  |   | 17             |               |
| Ethylene glycol tert-butyl ether  | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| <b>ETHYLENE GLYCOL DIACETATE</b>  |   | 17             |               |
| Ethylene glycol ethyl ether   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| Ethylene glycol ethyl ether acetate   | <b>2-ETHOXYETHYL ACETATE</b>                                      | 17             |               |
| Ethylene glycol isopropyl ether   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| Ethylene glycol methyl ether  | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| <b>ETHYLENE GLYCOL METHYL ETHER ACETATE</b>   |   | 17             |               |
| <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>   |   | 17             |               |
| Ethylene glycol monobutyl ether   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| Ethylene glycol mono tert-butyl ether   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| Ethylene glycol monoethyl ether   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| Ethylene glycol monoethyl ether acetate   | <b>2-ETHOXYETHYL ACETATE</b>                                      | 17             |               |
| Ethylene glycol monomethyl ether  | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| Ethylene glycol monomethyl ether acetate  | <b>ETHYLENE GLYCOL METHYL ETHER ACETATE</b>                       | 17             |               |
| Ethylene glycol monophenyl ether  | <b>ETHYLENE GLYCOL PHENYL ETHER</b>                               | 17             |               |
| <b>ETHYLENE GLYCOL PHENYL ETHER</b>   |   | 17             |               |
| <b>ETHYLENE GLYCOL PHENYL ETHER/DIETHYLENE GLYCOL PHENYL ETHER MIXTURE</b>                                |   | 17             |               |
| <b>ETHYLENE OXIDE/PROPYLENE OXIDE MIXTURE WITH AN ETHYLENE OXIDE CONTENT OF NOT MORE THAN 30% BY MASS</b> |   | 17             | 2983          |
| Ethylene tetrachloride  | <b>PERCHLOROETHYLENE</b>  | 17             |               |
| Ethylene trichloride  | <b>1,1,1-TRICHLOROETHANE</b>                                      | 17             |               |
| Ethylene trichloride  | <b>TRICHLOROETHYLENE</b>  | 17             |               |
| Ethyl ethanoate   | <b>ETHYL ACETATE</b>  | 17             |               |
| Ethyl ether   | <b>DIETHYL ETHER</b>  | 17             |               |
| <b>ETHYL-3-ETHOXYPROPIONATE</b>   |   | 17             |               |
| Ethyl fluid   | <b>MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING LEAD ALKYLs)</b>   | 17             |               |
| Ethylformic acid  | <b>PROPIONIC ACID</b>   | 17             |               |
| Ethyl glycol  | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                           | 17             |               |
| 2-Ethylhexaldehyde  | <b>OCTYL ALDEHYDES</b>  | 17             |               |
| 2-Ethylhexanal  | <b>OCTYL ALDEHYDES</b>  | 17             |               |
| <b>2-ETHYLHEXANOIC ACID</b>   |   | 17             |               |
| 2-Ethylhexanol  | <b>OCTANOL (ALL ISOMERS)</b>                                      | 17             |               |
| 2-Ethylhexenal  | <b>2-ETHYL-3-PROPYLACROLEIN</b>                                   | 17             |               |
| 2-Ethylhex-2-enal   | <b>2-ETHYL-3-PROPYLACROLEIN</b>                                   | 17             |               |
| 2-Ethylhexoic acid  | <b>OCTANOIC ACID (ALL ISOMERS)</b>                                | 17             |               |
| <b>2-ETHYLHEXYL ACRYLATE</b>  |   | 17             |               |
| 2-Ethylhexyl alcohol  | <b>OCTANOL (ALL ISOMERS)</b>                                      | 17             |               |
| <b>2-ETHYLHEXYLAMINE</b>  |   | 17             | 2276          |
| <b>2-ETHYL-2-(HYDROXYMETHYL) PROPANE-1,3-DIOL (C8-C10) ESTER</b>  |   | 17             |               |



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| Ethyllic acid   | ACETIC ACID                            | 17             |               |
| 5-Ethylidenebicyclo(2,2,1)hept-2-ene                                | ETHYLIDENE NORBORNENE                  | 17             |               |
| Ethylidene chloride   | 1,1-DICHLOROETHANE                     | 17             |               |
| Ethylidene dichloride   | 1,1-DICHLOROETHANE                     | 17             |               |
| <b>ETHYLIDENE NORBORNENE</b>  |  | 17             |               |
| <b>ETHYL METHACRYLATE</b>   |  | 17             | 2277          |
| <b>N-ETHYLMETHYLALLYLAMINE</b>                                      |  | 17             |               |
| N-Ethyl-2-methylallylamine  | N-ETHYLMETHYLALLYLAMINE                | 17             |               |
| 2-Ethyl-6-methylaniline   | 2-METHYL-5-ETHYL PYRIDINE              | 17             |               |
| 2-Ethyl-6-methylbenzenamine   | 2-METHYL-6-ETHYL ANILINE               | 17             |               |
| Ethyl methyl ketone   | METHYL ETHYL KETONE                    | 17             |               |
| 5-Ethyl-2-methylpyridine  | 2-METHYL-5-ETHYL PYRIDINE              | 17             |               |
| Ethyl oxide   | DIETHYL ETHER                          | 17             |               |
| Ethyl phosphate   | TRIETHYL PHOSPHATE                     | 17             |               |
| Ethyl phthalate   | DIETHYL PHTHALATE                      | 17             |               |
| 5-Ethyl-2-picoline  | 2-METHYL-5-ETHYL PYRIDINE              | 17             |               |
| 3-Ethylpropan-1-ol  | PROPYLENE GLYCOL MONOALKYL ETHER       | 17             |               |
| Ethyl propenoate  | ETHYL ACRYLATE                         | 17             |               |
| <b>2-ETHYL-3-PROPYLACROLEIN</b>                                     |  | 17             |               |
| Ethyl sulphate  | DIETHYL SULPHATE                       | 17             |               |
| <b>ETHYL TOLUENE</b>  |  | 17             |               |
| 5-Ethyl-o-toluidine   | 2-METHYL-5-ETHYL PYRIDINE              | 17             |               |
| 6-Ethyl-2-toluidine   | 2-METHYL-6-ETHYL ANILINE               | 17             |               |
| 6-Ethyl-o-toluidine   | 2-METHYL-6-ETHYL ANILINE               | 17             |               |
| Ethyl vinyl ether   | VINYL ETHYL ETHER                      | 17             |               |
| Ethynyl dimethylcarbinol  | 2-METHYL-2-HYDROXY-3-BUTYNE            | 17             |               |
| <b>FATTY ACID (SATURATED C13+)</b>                                  |  | 17             |               |
| <b>FATTY ACIDS, ESSENTIALLY LINEAR, C6-C18, 2-ETHYLHEXYL ESTER.</b> |  | 17             |               |
| Feeding corn molasses   | MOLASSES                               | 18             |               |
| Fermentation alcohol  | ETHYL ALCOHOL                          | 18             |               |
| <b>FERRIC CHLORIDE SOLUTIONS</b>                                    |  | 17             | 2582          |
| <b>FERRIC NITRATE/NITRIC ACID SOLUTION</b>                          |  | 17             |               |
| <b>FISH OIL</b>   |  | 17             |               |
| <b>FORMALDEHYDE SOLUTIONS (45% OR LESS)</b>                         |  | 17             | 1198, 220     |
| Formaldehyde trimer   | 1,3,5-TRIOXANE                         | 17             |               |
| Formalin  | FORMALDEHYDE SOLUTIONS (45% OR LESS)   | 17             |               |
| <b>FORMAMIDE</b>  |  | 17             |               |
| Formdimethylamide   | DIMETHYLFORMAMIDE                      | 17             |               |
| <b>FORMIC ACID</b>  |  | 17             | 1779          |
| Formic aldehyde   | FORMALDEHYDE SOLUTIONS (45% OR LESS)   | 17             |               |
| Formylformic acid   | GLYOXYLIC ACID SOLUTION (50 % OR LESS) | 17             |               |
| Fural   | FURFURAL                               | 17             |               |
| 2-Furaldehyde   | FURFURAL                               | 17             |               |
| Furan-2,5-dione   | MALEIC ANHYDRIDE                       | 17             |               |
| 2,5-Furandione  | MALEIC ANHYDRIDE                       | 17             |               |
| <b>FURFURAL</b>   |  | 17             | 1199          |
| 2-Furfuraldehyde  | FURFURAL                               | 17             |               |
| <b>FURFURYL ALCOHOL</b>   |  | 17             | 2874          |
| Furylcarbinol   | FURFURYL ALCOHOL                       | 17             |               |
| Fused poly(2+)cyclic aromatic hydrocarbons.                         | POLY(2+)CYCLIC AROMATICS               | 17             |               |
| Gaultheria oil  | METHYL SALICYLATE                      | 17             |               |

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| Glacial acetic acid                                    | ACETIC ACID  | 17             |               |
| D-Glucitol   | SORBITOL SOLUTION  | 18             |               |
| Glucitol solution                                      | SORBITOL SOLUTION  | 18             |               |
| D-Glucopyranoside C8-C14 alkyl                         | ALKYL (C8-C10)/(C12-C14):(40% OR LESS/60% OR MORE)<br>POLYGLUCOSIDE SOLUTION (55% OR LESS) | 17             |               |
| D-Glucopyranoside C8-C14 alkyl                         | ALKYL (C8-C10)/(C12-C14):(60% OR MORE/40% OR LESS)<br>POLYGLUCOSIDE SOLUTION(55% OR LESS)  | 17             |               |
| <b>GLUCOSE SOLUTION</b>                                |  | 18             |               |
| <b>GLUTARALDEHYDE SOLUTIONS (50% OR LESS)</b>          |  | 17             |               |
| Glycerin   | GLYCERINE  | 18             |               |
| <b>GLYCERINE</b>                                       |  | 18             |               |
| Glycerin triacetate                                    | GLYCERYL TRIACETATE  | 17             |               |
| Glyceritol   | GLYCERINE  | 18             |               |
| Glycerol   | GLYCERINE  | 18             |               |
| <b>GLYCEROL MONOOLEATE</b>                             |  | 17             |               |
| Glycerol oleate  | GLYCEROL MONOOLEATE  | 17             |               |
| Glycerol 1-oleate                                      | GLYCEROL MONOOLEATE  | 17             |               |
| Glycerol triacetate                                    | GLYCERYL TRIACETATE  | 17             |               |
| <b>GLYCERYL TRIACETATE</b>                             |  | 17             |               |
| <b>GLYCIDYL ESTER OF C10 TRIALKYLACETIC ACID</b>       |  | 17             |               |
| Glycidyl neodecanoate                                  | GLYCIDYL ESTER OF C10 TRIALKYLACETIC ACID  | 17             |               |
| Glycine soda solution                                  | GLYCINE, SODIUM SALT SOLUTION  | 17             |               |
| <b>GLYCINE, SODIUM SALT SOLUTION</b>                   |  | 17             |               |
| Glycol   | ETHYLENE GLYCOL  | 17             |               |
| Glycol carbonate                                       | ETHYLENE CARBONATE   | 18             |               |
| Glycol chlorohydrin                                    | ETHYLENE CHLOROHYDRIN  | 17             |               |
| Glycol dichloride                                      | ETHYLENE DICHLORIDE  | 17             |               |
| <b>GLYCOLIC ACID SOLUTION (70% OR LESS)</b>            |  | 17             | 3265          |
| Glycol monobutyl ether                                 | ETHYLENE GLYCOL MONOALKYL ETHERS   | 17             |               |
| Glycols, polyethylene mono(p-nonylphenyl) ether        | ALKARYL POLYETHERS (C9-C20)  | 17             |               |
| Glycyl alcohol   | GLYCERINE  | 18             |               |
| Glyoxaldehyde  | GLYOXAL SOLUTION (40% OR LESS)   | 17             |               |
| Glyoxylic acid   | GLYOXYLIC ACID SOLUTION (50 % OR LESS)   | 17             |               |
| <b>GLYOXAL SOLUTION (40% OR LESS)</b>                  |  | 17             |               |
| <b>GLYOXYLIC ACID SOLUTION (50 % OR LESS)</b>          |  | 17             | 1760          |
| Glyphosate   | GLYPHOSATE SOLUTION (NOT CONTAINING SURFACTANT)  | 17             |               |
| Glyphosate-mono(isopropylammonium)                     | GLYPHOSATE SOLUTION (NOT CONTAINING SURFACTANT)  | 17             |               |
| <b>GLYPHOSATE SOLUTION (NOT CONTAINING SURFACTANT)</b> |  | 17             |               |
| Grain alcohol  | ETHYL ALCOHOL  | 18             |               |
| <b>GROUNDNUT OIL</b>                                   |  | 17             |               |
| Hemimellitine  | TRIMETHYLBENZENE (ALL ISOMERS)   | 17             |               |
| Hendecanoic acid                                       | UNDECANOIC ACID  | 17             |               |
| 1-Hendecanol   | UNDECYL ALCOHOL  | 17             |               |
| Heptamethylene   | CYCLOHEPTANE   | 17             |               |
| <b>HEPTANE (ALL ISOMERS)</b>                           |  | 17             | 1206          |
| 3-Heptanecarboxylic acid                               | OCTANOIC ACID (ALL ISOMERS)  | 17             |               |
| Heptanoic acid   | N-HEPTANOIC ACID   | 17             |               |
| <b>N-HEPTANOIC ACID</b>                                |  | 17             |               |
| <b>HEPTANOL (ALL ISOMERS) (D)</b>                      |  | 17             |               |
| Heptan-2-one   | METHYL AMYL KETONE   | 17             |               |

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| Heptan-2-one  | METHYL AMYL KETONE   | 17             |               |
| 2-Heptanone   | METHYL AMYL KETONE   | 17             |               |
| <b>HEPTENE (ALL ISOMERS)</b>  |  | 17             |               |
| Heptoic acid  | N-HEPTANOIC ACID   | 17             |               |
| <b>HEPTYL ACETATE</b>   |  | 17             |               |
| Heptyl alcohol, all isomers   | HEPTANOL (ALL ISOMERS) (D)                                     | 17             |               |
| Heptylcarbinol  | OCTANOL (ALL ISOMERS)  | 17             |               |
| Heptylene, mixed isomers  | HEPTENE (ALL ISOMERS)  | 17             |               |
| Heptylic acid   | N-HEPTANOIC ACID   | 17             |               |
| n-Heptylic acid   | N-HEPTANOIC ACID   | 17             |               |
| 1-Hexadecene  | OLEFINS (C13+, ALL ISOMERS)                                    | 17             |               |
| Hexadecyl, octadecyl and icosadecyl methacrylates, mixtures           | CETYL/EICOSYL METHACRYLATE MIXTURE                             | 17             |               |
| Hexadecyl and icosyl methacrylate mixture                             | CETYL/EICOSYL METHACRYLATE MIXTURE                             | 17             |               |
| <b>1-HEXADECYLNAPHTHALENE / 1,4-BIS(HEXADECYL)NAPHTHALENE MIXTURE</b> |  | 17             |               |
| Hexadecylnaphthalene/dihexadecylnaphthalene mixture                   | 1-HEXADECYLNAPHTHALENE / 1,4-BIS(HEXADECYL)NAPHTHALENE MIXTURE | 17             |               |
| Hexadecyl / octadecyl alcohol   | ALCOHOLS (C13+)  | 17             |               |
| Hexadecyl, octadecyl and icosyl methacrylates, mixtures               | CETYL/EICOSYL METHACRYLATE MIXTURE                             | 17             |               |
| Hexaethylene glycol   | POLYETHYLENE GLYCOL  | 17             |               |
| Hexahydroaniline  | CYCLOHEXYLAMINE  | 17             |               |
| Hexahydrobenzene  | CYCLOHEXANE  | 17             |               |
| Hexahydro-1H-azepine  | HEXAMETHYLENEIMINE   | 17             |               |
| Hexahydro-1-H-azepine   | HEXAMETHYLENEIMINE   | 17             |               |
| Hexahydrophenol   | CYCLOHEXANOL   | 17             |               |
| Hexahydrotoluene  | METHYLCYCLOHEXANE  | 17             |               |
| Hexamethylene   | CYCLOHEXANE  | 17             |               |
| <b>HEXAMETHYLENEDIAMINE ADIPATE (50% IN WATER)</b>                    |  | 17             |               |
| <b>HEXAMETHYLENEDIAMINE (MOLTEN)</b>                                  |  | 17             |               |
| <b>HEXAMETHYLENEDIAMINE SOLUTION</b>                                  |  | 17             | 1783          |
| 1,6-Hexamethylenediamine solution                                     | HEXAMETHYLENEDIAMINE SOLUTION                                  | 17             |               |
| Hexamethylenediammonium adipate solution (50% solution)               | HEXAMETHYLENEDIAMINE ADIPATE (50% IN WATER)                    | 17             |               |
| <b>HEXAMETHYLENE DIISOCYANATE</b>                                     |  | 17             | 2281          |
| Hexamethylene-1,6-diisocyanate  | HEXAMETHYLENE DIISOCYANATE                                     | 17             |               |
| <b>HEXAMETHYLENE GLYCOL</b>   |  | 17             |               |
| <b>HEXAMETHYLENEIMINE</b>   |  | 17             | 2493          |
| <b>HEXAMETHYLENETETRAMINE SOLUTIONS</b>                               |  | 18             |               |
| Hexamine  | HEXAMETHYLENETETRAMINE SOLUTIONS                               | 18             |               |
| Hexanaphthene   | CYCLOHEXANE  | 17             |               |
| 1,6-Hexandiamine hexanedioate (1:1)                                   | HEXAMETHYLENEDIAMINE ADIPATE (50% IN WATER)                    | 17             |               |
| <b>HEXANE (ALL ISOMERS)</b>   |  | 17             | 1208          |
| 1,6-Hexanediamine   | HEXAMETHYLENEDIAMINE (MOLTEN)                                  | 17             |               |
| Hexane-1,6-diamine solutions  | HEXAMETHYLENEDIAMINE SOLUTION                                  | 17             |               |
| 1,6-Hexanediamine solutions   | HEXAMETHYLENEDIAMINE SOLUTION                                  | 17             |               |
| Hexanedioic acid, bis(2-ethylhexyl) ester                             | DI-(2-ETHYLHEXYL) ADIPATE                                      | 17             |               |
| Hexane-1,6-diol   | HEXAMETHYLENE GLYCOL   | 17             |               |
| 1,6-Hexanediol  | HEXAMETHYLENE GLYCOL   | 17             |               |
| <b>1,6-HEXANEDIOL, DISTILLATION OVERHEADS</b>                         |  | 17             | 1987          |

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| n-Hexane   | HEXANE (ALL ISOMERS)                              | 17      |           |
| <b>HEXANOIC ACID</b>   |   | 17      |           |
| <b>HEXANOL</b>   |   | 17      | 2282      |
| Hexan-1-ol   | HEXANOL   | 17      |           |
| Hexan-6-olide  | EPSILON-CAPROLACTAM (MOLTEN OR AQUEOUS SOLUTIONS) | 17      |           |
| Hexan-2-one  | METHYL BUTYL KETONE                               | 17      |           |
| 2-Hexanone   | METHYL BUTYL KETONE                               | 17      |           |
| <b>HEXENE (ALL ISOMERS)</b>  |   | 17      | 2370      |
| Hexene-1   | HEXENE (ALL ISOMERS)                              | 17      |           |
| Hex-1-ene  | HEXENE (ALL ISOMERS)                              | 17      |           |
| 2-Hexene   | HEXENE (ALL ISOMERS)                              | 17      |           |
| Hexone   | METHYL ISOBUTYL KETONE                            | 17      |           |
| <b>HEXYL ACETATE</b>   |   | 17      | 1233      |
| sec-Hexyl acetate  | METHYLAMYL ACETATE                                | 17      |           |
| Hexyl alcohol  | HEXANOL   | 17      |           |
| Hexyldimethylamine   | ALKYL (C12+) DIMETHYLAMINE                        | 17      |           |
| Hexylene   | HEXENE (ALL ISOMERS)                              | 17      |           |
| <b>HEXYLENE GLYCOL</b>   |   | 18      |           |
| Hexyl ethanoate  | HEXYL ACETATE                                     | 17      |           |
| Homopiperidine   | HEXAMETHYLENEIMINE                                | 17      |           |
| 2H-Tetrahydro-1,4-oxazine  | MORPHOLINE  | 17      |           |
| <b>HYDROCHLORIC ACID</b>   |   | 17      | 1789      |
| Hydrofuran   | TETRAHYDROFURAN                                   | 17      |           |
| Hydrogen carboxylic acid   | FORMIC ACID                                       | 17      |           |
| Hydrogen chloride, aqueous   | HYDROCHLORIC ACID                                 | 17      |           |
| <b>HYDROGEN PEROXIDE SOLUTIONS (OVER 60% BUT NOT OVER 70% BY MASS)</b>         |   | 17      | 2015      |
| <b>HYDROGEN PEROXIDE SOLUTIONS (OVER 8% BUT NOT OVER 60% BY MASS)</b>          |   | 17      | 2014, 298 |
| Hydrogen sulphate  | SULPHURIC ACID                                    | 17      |           |
| alpha-Hydro-omega-hydroxypoly[oxy(methyl-1,2-ethanediyl)]                      | POLYPROPYLENE GLYCOL                              | 17      |           |
| Hydroxyacetic acid   | GLYCOLIC ACID SOLUTION (70% OR LESS)              | 17      |           |
| Hydroxybenzene   | PHENOL  | 17      |           |
| 4-Hydroxybutanoic acid lactone   | GAMMA-BUTYROLACTONE                               | 17      |           |
| 4-Hydroxybutyric acid lactone  | GAMMA-BUTYROLACTONE                               | 17      |           |
| gamma-Hydroxybutyric acid lactone  | GAMMA-BUTYROLACTONE                               | 17      |           |
| Hydroxydimethylbenzenes  | XYLENOL   | 17      |           |
| Hydroxyethanoic acid   | GLYCOLIC ACID SOLUTION (70% OR LESS)              | 17      |           |
| 2-Hydroxyethyl acetate   | ETHYLENE GLYCOL ACETATE                           | 17      |           |
| <b>2-HYDROXYETHYL ACRYLATE</b>   |   | 17      |           |
| beta-Hydroxyethyl acrylate   | 2-HYDROXYETHYL ACRYLATE                           | 17      |           |
| 2-Hydroxyethylamine  | ETHANOLAMINE                                      | 17      |           |
| N-beta-Hydroxyethylethylenediamine   | AMINOETHYL ETHANOLAMINE                           | 17      |           |
| <b>N-(HYDROXYETHYL)ETHYLENEDIAMINE TRIACETIC ACID, TRISODIUM SALT SOLUTION</b> |   | 17      |           |
| beta-Hydroxyethyl phenyl ether   | ETHYLENE GLYCOL PHENYL ETHER                      | 17      |           |
| 2-Hydroxyethyl propenoate  | 2-HYDROXYETHYL ACRYLATE                           | 17      |           |
| 2-Hydroxyethyl 2-propenoate  | 2-HYDROXYETHYL ACRYLATE                           | 17      |           |
| alpha-Hydroxyisobutyronitrile  | ACETONE CYANOHYDRIN                               | 17      |           |
| 4-Hydroxy-2-keto-4-methylpentane   | DIACETONE ALCOHOL                                 | 17      |           |
| 4-Hydroxy-4-methylpentanone-2  | DIACETONE ALCOHOL                                 | 17      |           |

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| 4-Hydroxy-4-methylpentan-2-one                                | DIACETONE ALCOHOL                                    | 17             |               |
| 2-(Hydroxymethyl)propane                                      | ISOBUTYL ALCOHOL                                     | 17             |               |
| 2-Hydroxy-2-methylpropionitrile                               | ACETONE CYANOHYDRIN                                  | 17             |               |
| <b>2-HYDROXY-4-(METHYLTHIO)BUTANOIC ACID</b>                  |  | 17             |               |
| 2-Hydroxy-4-methylthiobutyric acid                            | <b>2-HYDROXY-4-(METHYLTHIO)BUTANOIC ACID</b>         | 17             |               |
| 2-Hydroxynitrobenzene (molten)                                | <b>O-NITROPHENOL (MOLTEN)</b>                        | 17             |               |
| 1-Hydroxy-2-phenoxyethane                                     | <b>ETHYLENE GLYCOL PHENYL ETHER</b>                  | 17             |               |
| 2-Hydroxypropanoic acid                                       | <b>LACTIC ACID</b>                                   | 17             |               |
| 2-Hydroxypropionic acid                                       | <b>LACTIC ACID</b>                                   | 17             |               |
| alpha-Hydroxypropionic acid                                   | <b>LACTIC ACID</b>                                   | 17             |               |
| 3-Hydroxypropionic acid, lactone.                             | <b>BETA-PROPIOLACTONE</b>                            | 17             |               |
| 2-Hydroxypropionitrile  | <b>LACTONITRILE SOLUTION (80% OR LESS)</b>           | 17             |               |
| alpha-Hydroxypropionitrile                                    | <b>LACTONITRILE SOLUTION (80% OR LESS)</b>           | 17             |               |
| beta-Hydroxypropionitrile                                     | <b>ETHYLENE CYANOHYDRIN</b>                          | 17             |               |
| 2-Hydroxypropionitrile  | <b>LACTONITRILE SOLUTION (80% OR LESS)</b>           | 17             |               |
| 3-Hydroxypropionitrile  | <b>ETHYLENE CYANOHYDRIN</b>                          | 17             |               |
| 2-[2-(2-hydroxypropoxy)propoxy]propan-1-ol                    | <b>TRIPROPYLENE GLYCOL</b>                           | 17             |               |
| 2-Hydroxypropylamine  | <b>ISOPROPANOLAMINE</b>                              | 17             |               |
| 3-Hydroxypropylamine  | <b>N-PROPANOLAMINE</b>                               | 17             |               |
| alpha-Hydroxytoluene  | <b>BENZYL ALCOHOL</b>                                | 17             |               |
| 3-Hydroxy-2,2,4-trimethylpentylisobutyrate                    | <b>2,2,4-TRIMETHYL-1,3-PENTANEDIOL-1-ISOBUTYRATE</b> | 17             |               |
| <b>ILLIPE OIL</b>   |  | 17             |               |
| 2,2'-[Iminobis(ethyleneimino)]diethylamine                    | <b>TETRAETHYLENE PENTAMINE</b>                       | 17             |               |
| 2,2'-Iminodi(ethylamine)                                      | <b>DIETHYLENETRIAMINE</b>                            | 17             |               |
| 2,2'-Iminodiethanol   | <b>DIETHANOLAMINE</b>                                | 17             |               |
| 1,1'-Iminodipropan-2-ol                                       | <b>DIISOPROPANOLAMINE</b>                            | 17             |               |
| Iron (III) chloride solutions                                 | <b>FERRIC CHLORIDE SOLUTIONS</b>                     | 17             |               |
| Iron (III) nitrate / nitric acid solution                     | <b>FERRIC NITRATE/NITRIC ACID SOLUTION</b>           | 17             |               |
| Isoacetophenone   | <b>ISOPHORONE</b>                                    | 17             |               |
| Isoamyl acetate   | <b>AMYL ACETATE (ALL ISOMERS)</b>                    | 17             |               |
| <b>ISOAMYL ALCOHOL</b>  |  | 17             |               |
| Isobutaldehyde  | <b>BUTYRALDEHYDE (ALL ISOMERS)</b>                   | 17             |               |
| Isobutanal  | <b>BUTYRALDEHYDE (ALL ISOMERS)</b>                   | 17             |               |
| Isobutanol  | <b>ISOBUTYL ALCOHOL</b>                              | 17             |               |
| Isobutanolamine   | <b>2-AMINO-2-METHYL-1-PROPANOL</b>                   | 17             |               |
| Isobutyl acetate  | <b>BUTYL ACETATE (ALL ISOMERS)</b>                   | 17             |               |
| Isobutyl acrylate   | <b>BUTYL ACRYLATE (ALL ISOMERS)</b>                  | 17             |               |
| <b>ISOBUTYL ALCOHOL</b>                                       |  | 17             | 1212          |
| Isobutyl aldehyde   | <b>BUTYRALDEHYDE (ALL ISOMERS)</b>                   | 17             |               |
| Isobutylamine   | <b>BUTYLAMINE (ALL ISOMERS)</b>                      | 17             |               |
| Isobutylcarbinol  | <b>ISOAMYL ALCOHOL</b>                               | 17             |               |
| <b>ISOBUTYL FORMATE</b>                                       |  | 17             | 2393          |
| Isobutyl ketone   | <b>DIISOBUTYL KETONE</b>                             | 17             |               |
| <b>ISOBUTYL METHACRYLATE</b>                                  |  | 17             |               |
| Isobutylmethylcarbinol  | <b>METHYLAMYL ALCOHOL</b>                            | 17             |               |
| Isobutyl methyl ketone  | <b>METHYL ISOBUTYL KETONE</b>                        | 17             |               |
| Isobutylmethylemethanol                                       | <b>METHYLAMYL ALCOHOL</b>                            | 17             |               |
| Isobutyraldehyde  | <b>BUTYRALDEHYDE (ALL ISOMERS)</b>                   | 17             |               |
| Isobutyric aldehyde   | <b>BUTYRALDEHYDE (ALL ISOMERS)</b>                   | 17             |               |
| alpha-isocyanatobenzyl-omega-isocyanatophenyl=<br>(continued) | <b>POLYMETHYLENE POLYPHENYL ISOCYANATE</b>           | 17             |               |
| 1-Isocyanato-3-isocyanatomethyl-<br>trimethylcyclohexane      | <b>ISOPHORONE DIISOCYANATE</b>                       | 17             |               |

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| 3-Isocyanatomethyl-3,5,5-trimethylcyclohexyl isocyanate | <b>ISOPHORONE DIISOCYANATE</b>                         | 17             |               |
| Isodecanol  | <b>DECYL ALCOHOL (ALL ISOMERS)</b>                     | 17             |               |
| Isodecyl alcohol  | <b>DECYL ALCOHOL (ALL ISOMERS)</b>                     | 17             |               |
| Isododecane   | <b>DODECANE (ALL ISOMERS)</b>                          | 17             |               |
| Isodurene   | <b>TETRAMETHYLBENZENE (ALL ISOMERS)</b>                | 17             |               |
| Isononanoic acid  | <b>NONANOIC ACID (ALL ISOMERS)</b>                     | 17             |               |
| Isononanol  | <b>NONYL ALCOHOL (ALL ISOMERS)</b>                     | 17             |               |
| Isooctane   | <b>OCTANE (ALL ISOMERS)</b>                            | 17             |               |
| Isooctanol  | <b>OCTANOL (ALL ISOMERS)</b>                           | 17             |               |
| Isopentane  | <b>PENTANE (ALL ISOMERS)</b>                           | 17             |               |
| Isopentanol   | <b>AMYL ALCOHOL, PRIMARY</b>                           | 17             |               |
| Isopentanol   | <b>ISOAMYL ALCOHOL</b>                                 | 17             |               |
| Isopentene  | <b>PENTENE (ALL ISOMERS)</b>                           | 17             |               |
| Isopentyl acetate                                       | <b>AMYL ACETATE (ALL ISOMERS)</b>                      | 17             |               |
| Isopentyl alcohol                                       | <b>ISOAMYL ALCOHOL</b>                                 | 17             |               |
| <b>ISOPHORONE</b>                                       |  | 17             |               |
| <b>ISOPHORONEDIAMINE</b>                                |  | 17             | 2289          |
| <b>ISOPHORONE DIISOCYANATE</b>                          |  | 17             | 2290          |
| <b>ISOPRENE</b>   |  | 17             | 1218          |
| Isopropanol   | <b>ISOPROPYL ALCOHOL</b>                               | 18             |               |
| <b>ISOPROPANOLAMINE</b>                                 |  | 17             |               |
| Isopropenylbenzene                                      | <b>ALPHA-METHYLSTYRENE</b>                             | 17             |               |
| 2-Isopropoxyethanol                                     | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                | 17             |               |
| 2-Isopropoxypropane                                     | <b>ISOPROPYL ETHER</b>                                 | 17             |               |
| <b>ISOPROPYL ACETATE</b>                                |  | 17             | 1220          |
| Isopropylacetone  | <b>METHYL ISOBUTYL KETONE</b>                          | 17             |               |
| <b>ISOPROPYL ALCOHOL</b>                                |  | 18             |               |
| <b>ISOPROPYLAMINE</b>                                   |  | 17             | 1221          |
| <b>ISOPROPYLAMINE (70% OR LESS) SOLUTION</b>            |  | 17             |               |
| Isopropylammonium N-(phosphonomethyl)glycine            | <b>GLYPHOSATE SOLUTION (NOT CONTAINING SURFACTANT)</b> | 17             |               |
| Isopropyl carbinol                                      | <b>ISOBUTYL ALCOHOL</b>                                | 17             |               |
| Isopropylcarbinol                                       | <b>ISOBUTYL ALCOHOL</b>                                | 17             |               |
| <b>ISOPROPYLCYCLOHEXANE</b>                             |  | 17             |               |
| 1-Isopropyl-3,3-dimethyltrimethylene diisocyanate       | <b>2,2,4-TRIMETHYL-1,3-PENTANEDIOL DIISOBUTYRATE</b>   | 17             |               |
| <b>ISOPROPYL ETHER</b>                                  |  | 17             | 1159          |
| Isopropylideneacetone                                   | <b>MESITYL OXIDE</b>                                   | 17             |               |
| Isopropyl oxide   | <b>ISOPROPYL ETHER</b>                                 | 17             |               |
| Isopropyltoluene  | <b>P-CYMENE</b>  | 17             |               |
| 4-Isopropyltoluene                                      | <b>P-CYMENE</b>  | 17             |               |
| 4-Isopropyltoluol                                       | <b>P-CYMENE</b>  | 17             |               |
| Isovaleral  | <b>VALERALDEHYDE (ALL ISOMERS)</b>                     | 17             |               |
| Isovaleraldehyde  | <b>VALERALDEHYDE (ALL ISOMERS)</b>                     | 17             |               |
| Isovaleraldehyde  | <b>VALERALDEHYDE (ALL ISOMERS)</b>                     | 17             |               |
| Isovaleric aldehyde                                     | <b>VALERALDEHYDE (ALL ISOMERS)</b>                     | 17             |               |
| Isovalerone   | <b>DIISOBUTYL KETONE</b>                               | 17             |               |
| Kaolin clay slurry                                      | <b>KAOLIN SLURRY</b>                                   | 18             |               |
| Kaolinite slurry  | <b>KAOLIN SLURRY</b>                                   | 18             |               |
| <b>KAOLIN SLURRY</b>                                    |  | 18             |               |
| Ketohexamethylene                                       | <b>CYCLOHEXANONE</b>                                   | 17             |               |
| Ketone propane  | <b>ACETONE</b>   | 18             |               |
| Ketopropane   | <b>ACETONE</b>   | 18             |               |

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| <b>LACTIC ACID</b>  |   | 17             |               |
| <b>LACTONITRILE SOLUTION (80% OR LESS)</b>  |   | 17             |               |
| <b>LARD</b>   |   | 17             |               |
| <b>LATEX, AMMONIA (1% OR LESS),<br/>INHIBITED</b>   |   | 17             |               |
| <b>LATEX: CARBOXYLATED STYRENE-<br/>BUTADIENE COPOLYMER; STYRENE-<br/>BUTADIENE RUBBER</b>  |   | 17             |               |
| <b>LAURIC ACID</b>  |   | 17             |               |
| Lauryl alcohol  | <b>DODECYL ALCOHOL</b>  | 17             |               |
| Lauryl mercaptan  | <b>TERT-DODECANETHIOL</b>   | 17             |               |
| Lauryl methacrylate   | <b>DODECYL METHACRYLATE</b>   | 17             |               |
| Lead alkyls, n.o.s.   | <b>MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING<br/>LEAD ALKYLs)</b> | 17             |               |
| Lead tetraethyl   | <b>MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING<br/>LEAD ALKYLs)</b> | 17             |               |
| Lead tetramethyl  | <b>MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING<br/>LEAD ALKYLs)</b> | 17             |               |
| <b>LECITHIN</b>   |   | 18             |               |
| <b>LIGNINSULPHONIC ACID, SODIUM SALT<br/>SOLUTION</b>   |   | 17             | 3806          |
| Limonene  | <b>DIPENTENE</b>  | 17             |               |
| <b>LINSEED OIL</b>  |   | 17             |               |
| <b>LIQUID CHEMICAL WASTES</b>   |   | 17             |               |
| <b>LONG-CHAIN ALKARYL POLYETHER<br/>(C11-C20)</b>   |   | 17             |               |
| <b>LONG-CHAIN ALKARYL SULPHONIC<br/>ACID (C16-C60)</b>  |   | 17             |               |
| <b>LONG-CHAIN ALKYLPHENATE/PHENOL<br/>SULPHIDE MIXTURE</b>  |   | 17             |               |
| Lye   | <b>SODIUM HYDROXIDE SOLUTION</b>                                    | 17             |               |
| Lye, potash   | <b>POTASSIUM HYDROXIDE SOLUTION</b>                                 | 17             |               |
| Lye, soda   | <b>SODIUM HYDROXIDE SOLUTION</b>                                    | 17             |               |
| Lye solution  | <b>SODIUM HYDROXIDE SOLUTION</b>                                    | 17             |               |
| <b>L-LYSINE SOLUTION (60% OR LESS)</b>  |   | 17             |               |
| Magnesia hydrate  | <b>MAGNESIUM HYDROXIDE SLURRY</b>                                   | 18             |               |
| <b>MAGNESIUM CHLORIDE SOLUTION</b>  |   | 17             |               |
| <b>MAGNESIUM HYDROXIDE SLURRY</b>   |   | 18             |               |
| <b>MAGNESIUM LONG-CHAIN ALKARYL<br/>SULPHONATE (C11-C50)</b>  |   | 17             |               |
| <b>MAGNESIUM LONG-CHAIN ALKYL<br/>SALICYLATE (C11+)</b>   |   | 17             |               |
| <b>MALEIC ANHYDRIDE</b>   |   | 17             | 2215          |
| <b>MANGO KERNEL OIL</b>   |   | 17             |               |
| Meglumine   | <b>N-METHYLGLUCAMINE SOLUTION (70% OR LESS)</b>                     | 18             |               |
| <b>MERCAPTOBENZOTHAZOL, SODIUM<br/>SALT SOLUTION</b>  |   | 17             |               |
| Mesitylene  | <b>TRIMETHYLBENZENE (ALL ISOMERS)</b>                               | 17             |               |
| <b>MESITYL OXIDE</b>  |   | 17             | 1229          |
| Metaformaldehyde  | <b>1,3,5-TRIOXANE</b>   | 17             |               |
| Metam-sodium  | <b>METAM SODIUM SOLUTION</b>  | 17             |               |
| <b>METAM SODIUM SOLUTION</b>  |   | 17             |               |
| <b>METHACRYLIC ACID - ALKOXPOLY<br/>(ALKYLENE OXIDE) METHACRYLATE<br/>COPOLYMER, SODIUM SALT AQUEOUS<br/>SOLUTION (45% OR LESS)</b> |   | 17             |               |
| <b>METHACRYLIC ACID</b>   |   | 17             | 2531          |

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| alpha-Methacrylic acid   | <b>METHACRYLIC ACID</b>   | 17             |               |
| Methacrylic acid, dodecyl ester  | <b>DODECYL METHACRYLATE</b>                                     | 17             |               |
| Methacrylic acid, lauryl ester   | <b>DODECYL METHACRYLATE</b>                                     | 17             |               |
| <b>METHACRYLIC RESIN IN ETHYLENE DICHLORIDE</b>                        |   | 17             |               |
| <b>METHACRYLONITRILE</b>   |   | 17             | 3079          |
| Methanal   | <b>FORMALDEHYDE SOLUTIONS (45% OR LESS)</b>                     | 17             |               |
| Methanamide  | <b>FORMAMIDE</b>  | 17             |               |
| Methanamine  | <b>METHYLAMINE SOLUTIONS (42% OR LESS)</b>                      | 17             |               |
| Methane carboxylic acid  | <b>ACETIC ACID</b>  | 17             |               |
| Methanecarboxylic acid   | <b>ACETIC ACID</b>  | 17             |               |
| Methanoic acid   | <b>FORMIC ACID</b>  | 17             |               |
| Methanol   | <b>METHYL ALCOHOL</b>   | 17             |               |
| Methenamine  | <b>HEXAMETHYLENETETRAMINE SOLUTIONS</b>                         | 18             |               |
| <b>3-METHOXY-1-BUTANOL</b>   |   | 17             |               |
| 3-Methoxybutan-1-ol  | <b>3-METHOXY-1-BUTANOL</b>                                      | 17             |               |
| <b>3-METHOXYBUTYL ACETATE</b>  |   | 17             |               |
| 2-Methoxyethanol   | <b>ETHYLENE GLYCOL MONOALKYL ETHERS</b>                         | 17             |               |
| 2-(2-Methoxyethoxy)ethanol   | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>          | 17             |               |
| 2-[2-(2-Methoxyethoxy)ethoxy]ethanol                                   | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>          | 17             |               |
| 2-(2-Methoxyethoxy)ethyl acetate                                       | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE</b> | 17             |               |
| 2-Methoxyethyl acetate   | <b>ETHYLENE GLYCOL METHYL ETHER ACETATE</b>                     | 17             |               |
| 2-Methoxy-2-methyl butane  | <b>TERT-AMYL METHYL ETHER</b>                                   | 17             |               |
| 3-Methoxy-3-methylbutan-1-ol   | <b>3-METHYL-3-METHOXYBUTANOL</b>                                | 17             |               |
| 3-Methoxy-3-methylbutyl alcohol  | <b>3-METHYL-3-METHOXYBUTANOL</b>                                | 17             |               |
| 2-Methoxy-1-methylethyl acetate  | <b>PROPYLENE GLYCOL METHYL ETHER ACETATE</b>                    | 17             |               |
| <b>N-(2-METHOXY-1-METHYL ETHYL)-2-ETHYL-6-METHYL CHLOROACETANILIDE</b> |   | 17             |               |
| 2-methoxy-2-methylpropane  | <b>METHYL TERT-BUTYL ETHER</b>                                  | 17             |               |
| 1-Methoxypropan-2-ol   | <b>PROPYLENE GLYCOL MONOALKYL ETHER</b>                         | 17             |               |
| 1-Methoxy-2-propanol acetate   | <b>PROPYLENE GLYCOL METHYL ETHER ACETATE</b>                    | 17             |               |
| 1-(2-Methoxypropoxy)propan-2-ol  | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>          | 17             |               |
| 3-[3-(3-Methoxypropoxy)propoxy]propan-1-ol                             | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>          | 17             |               |
| Methoxytriglycol   | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>          | 17             |               |
| Methylacetaldehyde   | <b>PROPIONALDEHYDE</b>  | 17             |               |
| <b>METHYL ACETATE</b>  |   | 17             |               |
| Methylacetic acid  | <b>PROPIONIC ACID</b>   | 17             |               |
| <b>METHYL ACETOACETATE</b>   |   | 17             |               |
| Methyl acetylacetate   | <b>METHYL ACETOACETATE</b>                                      | 17             |               |
| beta-Methylacrolein  | <b>CROTONALDEHYDE</b>   | 17             |               |
| <b>METHYL ACRYLATE</b>   |   | 17             | 1919          |
| 2-Methylacrylic acid   | <b>METHACRYLIC ACID</b>   | 17             |               |
| 2-Methylacrylic acid, dodecyl ester                                    | <b>DODECYL METHACRYLATE</b>                                     | 17             |               |
| 2-Methylacrylic acid, lauryl ester                                     | <b>DODECYL METHACRYLATE</b>                                     | 17             |               |
| <b>METHYL ALCOHOL</b>  |   | 17             |               |
| <b>METHYLAMINE SOLUTIONS (42% OR LESS)</b>                             |   | 17             | 1235          |
| 1-Methyl-2-aminobenzene  | <b>O-TOLUIDINE</b>  | 17             |               |
| 2-Methyl-1-aminobenzene  | <b>O-TOLUIDINE</b>  | 17             |               |
| <b>METHYLAMYL ACETATE</b>  |   | 17             | 1233          |
| <b>METHYLAMYL ALCOHOL</b>  |   | 17             | 2053          |
| <b>METHYL AMYL KETONE</b>  |   | 17             | 1110          |



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| Methyl n-amyl ketone               | METHYL AMYL KETONE                                       | 17             |               |
| 2-Methylaniline                    | O-TOLUIDINE  | 17             |               |
| 3-Methylaniline                    | O-TOLUIDINE  | 17             |               |
| o-Methylaniline                    | O-TOLUIDINE  | 17             |               |
| 2-Methylbenzenamine                | O-TOLUIDINE  | 17             |               |
| 3-Methylbenzenamine                | O-TOLUIDINE  | 17             |               |
| o-Methylbenzenamine                | O-TOLUIDINE  | 17             |               |
| Methylbenzene                      | TOLUENE  | 17             |               |
| Methylbenzenediamine               | TOLUENEDIAMINE   | 17             |               |
| Methylbenzol                       | TOLUENE  | 17             |               |
| 2-Methyl-1,3-butadiene             | ISOPRENE   | 17             |               |
| 3-Methyl-1,3-butadiene             | ISOPRENE   | 17             |               |
| 2-Methylbutanal                    | VALERALDEHYDE (ALL ISOMERS)                              | 17             |               |
| 3-Methylbutanal                    | VALERALDEHYDE (ALL ISOMERS)                              | 17             |               |
| 1-Methylbutane                     | PENTANE (ALL ISOMERS)                                    | 17             |               |
| 2-Methylbutane                     | PENTANE (ALL ISOMERS)                                    | 17             |               |
| Methyl butanoate                   | METHYL BUTYRATE  | 17             |               |
| 2-Methyl-2-butanol                 | TERT-AMYL ALCOHOL  | 17             |               |
| 2-Methylbutan-2-ol                 | TERT-AMYL ALCOHOL  | 17             |               |
| 2-Methyl-4-butanol                 | ISOAMYL ALCOHOL  | 17             |               |
| 3-Methyl-1-butanol                 | AMYL ALCOHOL, PRIMARY                                    | 17             |               |
| 3-Methyl-1-butanol                 | ISOAMYL ALCOHOL  | 17             |               |
| 3-Methylbutan-1-ol                 | AMYL ALCOHOL, PRIMARY                                    | 17             |               |
| 3-Methylbutan-1-ol                 | ISOAMYL ALCOHOL  | 17             |               |
| 3-Methylbutan-3-ol                 | TERT-AMYL ALCOHOL  | 17             |               |
| 3-Methylbut-1-ene                  | PENTENE (ALL ISOMERS)                                    | 17             |               |
| Methylbutenes                      | PENTENE (ALL ISOMERS)                                    | 17             |               |
| <b>METHYLBUTENOL</b>               |  | 17             |               |
| 1-Methylbutyl acetate              | AMYL ACETATE (ALL ISOMERS)                               | 17             |               |
| 2-Methyl-2-butyl alcohol           | TERT-AMYL ALCOHOL  | 17             |               |
| 2-Methyl-4-butyl alcohol           | ISOAMYL ALCOHOL  | 17             |               |
| 3-Methyl-1-butyl alcohol           | ISOAMYL ALCOHOL  | 17             |               |
| 3-Methyl-3-butyl alcohol           | TERT-AMYL ALCOHOL  | 17             |               |
| <b>METHYL TERT-BUTYL ETHER</b>     |  | 17             |               |
| <b>METHYL BUTYL KETONE</b>         |  | 17             | 1224          |
| <b>METHYLBUTYNOL</b>               |  | 17             |               |
| 2-Methyl-3-butyne-2-ol             | 2-METHYL-2-HYDROXY-3-BUTYNE                              | 17             |               |
| 2-Methyl-3-butyne-2-ol             | METHYLBUTYNOL  | 17             |               |
| 2-Methylbut-3-yn-2-ol              | 2-METHYL-2-HYDROXY-3-BUTYNE                              | 17             |               |
| 2-Methylbut-3-yn-2-ol              | METHYLBUTYNOL  | 17             |               |
| 2-Methylbutyraldehyde              | VALERALDEHYDE (ALL ISOMERS)                              | 17             |               |
| 3-Methylbutyraldehyde              | VALERALDEHYDE (ALL ISOMERS)                              | 17             |               |
| <b>METHYL BUTYRATE</b>             |  | 17             | 1237          |
| 2-beta-Methyl 'carbitol'           | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER          | 17             |               |
| Methyl 'carbitol' acetate          | POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE | 17             |               |
| Methyl 'cellosolve'                | ETHYLENE GLYCOL MONOALKYL ETHERS                         | 17             |               |
| Methyl 'cellosolve' acetate        | ETHYLENE GLYCOL METHYL ETHER ACETATE                     | 17             |               |
| Methylchloroform                   | 1,1,1-TRICHLOROETHANE                                    | 17             |               |
| Methyl cyanide                     | ACETONITRILE   | 17             |               |
| <b>METHYLCYCLOHEXANE</b>           |  | 17             | 2296          |
| <b>METHYLCYCLOPENTADIENE DIMER</b> |  | 17             |               |
| Methyl-1,3-cyclopentadiene dimer   | METHYLCYCLOPENTADIENE DIMER                              | 17             |               |

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| <b>METHYLCYCLOPENTADIENYL</b>                      |   | 17             | 3281          |
| <b>MANGANESE TRICARBONYL</b>                       |   |                |               |
| <b>METHYL DIETHANOLAMINE</b>                       |   | 17             |               |
| 4-Methyl-1,3-dioxolan-2-one                        | <b>PROPYLENE CARBONATE</b>                      | 18             |               |
| Methyl disulphide                                  | <b>DIMETHYL DISULPHIDE</b>                      | 17             |               |
| Methylenebis(4-cyanatobenzene)                     | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| Methylenebis(p-phenylene isocyanate)               | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| Methylenebis(phenyl isocyanate)                    | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| Methylenebis(phenylene isocyanate)                 | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| 4,4'-Methylenebis(phenyl isocyanate)               | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| S,S'-Methylenebis[N-dialkyl(C4-C8)dithiocarbamate] | <b>ALKYL DITHIOCARBAMATE (C19-C35)</b>          | 17             |               |
| Methylene bromide                                  | <b>DIBROMOMETHANE</b>                           | 17             |               |
| Methylene chloride                                 | <b>DICHLOROMETHANE</b>                          | 17             |               |
| Methylene dichloride                               | <b>DICHLOROMETHANE</b>                          | 17             |               |
| 4,4'-Methylenediphenyl diisocyanate                | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| Methylenedi-p-phenylene diisocyanate               | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| 4,4'-Methylenediphenyl isocyanate                  | <b>DIPHENYLMETHANE DIISOCYANATE</b>             | 17             |               |
| 2-Methylenepropionic acid                          | <b>METHACRYLIC ACID</b>                         | 17             |               |
| Methyl ethanoate                                   | <b>METHYL ACETATE</b>                           | 17             |               |
| 1-Methylethyl acetate                              | <b>ISOPROPYL ACETATE</b>                        | 17             |               |
| 1-Methylethylamine                                 | <b>ISOPROPYLAMINE</b>                           | 17             |               |
| <b>2-METHYL-6-ETHYL ANILINE</b>                    |   | 17             |               |
| 1,4-methyl ethyl benzene                           | <b>ETHYL TOLUENE</b>                            | 17             |               |
| Methylethylcarbinol                                | <b>SEC-BUTYL ALCOHOL</b>                        | 18             |               |
| Methyl ethylene glycol                             | <b>PROPYLENE GLYCOL</b>                         | 18             |               |
| Methylethylene glycol                              | <b>PROPYLENE GLYCOL</b>                         | 18             |               |
| Methylethylene oxide                               | <b>PROPYLENE OXIDE</b>                          | 17             |               |
| <b>METHYL ETHYL KETONE</b>                         |   | 17             |               |
| N-(1-Methylethyl)propan-2-amine                    | <b>DIISOPROPYLAMINE</b>                         | 17             |               |
| <b>2-METHYL-5-ETHYL PYRIDINE</b>                   |   | 17             | 2300          |
| <b>METHYL FORMATE</b>                              |   | 17             | 1243          |
| N-methyl-D-glucamine                               | <b>N-METHYLGLUCAMINE SOLUTION (70% OR LESS)</b> | 18             |               |
| <b>N-METHYLGLUCAMINE SOLUTION (70% OR LESS)</b>    |   | 18             |               |
| Methyl glycol                                      | <b>PROPYLENE GLYCOL</b>                         | 18             |               |
| 5-Methylhexan-2-one                                | <b>METHYL AMYL KETONE</b>                       | 17             |               |
| Methylhexylcarbinol                                | <b>OCTANOL (ALL ISOMERS)</b>                    | 17             |               |
| Methyl 2-hydroxybenzoate                           | <b>METHYL SALICYLATE</b>                        | 17             |               |
| Methyl o-hydroxybenzoate                           | <b>METHYL SALICYLATE</b>                        | 17             |               |
| <b>2-METHYL-2-HYDROXY-3-BUTYNE</b>                 |   | 17             |               |
| 2-Methyl-2-hydroxy-3-butyne                        | <b>METHYLBUTYNOL</b>                            | 17             |               |
| 2,2'-(Methylimino)diethanol                        | <b>METHYL DIETHANOLAMINE</b>                    | 17             |               |
| N-Methyl-2,2'-iminodiethanol                       | <b>METHYL DIETHANOLAMINE</b>                    | 17             |               |
| Methyl isoamyl ketone                              | <b>METHYL AMYL KETONE</b>                       | 17             |               |
| Methyl isobutenyl ketone                           | <b>MESITYL OXIDE</b>                            | 17             |               |
| Methylisobutylcarbinol                             | <b>METHYLAMYL ALCOHOL</b>                       | 17             |               |
| Methylisobutylcarbinol acetate                     | <b>METHYLAMYL ACETATE</b>                       | 17             |               |
| <b>METHYL ISOBUTYL KETONE</b>                      |   | 17             |               |
| 2-Methylactonitrile                                | <b>ACETONE CYANOHYDRIN</b>                      | 17             |               |
| methyl mercaptopropionaldehyde                     | <b>3-(METHYLTHIO)PROPIONALDEHYDE</b>            | 17             |               |
| <b>METHYL METHACRYLATE</b>                         |   | 17             | 1247          |
| Methyl methanoate                                  | <b>METHYL FORMATE</b>                           | 17             |               |
| <b>3-METHYL-3-METHOXYBUTANOL</b>                   |   | 17             |               |

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| Methyl alpha-methylacrylate                        | METHYL METHACRYLATE                | 17                    |
| 7-Methyl-3-methylene-1,6-octadiene                 | MYRCENE                            | 17                    |
| Methyl 2-methylprop-2-enoate                       | METHYL METHACRYLATE                | 17                    |
| <b>METHYL NAPHTHALENE (MOLTEN)</b>                 |                                    | 17                    |
| alpha-Methylnaphthalene                            | METHYL NAPHTHALENE (MOLTEN)        | 17                    |
| beta-Methylnaphthalene                             | METHYL NAPHTHALENE (MOLTEN)        | 17                    |
| (o- and p-) Methylnitrobenzene                     | O- OR P-NITROTOLUENES              | 17                    |
| 8-Methylnonan-1-ol                                 | DECYL ALCOHOL (ALL ISOMERS)        | 17                    |
| Methylolpropane                                    | N-BUTYL ALCOHOL                    | 18                    |
| alpha-Methyl-omega-methoxypoly(ethylene oxide)     | POLYETHYLENE GLYCOL DIMETHYL ETHER | 17                    |
| alpha-Methyl-omega-methoxypoly(oxy-1,2-ethanediyl) | POLYETHYLENE GLYCOL DIMETHYL ETHER | 17                    |
| alpha-Methyl-omega-methoxypoly(oxyethylene)        | POLYETHYLENE GLYCOL DIMETHYL ETHER | 17                    |
| Methyloxirane                                      | PROPYLENE OXIDE                    | 17                    |
| 2-Methyl-2,4-pentanediol                           | HEXYLENE GLYCOL                    | 18                    |
| 2-Methylpentane-2,4-diol                           | HEXYLENE GLYCOL                    | 18                    |
| Methylpentan-2-ol                                  | METHYLAMYL ALCOHOL                 | 17                    |
| 4-Methylpentanol-2                                 | METHYLAMYL ALCOHOL                 | 17                    |
| 4-Methylpentan-2-ol                                | METHYLAMYL ALCOHOL                 | 17                    |
| 4-Methyl-2-pentanol acetate                        | METHYLAMYL ACETATE                 | 17                    |
| 4-Methyl-2-pentanone                               | METHYL ISOBUTYL KETONE             | 17                    |
| 4-Methylpentan-2-one                               | METHYL ISOBUTYL KETONE             | 17                    |
| 2-Methylpentene                                    | HEXENE (ALL ISOMERS)               | 17                    |
| 2-Methyl-1-pentene                                 | HEXENE (ALL ISOMERS)               | 17                    |
| 2-Methylpent-1-ene                                 | HEXENE (ALL ISOMERS)               | 17                    |
| 4-Methyl-1-pentene                                 | HEXENE (ALL ISOMERS)               | 17                    |
| 4-Methyl-3-penten-2-one                            | MESITYL OXIDE                      | 17                    |
| 4-Methylpent-3-en-2-one                            | MESITYL OXIDE                      | 17                    |
| 4-Methyl-2-pentyl acetate                          | METHYLAMYL ACETATE                 | 17                    |
| Methylpentyl acetates                              | METHYLAMYL ACETATE                 | 17                    |
| Methyl tert-pentyl ether                           | TERT-AMYL METHYL ETHER             | 17                    |
| Methyl pentyl ketone                               | METHYL AMYL KETONE                 | 17                    |
| Methylphenylenediamine                             | TOLUENEDIAMINE                     | 17                    |
| 2-Methyl-m-phenylenediamine                        | TOLUENEDIAMINE                     | 17                    |
| 4-Methyl-m-phenylenediamine                        | TOLUENEDIAMINE                     | 17                    |
| Methylphenylene diisocyanate                       | TOLUENE DIISOCYANATE               | 17                    |
| 4-methyl-1,3-phenylene diisocyanate                | TOLUENE DIISOCYANATE               | 17                    |
| 4-Methyl-m-phenylene diisocyanate                  | TOLUENE DIISOCYANATE               | 17                    |
| 2-Methyl-2-phenylpropane                           | BUTYLBENZENE (ALL ISOMERS)         | 17                    |
| 2-Methylpropanal                                   | BUTYRALDEHYDE (ALL ISOMERS)        | 17                    |
| <b>2-METHYL-1,3-PROPANEDIOL</b>                    |                                    | 17                    |
| 2-Methyl-1-propanol                                | ISOBUTYL ALCOHOL                   | 17                    |
| 2-Methylpropan-1-ol                                | ISOBUTYL ALCOHOL                   | 17                    |
| 2-Methyl-2-propanol                                | TERT-BUTYL ALCOHOL                 | 17                    |
| 2-Methylpropan-2-ol                                | TERT-BUTYL ALCOHOL                 | 17                    |
| 2-Methylprop-2-enitrile                            | METHACRYLONITRILE                  | 17                    |
| 2-Methylpropenoic acid                             | METHACRYLIC ACID                   | 17                    |
| alpha-Methylpropenoic acid                         | METHACRYLIC ACID                   | 17                    |
| 2-Methylprop-1-enyl methyl ketone                  | MESITYL OXIDE                      | 17                    |
| 2-Methylpropyl acrylate                            | BUTYL ACRYLATE (ALL ISOMERS)       | 17                    |
| 2-Methyl-1-propyl alcohol                          | ISOBUTYL ALCOHOL                   | 17                    |
| 2-Methyl-2-propyl alcohol                          | TERT-BUTYL ALCOHOL                 | 17                    |
| Methylpropylbenzene                                | P-CYMENE                           | 17                    |

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| Methylpropylcarbinol   | SEC-AMYL ALCOHOL   | 17             |               |
| 1-Methyl-1-propylethylene  | HEXENE (ALL ISOMERS)   | 17             |               |
| 2-Methylpropyl formate   | ISOBUTYL FORMATE   | 17             |               |
| <b>METHYL PROPYL KETONE</b>  |  | 18             | 1249          |
| <b>2-METHYLPYRIDINE</b>  |  | 17             | 2313          |
| <b>3-METHYLPYRIDINE</b>  |  | 17             | 2313          |
| <b>4-METHYLPYRIDINE</b>  |  | 17             | 2313          |
| alpha-Methylpyridine   | <b>2-METHYLPYRIDINE</b>  | 17             |               |
| 1-Methyl-2-pyrrolidinone   | <b>N-METHYL-2-PYRROLIDONE</b>  | 17             |               |
| 1-Methylpyrrolidin-2-one   | <b>N-METHYL-2-PYRROLIDONE</b>  | 17             |               |
| N-Methylpyrrolidinone  | <b>N-METHYL-2-PYRROLIDONE</b>  | 17             |               |
| 1-Methyl-2-pyrrolidone   | <b>N-METHYL-2-PYRROLIDONE</b>  | 17             |               |
| <b>N-METHYL-2-PYRROLIDONE</b>  |  | 17             |               |
| <b>METHYL SALICYLATE</b>   |  | 17             |               |
| Methylstyrene  | <b>VINYLTOLUENE</b>  | 17             |               |
| <b>ALPHA-METHYLSTYRENE</b>   |  | 17             | 2303          |
| <b>3-(METHYLTHIO)PROPIONALDEHYDE</b>   |  | 17             |               |
| 2-Methyltrimethylene glycol  | <b>2-METHYL-1,3-PROPANEDIOL</b>  | 17             |               |
| Metolachlor  | <b>N-(2-METHOXY-1-METHYL ETHYL)-2-ETHYL-6-METHYL<br/>CHLOROACETANILIDE</b> | 17             |               |
| Middle oil   | <b>CARBOLIC OIL</b>  | 17             |               |
| Milk acid  | <b>LACTIC ACID</b>   | 17             |               |
| Milk of magnesia   | <b>MAGNESIUM HYDROXIDE SLURRY</b>  | 18             |               |
| Mineral jelly  | <b>PETROLATUM</b>  | 17             |               |
| Mineral wax  | <b>PETROLATUM</b>  | 17             |               |
| Mixed aliphatic oxygenated hydrocarbons, primary<br>aliphatic alcohols and aliphatic ethers: mol wt:<br>>200 | <b>OXYGENATED ALIPHATIC HYDROCARBON MIXTURE</b>                            | 17             |               |
| <b>MOLASSES</b>  |  | 18             |               |
| Monochlorobenzene  | <b>CHLOROBENZENE</b>   | 17             |               |
| Monochlorobenzol   | <b>CHLOROBENZENE</b>   | 17             |               |
| Monoethanolamine   | <b>ETHANOLAMINE</b>  | 17             |               |
| Monoethylamine   | <b>ETHYLAMINE</b>  | 17             |               |
| Monoethylamine solutions, 72% or less  | <b>ETHYLAMINE SOLUTIONS (72% OR LESS)</b>                                  | 17             |               |
| Monoisopropanolamine   | <b>ISOPROPANOLAMINE</b>  | 17             |               |
| Monoisopropylamine   | <b>ISOPROPYLAMINE</b>  | 17             |               |
| Monomethylamine  | <b>METHYLAMINE SOLUTIONS (42% OR LESS)</b>                                 | 17             |               |
| Monomethylamine solutions, 42% or less   | <b>METHYLAMINE SOLUTIONS (42% OR LESS)</b>                                 | 17             |               |
| Monopropylamine  | <b>N-PROPYLAMINE</b>   | 17             |               |
| Monopropylene glycol   | <b>PROPYLENE GLYCOL</b>  | 18             |               |
| <b>MORPHOLINE</b>  |  | 17             | 2054          |
| <b>MOTOR FUEL ANTI-KNOCK COMPOUNDS<br/>(CONTAINING LEAD ALKYL)</b>   |  | 17             | 1649          |
| Muriatic acid  | <b>HYDROCHLORIC ACID</b>   | 17             |               |
| <b>MYRCENE</b>   |  | 17             |               |
| Naphtha (petroleum), Light Steam-cracked<br>Aromatics  | <b>ALKYLBENZENE MIXTURES (CONTAINING AT LEAST 50%<br/>OF TOLUENE)</b>      | 17             |               |
| Naphtha, coal tar  | <b>COAL TAR NAPHTHA SOLVENT</b>  | 17             |               |
| <b>NAPHTHALENE (MOLTEN)</b>  |  | 17             | 2304          |
| <b>NAPHTHALENESULPHONIC ACID-<br/>FORMALDEHYDE COPOLYMER, SODIUM<br/>SALT SOLUTION</b>                       |  | 17             |               |
| Naphtha safety solvent   | <b>WHITE SPIRIT, LOW (15-20%) AROMATIC</b>                                 | 17             |               |
| <b>NEODECANOIC ACID</b>  |  | 17             |               |
| Neodecanoic acid, 2,3-epoxypropyl ester  | <b>GLYCIDYL ESTER OF C10 TRIALKYLACETIC ACID</b>                           | 17             |               |

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| Neodecanoic acid, glycidyl ester                              | GLYCIDYL ESTER OF C10 TRIALKYLACETIC ACID         | 17             |               |
| Neodecanoic acid vinyl ester                                  | VINYL NEODECANOATE                                | 17             |               |
| Neopentane  | PENTANE (ALL ISOMERS)                             | 17             |               |
| Neopentanoic acid   | TRIMETHYLACETIC ACID                              | 17             |               |
| Neopentylene glycol   | 2,2-DIMETHYLPROPANE-1,3-DIOL (MOLTEN OR SOLUTION) | 17             |               |
| <b>NITRATING ACID (MIXTURE OF SULPHURIC AND NITRIC ACIDS)</b> |   | 17             | 1796          |
| <b>NITRIC ACID (70% AND OVER)</b>                             |   | 17             | 2031, 203     |
| <b>NITRIC ACID (LESS THAN 70%)</b>                            |   | 17             | 2031          |
| Nitric acid, fuming   | NITRIC ACID (70% AND OVER)                        | 17             |               |
| Nitric acid, red fuming                                       | NITRIC ACID (70% AND OVER)                        | 17             |               |
| <b>NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION</b>         |   | 17             |               |
| Nitrilo-2,2',2"-triethanol                                    | TRIETHANOLAMINE                                   | 17             |               |
| 2,2',2"-Nitrilotriethanol                                     | TRIETHANOLAMINE                                   | 17             |               |
| 2,2',2"-Nitrilotriethanol                                     | TRIETHANOLAMINE                                   | 17             |               |
| 1,1',1"-Nitrilotripropan-2-ol                                 | TRISOPROPANOLAMINE                                | 17             |               |
| 1,1',1"-Nitrilotri-2-propanol                                 | TRISOPROPANOLAMINE                                | 17             |               |
| 1,1',1"-Nitrilotripropan-2-ol                                 | TRISOPROPANOLAMINE                                | 17             |               |
| <b>NITROBENZENE</b>   |   | 17             | 1662          |
| Nitrobenzol   | NITROBENZENE                                      | 17             |               |
| o-Nitrochlorobenzene  | O-CHLORONITROBENZENE                              | 17             |               |
| <b>NITROETHANE</b>  |   | 17             | 2842          |
| <b>NITROETHANE(80%)/NITROPROPANE(20%)</b>                     |   | 17             |               |
| <b>NITROETHANE, 1-NITROPROPANE (EACH 15% OR MORE) MIXTURE</b> |   | 17             |               |
| ortho-Nitrophenol   | O-NITROPHENOL (MOLTEN)                            | 17             |               |
| 2-Nitrophenol   | O-NITROPHENOL (MOLTEN)                            | 17             |               |
| 2-Nitrophenol (molten)  | O-NITROPHENOL (MOLTEN)                            | 17             |               |
| o-Nitrophenol   | O-NITROPHENOL (MOLTEN)                            | 17             |               |
| <b>O-NITROPHENOL (MOLTEN)</b>                                 |   | 17             | 1663          |
| <b>1- OR 2-NITROPROPANE</b>                                   |   | 17             | 2608          |
| <b>NITROPROPANE (60%)/NITROETHANE (40%) MIXTURE</b>           |   | 17             |               |
| 2-Nitrotoluene  | O- OR P-NITROTOLUENES                             | 17             |               |
| 4-Nitrotoluene  | O- OR P-NITROTOLUENES                             | 17             |               |
| o-Nitrotoluene  | O- OR P-NITROTOLUENES                             | 17             |               |
| p-Nitrotoluene  | O- OR P-NITROTOLUENES                             | 17             |               |
| <b>O- OR P-NITROTOLUENES</b>                                  |   | 17             | 1664          |
| <b>NONANE (ALL ISOMERS)</b>                                   |   | 17             | 1920          |
| n-Nonane  | NONANE (ALL ISOMERS)                              | 17             |               |
| <b>NONANOIC ACID (ALL ISOMERS)</b>                            |   | 17             |               |
| Nonanols  | NONYL ALCOHOL (ALL ISOMERS)                       | 17             |               |
| <b>NONENE (ALL ISOMERS)</b>                                   |   | 17             |               |
| <b>NONYL ALCOHOL (ALL ISOMERS)</b>                            |   | 17             |               |
| Nonylcarbinol   | DECYL ALCOHOL (ALL ISOMERS)                       | 17             |               |
| Nonylene  | NONENE (ALL ISOMERS)                              | 17             |               |
| Nonyl hydride   | NONANE (ALL ISOMERS)                              | 17             |               |
| <b>NONYL METHACRYLATE MONOMER</b>                             |   | 17             |               |
| <b>NONYLPHENOL</b>  |   | 17             |               |
| <b>NONYLPHENOL POLY(4+)ETHOXYLATE</b>                         |   | 17             |               |
| alpha-4-Nonylphenyl-omega-hydroxypoly(oxyethylene)            | ALKARYL POLYETHERS (C9-C20)                       | 17             |               |
| Nopinene  | BETA-PINENE                                       | 17             |               |

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| Nopinene  | BETA-PINENE                 | 17             |               |
| NOXIOUS LIQUID, NF, (1) N.O.S. (TRADE NAME ....., CONTAINS .....) ST1, CAT. X |                             | 17             |               |
| NOXIOUS LIQUID, F, (2) N.O.S. (TRADE NAME ....., CONTAINS .....) ST1, CAT. X  |                             | 17             |               |
| NOXIOUS LIQUID, NF, (3) N.O.S. (TRADE NAME ....., CONTAINS .....) ST2, CAT. X |                             | 17             |               |
| NOXIOUS LIQUID, F, (4) N.O.S. (TRADE NAME ....., CONTAINS .....) ST2, CAT. X  |                             | 17             |               |
| NOXIOUS LIQUID, NF, (5) N.O.S. (TRADE NAME ....., CONTAINS .....) ST2, CAT. Y |                             | 17             |               |
| NOXIOUS LIQUID, F, (6) N.O.S. (TRADE NAME ....., CONTAINS .....) ST2, CAT. Y  |                             | 17             |               |
| NOXIOUS LIQUID, NF, (7) N.O.S. (TRADE NAME ....., CONTAINS .....) ST3, CAT. Y |                             | 17             |               |
| NOXIOUS LIQUID, F, (8) N.O.S. (TRADE NAME ....., CONTAINS .....) ST3, CAT. Y  |                             | 17             |               |
| NOXIOUS LIQUID, NF, (9) N.O.S. (TRADE NAME ....., CONTAINS .....) ST3, CAT. Z |                             | 17             |               |
| NOXIOUS LIQUID, F, (10) N.O.S. (TRADE NAME ....., CONTAINS .....) ST3, CAT. Z |                             | 17             |               |
| NOXIOUS LIQUID, (11) N.O.S. (TRADE NAME ....., CONTAINS .....) CAT. Z         |                             | 18             |               |
| NON NOXIOUS LIQUID, (12) N.O.S. (TRADE NAME ....., CONTAINS .....) CAT. OS    |                             | 18             |               |
| Octadecan-1-ol  | ALCOHOLS (C13+)             | 17             |               |
| 1-Octadecanol   | ALCOHOLS (C13+)             | 17             |               |
| Octanal   | OCTYL ALDEHYDES             | 17             |               |
| OCTANE (ALL ISOMERS)  |                             | 17             | 1262          |
| OCTANOIC ACID (ALL ISOMERS)   |                             | 17             |               |
| OCTANOL (ALL ISOMERS)   |                             | 17             |               |
| Octan-1-ol  | OCTANOL (ALL ISOMERS)       | 17             |               |
| OCTENE (ALL ISOMERS)  |                             | 17             |               |
| Octoic acid   | OCTANOIC ACID (ALL ISOMERS) | 17             |               |
| Octyl acetate   | N-OCTYL ACETATE             | 17             |               |
| N-OCTYL ACETATE   |                             | 17             |               |
| Octyl acrylate  | 2-ETHYLHEXYL ACRYLATE       | 17             |               |
| Octyl adipate   | DI-(2-ETHYLHEXYL) ADIPATE   | 17             |               |
| Octyl alcohol   | OCTANOL (ALL ISOMERS)       | 17             |               |
| OCTYL ALDEHYDES   |                             | 17             | 1191          |
| Octylcarbinol   | NONYL ALCOHOL (ALL ISOMERS) | 17             |               |
| OCTYL DECYL ADIPATE   |                             | 17             |               |
| Octyl decyl phthalate   | DIALKYL (C7-C13) PHTHALATES | 17             |               |
| Octylic acid  | OCTANOIC ACID (ALL ISOMERS) | 17             |               |
| Octyl nitrate   | ALKYL (C7-C9) NITRATES      | 17             |               |
| Octyl nitrates (all isomers)  | ALKYL (C7-C9) NITRATES      | 17             |               |
| Octyl phthalate   | DIALKYL (C7-C13) PHTHALATES | 17             |               |
| Oenanthic acid  | N-HEPTANOIC ACID            | 17             |               |
| Oenanthylic acid  | N-HEPTANOIC ACID            | 17             |               |
| Oil of Mirbane  | NITROBENZENE                | 17             |               |
| Oil of Myrbane  | NITROBENZENE                | 17             |               |
| Oil of turpentine   | TURPENTINE                  | 17             |               |
| Oil of vitriol  | OLEUM                       | 17             |               |
| Oil of vitriol  | SULPHURIC ACID              | 17             |               |
| Oil of wintergreen  | METHYL SALICYLATE           | 17             |               |
| Oleamine  | OLEYLAMINE                  | 17             |               |

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| <b>OLEFIN-ALKYL ESTER COPOLYMER (MOLECULAR WEIGHT 2000+)</b> |   | 17             |               |
| <b>OLEFIN MIXTURES (C5-C7)</b>                               |   | 17             |               |
| <b>OLEFIN MIXTURES (C5-C15)</b>                              |   | 17             |               |
| <b>OLEFINS (C13+, ALL ISOMERS)</b>                           |   | 17             |               |
| <b>ALPHA-OLEFINS (C6-C18) MIXTURES</b>                       |   | 17             |               |
| <b>OLEIC ACID</b>  |   | 17             |               |
| <b>OLEUM</b>   |   | 17             | 1831          |
| <b>OLEYLAMINE</b>  |   | 17             |               |
| Olive-Pomace Oil   | <b>OLIVE OIL</b>                              | 17             |               |
| <b>OLIVE OIL</b>   |   | 17             |               |
| Orthophosphoric acid   | <b>PHOSPHORIC ACID</b>                        | 17             |               |
| Oxal   | <b>GLYOXAL SOLUTION (40% OR LESS)</b>         | 17             |               |
| Oxaldehyde   | <b>GLYOXAL SOLUTION (40% OR LESS)</b>         | 17             |               |
| 3-Oxapentane-1,5-diol  | <b>DIETHYLENE GLYCOL</b>                      | 18             |               |
| 1,4-Oxazinanone  | <b>MORPHOLINE</b>                             | 17             |               |
| 2-Oxetanone  | <b>BETA-PROPIOLACTONE</b>                     | 17             |               |
| Oxoacetic acid   | <b>GLYOXYLIC ACID SOLUTION (50 % OR LESS)</b> | 17             |               |
| Oxoethanoic acid   | <b>GLYOXYLIC ACID SOLUTION (50 % OR LESS)</b> | 17             |               |
| 2,2'-Oxybis(1-chloropropane)                                 | <b>2,2'-DICHLOROISOPROPYL ETHER</b>           | 17             |               |
| 2,2'-Oxybis(ethyleneoxy)diethanol                            | <b>TETRAETHYLENE GLYCOL</b>                   | 17             |               |
| 2,2'-Oxybispropane   | <b>ISOPROPYL ETHER</b>                        | 17             |               |
| 2,2'-Oxydiethanol  | <b>DIETHYLENE GLYCOL</b>                      | 18             |               |
| 1,1'-Oxydipropan-2-ol  | <b>DIPROPYLENE GLYCOL</b>                     | 17             |               |
| Oxyethanoic acid   | <b>GLYCOLIC ACID SOLUTION (70% OR LESS)</b>   | 17             |               |
| <b>OXYGENATED ALIPHATIC HYDROCARBON MIXTURE</b>              |   | 17             | 1993          |
| Oxymethylene   | <b>FORMALDEHYDE SOLUTIONS (45% OR LESS)</b>   | 17             |               |
| <b>PALM ACID OIL</b>   |   | 17             |               |
| <b>PALM FATTY ACID DISTILLATE</b>                            |   | 17             |               |
| <b>PALM KERNEL OIL</b>                                       |   | 17             |               |
| <b>PALM KERNEL OLEIN</b>                                     |   | 17             |               |
| <b>PALM KERNEL STEARIN</b>                                   |   | 17             |               |
| <b>PALM OIL</b>  |   | 17             |               |
| <b>PALM OIL FATTY ACID METHYL ESTER</b>                      |   | 17             |               |
| Palm oil methyl ester  | <b>PALM OIL FATTY ACID METHYL ESTER</b>       | 17             |               |
| <b>PALM OLEIN</b>  |   | 17             |               |
| <b>PALM STEARIN</b>  |   | 17             |               |
| Paraffin   | <b>PARAFFIN WAX</b>                           | 17             |               |
| Paraffin jelly   | <b>PETROLATUM</b>                             | 17             |               |
| Paraffin scale   | <b>PARAFFIN WAX</b>                           | 17             |               |
| n-Paraffins (C10-C20)  | <b>N-ALKANES (C10+)</b>                       | 17             |               |
| <b>PARAFFIN WAX</b>  |   | 17             |               |
| <b>PARALDEHYDE</b>   |   | 17             | 1264          |
| <b>PARALDEHYDE-AMMONIA REACTION PRODUCT</b>                  |   | 17             | 2920          |
| Pear oil   | <b>AMYL ACETATE (ALL ISOMERS)</b>             | 17             |               |
| Pelargonic acid  | <b>NONANOIC ACID (ALL ISOMERS)</b>            | 17             |               |
| Pelargonic alcohol   | <b>NONYL ALCOHOL (ALL ISOMERS)</b>            | 17             |               |
| <b>PENTACHLOROETHANE</b>                                     |   | 17             | 1669          |
| Pentadecanol   | <b>ALCOHOLS (C13+)</b>                        | 17             |               |
| Pentadec-1-ene   | <b>OLEFINS (C13+, ALL ISOMERS)</b>            | 17             |               |
| 1-Pentadecene  | <b>OLEFINS (C13+, ALL ISOMERS)</b>            | 17             |               |
| Penta-1,3-diene  | <b>1,3-PENTADIENE</b>                         | 17             |               |

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| <b>1,3-PENTADIENE</b>   |   | 17      |        |
| Pentaethylene glycol  | <b>POLYETHYLENE GLYCOL</b>  | 17      |        |
| Pentalin  | <b>PENTACHLOROETHANE</b>  | 17      |        |
| Pentamethylene  | <b>CYCLOPENTANE</b>   | 17      |        |
| 2,2,4,6,6-Pentamethyl-4-heptanethiol                              | <b>TERT-DODECANETHIOL</b>   | 17      |        |
| Pentanal  | <b>VALERALDEHYDE (ALL ISOMERS)</b>                                  | 17      |        |
| Pentane   | <b>PENTANE (ALL ISOMERS)</b>  | 17      |        |
| <b>PENTANE (ALL ISOMERS)</b>                                      |   | 17      | 1265   |
| Pentanedial solutions, 50% or less                                | <b>GLUTARALDEHYDE SOLUTIONS (50% OR LESS)</b>                       | 17      |        |
| n-Pentane   | <b>PENTANE (ALL ISOMERS)</b>  | 17      |        |
| <b>PENTANOIC ACID</b>   |   | 17      |        |
| <b>N-PENTANOIC ACID (64%)/2-METHYL BUTYRIC ACID (36%) MIXTURE</b> |   | 17      |        |
| tert-Pentanoic acid   | <b>TRIMETHYLACETIC ACID</b>   | 17      |        |
| Pentan-1-ol   | <b>N-AMYL ALCOHOL</b>   | 17      |        |
| Pentan-2-ol   | <b>SEC-AMYL ALCOHOL</b>   | 17      |        |
| Pentan-3-ol   | <b>SEC-AMYL ALCOHOL</b>   | 17      |        |
| 1-Pentanol  | <b>N-AMYL ALCOHOL</b>   | 17      |        |
| 2-Pentanol  | <b>SEC-AMYL ALCOHOL</b>   | 17      |        |
| 3-Pentanol  | <b>SEC-AMYL ALCOHOL</b>   | 17      |        |
| 1-Pentanol acetate  | <b>AMYL ACETATE (ALL ISOMERS)</b>                                   | 17      |        |
| n-Pentanol  | <b>N-AMYL ALCOHOL</b>   | 17      |        |
| sec-Pentanol  | <b>SEC-AMYL ALCOHOL</b>   | 17      |        |
| tert-Pentanol   | <b>TERT-AMYL ALCOHOL</b>  | 17      |        |
| Pentan-2-one  | <b>METHYL PROPYL KETONE</b>   | 18      |        |
| 2-Pentanone   | <b>METHYL PROPYL KETONE</b>   | 18      |        |
| Pentasodium diethylenetriaminepentaacetate                        | <b>DIETHYLENTRIAMINEPENTAACETIC ACID, PENTASODIUM SALT SOLUTION</b> | 17      |        |
| <b>PENTENE (ALL ISOMERS)</b>                                      |   | 17      |        |
| Pent-1-ene  | <b>PENTENE (ALL ISOMERS)</b>  | 17      |        |
| n-Pentene   | <b>PENTENE (ALL ISOMERS)</b>  | 17      |        |
| Pentenes  | <b>PENTENE (ALL ISOMERS)</b>  | 17      |        |
| Pentyl acetate  | <b>AMYL ACETATE (ALL ISOMERS)</b>                                   | 17      |        |
| sec-Pentyl acetate  | <b>AMYL ACETATE (ALL ISOMERS)</b>                                   | 17      |        |
| Pentyl alcohol  | <b>N-AMYL ALCOHOL</b>   | 17      |        |
| sec-Pentyl alcohol  | <b>SEC-AMYL ALCOHOL</b>   | 17      |        |
| tert-Pentyl alcohol   | <b>TERT-AMYL ALCOHOL</b>  | 17      |        |
| Pentyl propanoate   | <b>N-PENTYL PROPIONATE</b>  | 17      |        |
| <b>N-PENTYL PROPIONATE</b>  |   | 17      | 1993   |
| <b>PERCHLOROETHYLENE</b>  |   | 17      | 1897   |
| Perchloromethane  | <b>CARBON TETRACHLORIDE</b>   | 17      |        |
| Perhydroazepine   | <b>HEXAMETHYLENEIMINE</b>   | 17      |        |
| <b>PETROLATUM</b>   |   | 17      |        |
| Petroleum jelly   | <b>PETROLATUM</b>   | 17      |        |
| Phene   | <b>BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)</b>          | 17      |        |
| Phenic acid   | <b>PHENOL</b>   | 17      |        |
| <b>PHENOL</b>   |   | 17      | 2312   |
| 2-Phenoxyethanol  | <b>ETHYLENE GLYCOL PHENYL ETHER</b>                                 | 17      |        |
| Phenyl alkane(C10-C21)sulphonate                                  | <b>ALKYL SULPHONIC ACID ESTER OF PHENOL</b>                         | 17      |        |
| Phenylamine   | <b>ANILINE</b>  | 17      |        |
| N-Phenyl aniline  | <b>DIPHENYLAMINE (MOLTEN)</b>                                       | 17      |        |
| N-Phenylbenzenamine   | <b>DIPHENYLAMINE (MOLTEN)</b>                                       | 17      |        |
| 1-Phenylbutane  | <b>BUTYLBENZENE (ALL ISOMERS)</b>                                   | 17      |        |



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| 2-Phenylbutane                                 | BUTYLBENZENE (ALL ISOMERS)                          | 17             |               |
| Phenyl carbinol                                | BENZYL ALCOHOL                                      | 17             |               |
| Phenyl 'cellosolve'                            | ETHYLENE GLYCOL PHENYL ETHER                        | 17             |               |
| Phenyl chloride                                | CHLOROBENZENE                                       | 17             |               |
| 1-Phenyldecane                                 | ALKYL(C9+)BENZENES                                  | 17             |               |
| 1-Phenyldodecane                               | ALKYL(C9+)BENZENES                                  | 17             |               |
| Phenylethane                                   | ETHYLBENZENE  | 17             |               |
| Phenyl ether                                   | DIPHENYL ETHER                                      | 17             |               |
| Phenylethylene                                 | STYRENE MONOMER                                     | 17             |               |
| 1-Phenylethylxylene                            | 1-PHENYL-1-XYLYL ETHANE                             | 17             |               |
| Phenyl hydride                                 | BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I) | 17             |               |
| Phenyl hydroxide                               | PHENOL  | 17             |               |
| Phenylic acid                                  | PHENOL  | 17             |               |
| Phenylmethane                                  | TOLUENE   | 17             |               |
| Phenylmethanol                                 | BENZYL ALCOHOL                                      | 17             |               |
| Phenylmethyl acetate                           | BENZYL ACETATE                                      | 17             |               |
| 1-Phenylpropane                                | PROPYLBENZENE (ALL ISOMERS)                         | 17             |               |
| 2-Phenylpropane                                | PROPYLBENZENE (ALL ISOMERS)                         | 17             |               |
| 2-Phenylpropene                                | ALPHA-METHYLSTYRENE                                 | 17             |               |
| 1-Phenyltetradecane                            | ALKYL(C9+)BENZENES                                  | 17             |               |
| 1-Phenyltridecane                              | ALKYL(C9+)BENZENES                                  | 17             |               |
| 1-Phenylundecane                               | ALKYL(C9+)BENZENES                                  | 17             |               |
| Phenylxylylethane                              | 1-PHENYL-1-XYLYL ETHANE                             | 17             |               |
| <b>1-PHENYL-1-XYLYL ETHANE</b>                 |   | 17             |               |
| 1-Phenyl-1-(2,5-xylyl)ethane                   | 1-PHENYL-1-XYLYL ETHANE                             | 17             |               |
| 1-Phenyl-1-(3,4-xylyl)ethane                   | 1-PHENYL-1-XYLYL ETHANE                             | 17             |               |
| <b>PHOSPHATE ESTERS, ALKYL (C12-C14) AMINE</b> |   | 17             | 2053          |
| L-alpha-Phosphatidyl choline                   | LECITHIN  | 18             |               |
| N-(phosphonomethyl)glycine                     | GLYPHOSATE SOLUTION (NOT CONTAINING SURFACTANT)     | 17             |               |
| <b>PHOSPHORIC ACID</b>                         |   | 17             | 1805          |
| <b>PHOSPHORUS, YELLOW OR WHITE</b>             |   | 17             | 1381, 244     |
| Phthalandione                                  | PTHALIC ANHYDRIDE (MOLTEN)                          | 17             |               |
| Phthalic acid anhydride                        | PTHALIC ANHYDRIDE (MOLTEN)                          | 17             |               |
| Phthalic acid, diundecyl ester                 | DIUNDECYL PHTHALATE                                 | 17             |               |
| <b>PHTHALIC ANHYDRIDE (MOLTEN)</b>             |   | 17             | 2214          |
| 2-Picoline                                     | 2-METHYLPYRIDINE                                    | 17             |               |
| 3-Picoline                                     | 3-METHYLPYRIDINE                                    | 17             |               |
| 4-Picoline                                     | 4-METHYLPYRIDINE                                    | 17             |               |
| alpha-Picoline                                 | 2-METHYLPYRIDINE                                    | 17             |               |
| beta-Picoline                                  | 3-METHYLPYRIDINE                                    | 17             |               |
| gamma-Picoline                                 | 4-METHYLPYRIDINE                                    | 17             |               |
| Pimelic ketone                                 | CYCLOHEXANONE                                       | 17             |               |
| 2(10)-Pinene                                   | BETA-PINENE   | 17             |               |
| 2-Pinene                                       | ALPHA-PINENE  | 17             |               |
| <b>ALPHA-PINENE</b>                            |   | 17             | 2368          |
| <b>BETA-PINENE</b>                             |   | 17             | 2368          |
| <b>PINE OIL</b>                                |   | 17             | 1272          |
| 2-Piperazin-1-ylethylamine                     | N-AMINOETHYLPIPERAZINE                              | 17             |               |
| Piperylene                                     | 1,3-PENTADIENE                                      | 17             |               |
| Pivalic acid                                   | TRIMETHYLACETIC ACID                                | 17             |               |
| Poly(oxyethyleneoxyethyleneoxyphthaloyl)       | DIETHYLENE GLYCOL PHTHALATE                         | 17             |               |

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| Poly(propylene oxide)   | <b>POLYPROPYLENE GLYCOL</b>   | 17             |               |
| Poly(sodium carboxylatoethylene)  | <b>SODIUM POLY(4+)ACRYLATE SOLUTIONS</b>  | 17             |               |
| <b>POLYACRYLIC ACID SOLUTION (40% OR LESS)</b>  |   | 17             |               |
| <b>POLYALKYL (C18-C22) ACRYLATE IN XYLENE</b>   |   | 17             |               |
| <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>  |   | 17             |               |
| <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE</b>   |   | 17             |               |
| Poly (2-8) alkylene (C2-C3) glycols / Polyalkylene (C2-C10) glycol monoalkyl (C1-C4) ethers and their borate esters | <b>BRAKE FLUID BASE MIX: POLY(2-8)ALKYLENE (C2-C3) GLYCOLS/POLYALKYLENE (C2-C10) GLYCOLS MONOALKYL (C1-C4) ETHERS AND THEIR BORATE ESTERS</b> | 17             |               |
| <b>POLYALKYL (C10-C20) METHACRYLATE</b>   |   | 17             |               |
| <b>POLYALKYL (C10-C18) METHACRYLATE/ETHYLENE-PROPYLENE COPOLYMER MIXTURE</b>  |   | 17             | 3257          |
| <b>POLYALUMINIUM CHLORIDE SOLUTION</b>  |   | 18             |               |
| <b>POLYBUTENE</b>   |   | 17             |               |
| <b>POLYBUTENYL SUCCINIMIDE</b>  |   | 17             |               |
| <b>POLY(2+)CYCLIC AROMATICS</b>   |   | 17             |               |
| <b>POLYETHYLENE GLYCOL</b>  |   | 17             |               |
| Poly(4-12)ethylene glycol alkyl(C7-C11)phenyl ether   | <b>NONYLPHENOL POLY(4+)ETHOXYLATE</b>   | 17             |               |
| <b>POLYETHYLENE GLYCOL DIMETHYL ETHER</b>   |   | 17             |               |
| Polyethylene glycols, mono(p-nonylphenyl) ether   | <b>ALKARYL POLYETHERS (C9-C20)</b>  | 17             |               |
| Polyethylene polyamines (in C5 - C20 paraffin oil).   | <b>POLYETHYLENE POLYAMINES</b>  | 17             |               |
| <b>POLYETHYLENE POLYAMINES</b>  |   | 17             | 2734(i) 2     |
| <b>POLYFERRIC SULPHATE SOLUTION</b>   |   | 17             |               |
| <b>POLYGLYCERIN, SODIUM SALT SOLUTION (CONTAINING LESS THAN 3% SODIUM HYDROXIDE)</b>                                |   | 18             |               |
| <b>POLY(IMINOETHYLENE)-GRAFT-N-POLY(ETHYLENEOXY) SOLUTION (90% OR LESS)</b>   |   | 17             |               |
|   | <b>POLYETHYLENE POLYAMINES</b>  | 17             |               |
| <b>POLYISOBUTENAMINE IN ALIPHATIC (C10-C14) SOLVENT</b>   |   | 17             |               |
| <b>POLYISOBUTENYL ANHYDRIDE ADDUCT</b>  |   | 17             |               |
| Polyisobutylene   | <b>POLY(4+)ISOBUTYLENE</b>  | 17             |               |
| <b>POLY(4+)ISOBUTYLENE</b>  |   | 17             |               |
| <b>POLYMETHYLENE POLYPHENYL ISOCYANATE</b>  |   | 17             | 2206(i) 2     |
| <b>POLYOLEFIN (MOLECULAR WEIGHT 300+)</b>   |   | 17             |               |
| <b>POLYOLEFIN AMIDE ALKENEAMINE (C17+)</b>  |   | 17             |               |
| <b>POLYOLEFIN AMIDE ALKENEAMINE BORATE (C28-C250)</b>   |   | 17             |               |
| <b>POLYOLEFINAMINE (C28-C250)</b>   |   | 17             |               |
| <b>POLYOLEFINAMINE IN ALKYL (C2-C4) BENZENES</b>  |   | 17             |               |
| <b>POLYOLEFINAMINE IN AROMATIC SOLVENT</b>  |   | 17             |               |
| <b>POLYOLEFIN AMINOESTER SALTS (MW 2000+)</b>   |   | 17             |               |
| <b>POLYOLEFIN ANHYDRIDE</b>   |   | 17             |               |
| <b>POLYOLEFIN ESTER (C28-C250)</b>  |   | 17             |               |

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| <b>POLYOLEFIN PHENOLIC AMINE (C28-C250)</b>                          |  | 17             |               |
| <b>POLYOLEFIN PHOSPHOROSULPHIDE, BARIUM DERIVATIVE (C28-C250)</b>    |  | 17             |               |
| <b>POLY(20)OXYETHYLENE SORBITAN MONOOLEATE</b>                       |  | 17             |               |
| poly[oxy-p-phenylenemethylene-p-phenyleneoxy(2-hydroxytrimethylene)] | <b>DIGLYCIDYL ETHER OF BISPHENOL F</b>           | 17             |               |
| poly[(phenyl isocyanate)-alt-formaldehyde]                           | <b>POLYMETHYLENE POLYPHENYL ISOCYANATE</b>       | 17             |               |
| Poly[(phenyl isocyanate)-co-formaldehyde]                            | <b>POLYMETHYLENE POLYPHENYL ISOCYANATE</b>       | 17             |               |
| Polyphenyl-polymethylene isocyanate                                  | <b>POLYMETHYLENE POLYPHENYL ISOCYANATE</b>       | 17             |               |
| Polypropylene  | <b>POLY(5+)PROPYLENE</b>                         | 17             |               |
| <b>POLY(5+)PROPYLENE</b>   |  | 17             |               |
| <b>POLYPROPYLENE GLYCOL</b>  |  | 17             |               |
| <b>POLYSILOXANE</b>  |  | 17             |               |
| Potassium chloride drilling brine                                    | <b>POTASSIUM CHLORIDE SOLUTION (10% OR MORE)</b> | 17             |               |
| <b>POTASSIUM CHLORIDE SOLUTION (10% OR MORE)</b>                     |  | 17             |               |
| <b>POTASSIUM FORMATE SOLUTIONS</b>                                   |  | 18             |               |
| <b>POTASSIUM HYDROXIDE SOLUTION</b>                                  |  | 17             | 1814          |
| <b>POTASSIUM OLEATE</b>  |  | 17             |               |
| <b>POTASSIUM THIOSULPHATE (50% OR LESS)</b>                          |  | 17             |               |
| Propanal   | <b>PROPIONALDEHYDE</b>                           | 17             |               |
| Propan-1-amine   | <b>N-PROPYLAMINE</b>                             | 17             |               |
| 2-Propanamine  | <b>ISOPROPYLAMINE</b>                            | 17             |               |
| Propane-1,2-diol   | <b>PROPYLENE GLYCOL</b>                          | 18             |               |
| 1,2-Propanediol  | <b>PROPYLENE GLYCOL</b>                          | 18             |               |
| 1,2-Propanediol cyclic carbonate                                     | <b>PROPYLENE CARBONATE</b>                       | 18             |               |
| Propanenitrile   | <b>PROPIONITRILE</b>                             | 17             |               |
| Propane-1,2,3-triol  | <b>GLYCERINE</b>                                 | 18             |               |
| 1,2,3-Propanetriol   | <b>GLYCERINE</b>                                 | 18             |               |
| 1,2,3-Propane triol triacetate                                       | <b>GLYCERYL TRIACETATE</b>                       | 17             |               |
| Propanoic acid   | <b>PROPIONIC ACID</b>                            | 17             |               |
| Propanoic anhydride  | <b>PROPIONIC ANHYDRIDE</b>                       | 17             |               |
| Propanol   | <b>N-PROPYL ALCOHOL</b>                          | 17             |               |
| Propan-1-ol  | <b>N-PROPYL ALCOHOL</b>                          | 17             |               |
| Propan-2-ol  | <b>ISOPROPYL ALCOHOL</b>                         | 18             |               |
| 1-Propanol   | <b>N-PROPYL ALCOHOL</b>                          | 17             |               |
| 2-Propanol   | <b>ISOPROPYL ALCOHOL</b>                         | 18             |               |
| <b>N-PROPANOLAMINE</b>   |  | 17             |               |
| 3-Propanolide  | <b>BETA-PROPIOLACTONE</b>                        | 17             |               |
| n-Propanol   | <b>N-PROPYL ALCOHOL</b>                          | 17             |               |
| Propanone  | <b>ACETONE</b>                                   | 18             |               |
| Propan-2-one   | <b>ACETONE</b>                                   | 18             |               |
| 2-Propanone  | <b>ACETONE</b>                                   | 18             |               |
| Propenamide solution, 50% or less                                    | <b>ACRYLAMIDE SOLUTION (50% OR LESS)</b>         | 17             |               |
| Propenenitrile   | <b>ACRYLONITRILE</b>                             | 17             |               |
| Propene oxide  | <b>PROPYLENE OXIDE</b>                           | 17             |               |
| 2-Propenoic acid, homopolymer solution (40% or less)                 | <b>POLYACRYLIC ACID SOLUTION (40% OR LESS)</b>   | 17             |               |
| Propenoic acid   | <b>ACRYLIC ACID</b>                              | 17             |               |
| Prop-2-en-1-ol   | <b>ALLYL ALCOHOL</b>                             | 17             |               |
| 1-Propenol-3   | <b>ALLYL ALCOHOL</b>                             | 17             |               |
| 2-Propen-1-ol  | <b>ALLYL ALCOHOL</b>                             | 17             |               |

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| Propenyl alcohol                              | ALLYL ALCOHOL                                  | 17             |               |
| Propiolactone                                 | BETA-PROPIOLACTONE                             | 17             |               |
| <b>BETA-PROPIOLACTONE</b>                     |  | 17             |               |
| <b>PROPIONALDEHYDE</b>                        |  | 17             | 1275          |
| <b>PROPIONIC ACID</b>                         |  | 17             | 1848          |
| Propionic aldehyde                            | PROPIONALDEHYDE                                | 17             |               |
| <b>PROPIONIC ANHYDRIDE</b>                    |  | 17             | 2496          |
| <b>PROPIONITRILE</b>                          |  | 17             | 2404          |
| beta-Propionolactone                          | BETA-PROPIOLACTONE                             | 17             |               |
| Propionitrile                                 | PROPIONITRILE                                  | 17             |               |
| Propionyl oxide                               | PROPIONIC ANHYDRIDE                            | 17             |               |
| 1-Propoxypropan-2-ol                          | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| Propyl acetate                                | N-PROPYL ACETATE                               | 17             |               |
| <b>N-PROPYL ACETATE</b>                       |  | 17             |               |
| Propyl acetone                                | METHYL BUTYL KETONE                            | 17             |               |
| Propyl alcohol                                | N-PROPYL ALCOHOL                               | 17             |               |
| 2-Propyl alcohol                              | ISOPROPYL ALCOHOL                              | 18             |               |
| <b>N-PROPYL ALCOHOL</b>                       |  | 17             | 1274          |
| sec-Propyl alcohol                            | ISOPROPYL ALCOHOL                              | 18             |               |
| Propyl aldehyde                               | PROPIONALDEHYDE                                | 17             |               |
| Propylamine                                   | N-PROPYLAMINE                                  | 17             |               |
| <b>N-PROPYLAMINE</b>                          |  | 17             | 1277          |
| <b>PROPYLBENZENE (ALL ISOMERS)</b>            |  | 17             |               |
| n-Propylbenzene                               | PROPYLBENZENE (ALL ISOMERS)                    | 17             |               |
| Propylcarbinol                                | N-BUTYL ALCOHOL                                | 18             |               |
| Propylene aldehyde                            | CROTONALDEHYDE                                 | 17             |               |
| 2,2'-[Propylenebis(nitrilomethylene)]diphenol | ALKYL (C8-C9) PHENYLAMINE IN AROMATIC SOLVENTS | 17             |               |
| <b>PROPYLENE CARBONATE</b>                    |  | 18             |               |
| Propylene chloride                            | 1,2-DICHLOROPROPANE                            | 17             |               |
| Propylene dichloride                          | 1,2-DICHLOROPROPANE                            | 17             |               |
| alpha,alpha'- (Propylenedinitrilo)di-o-cresol | ALKYL (C8-C9) PHENYLAMINE IN AROMATIC SOLVENTS | 17             |               |
| Propylene epoxide                             | PROPYLENE OXIDE                                | 17             |               |
| <b>PROPYLENE GLYCOL</b>                       |  | 18             |               |
| 1,2-Propylene glycol                          | PROPYLENE GLYCOL                               | 18             |               |
| Propylene glycol n-butyl ether                | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| Propylene glycol ethyl ether                  | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| Propylene glycol methyl ether                 | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| <b>PROPYLENE GLYCOL METHYL ETHER ACETATE</b>  |  | 17             |               |
| <b>PROPYLENE GLYCOL MONOALKYL ETHER</b>       |  | 17             |               |
| Propylene glycol monobutyl ether              | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| Propylene glycol monomethyl ether             | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| <b>PROPYLENE GLYCOL PHENYL ETHER</b>          |  | 17             |               |
| Propylene glycol propyl ether                 | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| Propylene glycol trimer                       | TRIPROPYLENE GLYCOL                            | 17             |               |
| 1,2-Propylene glycol trimer                   | TRIPROPYLENE GLYCOL                            | 17             |               |
| Propylene glyco beta-monoethyl ether          | PROPYLENE GLYCOL MONOALKYL ETHER               | 17             |               |
| <b>PROPYLENE OXIDE</b>                        |  | 17             | 1280          |
| <b>PROPYLENE TETRAMER</b>                     |  | 17             | 2850          |
| <b>PROPYLENE TRIMER</b>                       |  | 17             | 2057          |
| Propylethylene                                | PENTENE (ALL ISOMERS)                          | 17             |               |
| Propyl methyl ketone                          | METHYL PROPYL KETONE                           | 18             |               |

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| N-Propyl-1-propanamine  | DI-N-PROPYLAMINE                                    | 17             |               |
| Pseudobutylene glycol   | BUTYLENE GLYCOL                                     | 17             |               |
| Pseudocumene  | TRIMETHYLBENZENE (ALL ISOMERS)                      | 17             |               |
| Pseudopinene  | BETA-PINENE   | 17             |               |
| Psuedopinene  | BETA-PINENE   | 17             |               |
| Pygas   | PYROLYSIS GASOLINE (CONTAINING BENZENE)             | 17             |               |
| <b>PYRIDINE</b>   |   | 17             | 1282          |
| Pyroacetic acid   | ACETONE   | 18             |               |
| Pyroacetic ether  | ACETONE   | 18             |               |
| <b>PYROLYSIS GASOLINE (CONTAINING BENZENE)</b>                                      |   | 17             |               |
| Pyrolysis gasoline (steam-cracked naphtha)  | BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I) | 17             |               |
| Pyrolysis gasoline, containing 10% or more benzene                                  | BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I) | 17             |               |
| Pyromucic aldehyde  | FURFURAL  | 17             |               |
| <b>RAPESEED OIL</b>   |   | 17             |               |
| <b>RAPE SEED OIL FATTY ACID METHYL ESTERS</b>                                       |   | 17             |               |
| <b>RICE BRAN OIL</b>  |   | 17             |               |
| <b>ROSIN</b>  |   | 17             |               |
| Rubbing alcohol   | ISOPROPYL ALCOHOL                                   | 18             |               |
| Safety solvent  | WHITE SPIRIT, LOW (15-20%) AROMATIC                 | 17             |               |
| <b>SAFFLOWER OIL</b>  |   | 17             |               |
| Saturated fatty acid (C13 and above)  | FATTY ACID (SATURATED C13+)                         | 17             |               |
| Silvite   | POTASSIUM CHLORIDE SOLUTION (10% OR MORE)           | 17             |               |
| Sludge acid   | SULPHURIC ACID, SPENT                               | 17             |               |
| Soda ash  | SODIUM CARBONATE SOLUTION                           | 17             |               |
| Soda lye  | SODIUM HYDROXIDE SOLUTION                           | 17             |               |
| <b>SODIUM ACETATE SOLUTIONS</b>   |   | 18             |               |
| Sodium acid sulphite  | SODIUM HYDROGEN SULPHITE SOLUTION (45% OR LESS)     | 17             |               |
| Sodium alkylbenzene sulphonate  | ALKYLBENZENE SULPHONIC ACID, SODIUM SALT SOLUTION   | 17             |               |
| <b>SODIUM ALKYL (C14-C17) SULPHONATES (60-65% SOLUTION)</b>                         |   | 17             |               |
| <b>SODIUM ALUMINOSILICATE SLURRY</b>  |   | 17             |               |
| Sodium aminoacetate solution  | GLYCINE, SODIUM SALT SOLUTION                       | 17             |               |
| <b>SODIUM BENZOATE</b>  |   | 17             |               |
| Sodium 1,3-benzothiazole-2-thiolate solution  | MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION           | 17             |               |
| Sodium 1,3-benzothiazol-2-yl sulphide solution                                      | MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION           | 17             |               |
| Sodium bichromate   | SODIUM DICHROMATE SOLUTION (70% OR LESS)            | 17             |               |
| Sodium bisulphide   | SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)         | 17             |               |
| <b>SODIUM BOROHYDRIDE (15% OR LESS)/SODIUM HYDROXIDE SOLUTION</b>                   |   | 17             |               |
| <b>SODIUM CARBONATE SOLUTION</b>  |   | 17             |               |
| <b>SODIUM CHLORATE SOLUTION (50% OR LESS)</b>                                       |   | 17             | 2428          |
| Sodium cresylate  | CRESYLIC ACID, SODIUM SALT SOLUTION                 | 17             |               |
| <b>SODIUM DICHROMATE SOLUTION (70% OR LESS)</b>                                     |   | 17             |               |
| Sodium glycinate solution   | GLYCINE, SODIUM SALT SOLUTION                       | 17             |               |
| Sodium hydrate  | SODIUM HYDROXIDE SOLUTION                           | 17             |               |
| Sodium hydrogensulphide   | SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)         | 17             |               |
| <b>SODIUM HYDROGEN SULPHIDE (6% OR LESS)/SODIUM CARBONATE (3% OR LESS) SOLUTION</b> |   | 17             |               |

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| <b>SODIUM HYDROGEN SULPHITE SOLUTION (45% OR LESS)</b>            |   | 17             | 2693          |
| <b>SODIUM HYDROSULPHIDE/AMMONIUM SULPHIDE SOLUTION</b>            |   | 17             |               |
| <b>SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)</b>                |   | 17             | 2949          |
| <b>SODIUM HYDROXIDE SOLUTION</b>                                  |   | 17             | 1824          |
| <b>SODIUM HYPOCHLORITE SOLUTION (15% OR LESS)</b>                 |   | 17             | 1791          |
| Sodium lignosulphonate  | <b>LIGNINSULPHONIC ACID, SODIUM SALT SOLUTION</b>                             | 17             |               |
| Sodium mercaptan  | <b>SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)</b>                            | 17             |               |
| Sodium mercaptide   | <b>SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)</b>                            | 17             |               |
| Sodium methylcarbomodithioate                                     | <b>METAM SODIUM SOLUTION</b>  | 17             |               |
| Sodium N-methyldithiocarbamate                                    | <b>METAM SODIUM SOLUTION</b>  | 17             |               |
| Sodium methyldithiocarbamate solution                             | <b>METAM SODIUM SOLUTION</b>  | 17             |               |
| <b>SODIUM NITRITE SOLUTION</b>                                    |   | 17             | 1500          |
| <b>SODIUM PETROLEUM SULPHONATE</b>                                |   | 17             |               |
| <b>SODIUM POLY(4+)ACRYLATE SOLUTIONS</b>                          |   | 17             |               |
| Sodium rhodanate  | <b>SODIUM THIOCYANATE SOLUTION (56% OR LESS)</b>                              | 17             |               |
| Sodium rhodanide  | <b>SODIUM THIOCYANATE SOLUTION (56% OR LESS)</b>                              | 17             |               |
| Sodium salt of sulphonated naphthaleneformaldehyde condensate     | <b>NAPHTHALENESULPHONIC ACID-FORMALDEHYDE COPOLYMER, SODIUM SALT SOLUTION</b> | 17             |               |
| <b>SODIUM SILICATE SOLUTION</b>                                   |   | 17             |               |
| <b>SODIUM SULPHATE SOLUTIONS</b>                                  |   | 18             |               |
| <b>SODIUM SULPHIDE SOLUTION (15% OR LESS)</b>                     |   | 17             | 1385          |
| <b>SODIUM SULPHITE SOLUTION (25% OR LESS)</b>                     |   | 17             |               |
| Sodium sulphocyanate  | <b>SODIUM THIOCYANATE SOLUTION (56% OR LESS)</b>                              | 17             |               |
| Sodium sulphocyanide  | <b>SODIUM THIOCYANATE SOLUTION (56% OR LESS)</b>                              | 17             |               |
| Sodium sulphhydrate   | <b>SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)</b>                            | 17             |               |
| Sodium tetrahydroborate (15% or less) / sodium hydroxide solution | <b>SODIUM BOROHYDRIDE (15% OR LESS)/SODIUM HYDROXIDE SOLUTION</b>             | 17             |               |
| <b>SODIUM THIOCYANATE SOLUTION (56% OR LESS)</b>                  |   | 17             |               |
| Sodium tolyl oxides   | <b>CRESYLIC ACID, SODIUM SALT SOLUTION</b>                                    | 17             |               |
| 'D-D Soil fumigant'   | <b>DICHLOROPROPENE/DICHLOROPROPANE MIXTURES</b>                               | 17             |               |
| d-Sorbitol  | <b>SORBITOL SOLUTION</b>  | 18             |               |
| d-Sorbitol  | <b>SORBITOL SOLUTION</b>  | 18             |               |
| <b>SORBITOL SOLUTION</b>  |   | 18             |               |
| <b>SOYABEAN OIL</b>   |   | 17             |               |
| Spirit of turpentine  | <b>TURPENTINE</b>   | 17             |               |
| Spirits of wine   | <b>ETHYL ALCOHOL</b>  | 18             |               |
| Stoddard solvent  | <b>WHITE SPIRIT, LOW (15-20%) AROMATIC</b>                                    | 17             |               |
| <b>STYRENE MONOMER</b>  |   | 17             | 2055          |
| Styrol  | <b>STYRENE MONOMER</b>  | 17             |               |
| Suberane  | <b>CYCLOHEPTANE</b>   | 17             |               |
| Sulfonic acid, alkane(C10-C21) phenyl ester                       | <b>ALKYL SULPHONIC ACID ESTER OF PHENOL</b>                                   | 17             |               |
| <b>SULPHOHYDROCARBON (C3-C88)</b>                                 |   | 17             |               |
| <b>SULPHOLANE</b>   |   | 17             |               |
| <b>SULPHONATED POLYACRYLATE SOLUTION</b>                          |   | 17             |               |
| <b>SULPHUR (MOLTEN)</b>   |   | 17             | 2448          |
| <b>SULPHURIC ACID</b>   |   | 17             | 1830          |
| Sulphuric acid, fuming  | <b>OLEUM</b>  | 17             |               |
| <b>SULPHURIC ACID, SPENT</b>                                      |   | 17             | 1832          |

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| Sulphuric chlorohydrin                                   | CHLOROSULPHONIC ACID                                    | 17             |               |
| Sulphuric ether  | DIETHYL ETHER   | 17             |               |
| <b>SULPHURIZED FAT (C14-C20)</b>                         |   | 17             |               |
| <b>SULPHURIZED POLYOLEFINAMIDE</b>                       |   | 17             |               |
| <b>ALKENE (C28-C250) AMINE</b>                           |   | 17             |               |
| <b>SUNFLOWER SEED OIL</b>                                |   | 17             |               |
| Sweet-birch oil  | METHYL SALICYLATE                                       | 17             |               |
| sym-Dichloroethane                                       | ETHYLENE DICHLORIDE                                     | 17             |               |
| sym-Dichloroethyl ether                                  | DICHLOROETHYL ETHER                                     | 17             |               |
| sym-Dimethylethylene glycol                              | BUTYLENE GLYCOL   | 17             |               |
| sym-Tetrachloroethane                                    | TETRACHLOROETHANE                                       | 17             |               |
| sym-Trichlorobenzene                                     | 1,2,4-TRICHLOROBENZENE                                  | 17             |               |
| sym-Trioxane   | 1,3,5-TRIOXANE  | 17             |               |
| Talleol  | TALL OIL (CRUDE AND DISTILLED)                          | 17             |               |
| <b>TALL OIL (CRUDE AND DISTILLED)</b>                    |   | 17             |               |
| <b>TALL OIL FATTY ACID (RESIN ACIDS</b>                  |   | 17             |               |
| <b>LESS THAN 20%)</b>                                    |   | 17             |               |
| Tallol   | TALL OIL (CRUDE AND DISTILLED)                          | 17             |               |
| <b>TALLOW</b>  |   | 17             |               |
| <b>TALLOW FATTY ACID</b>                                 |   | 17             |               |
| Tar acids  | CRESOLS (ALL ISOMERS)                                   | 17             |               |
| Tar camphor  | NAPHTHALENE (MOLTEN)                                    | 17             |               |
| Terebentene  | BETA-PINENE   | 17             |               |
| 1,3,5,7-Tetraazatricyclo[3.3.1.1 <sup>3,7</sup> ]-decane | HEXAMETHYLENETETRAMINE SOLUTIONS                        | 18             |               |
| <b>TETRACHLOROETHANE</b>                                 |   | 17             | 1702          |
| 1,1,2,2-Tetrachloroethane                                | TETRACHLOROETHANE                                       | 17             |               |
| Tetrachloroethylene                                      | PERCHLOROETHYLENE                                       | 17             |               |
| 1,1,2,2-tetrachloroethylene                              | PERCHLOROETHYLENE                                       | 17             |               |
| Tetrachloromethane                                       | CARBON TETRACHLORIDE                                    | 17             |               |
| Tetradecan-1-ol  | ALCOHOLS (C13+)   | 17             |               |
| 1-Tetradecanol   | ALCOHOLS (C13+)   | 17             |               |
| Tetradecene  | OLEFINS (C13+, ALL ISOMERS)                             | 17             |               |
| Tetradecylbenzene  | ALKYL(C9+)BENZENES                                      | 17             |               |
| <b>TETRAETHYLENE GLYCOL</b>                              |   | 17             |               |
| <b>TETRAETHYLENE PENTAMINE</b>                           |   | 17             | 2320          |
| Tetraethyllead   | MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING LEAD ALKYL) | 17             |               |
| Tetraethylplumbane                                       | MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING LEAD ALKYL) | 17             |               |
| <b>TETRAETHYL SILICATE</b>                               |   | 18             |               |
| <b>MONOMER/OLIGOMER (20% IN</b>                          |   |                |               |
| <b>ETHANOL)</b>  |   |                |               |
| 3a,4,7,7a-Tetrahydro-3,5-dimethyl-4,7-methano-1H-indene  | METHYLCYCLOPENTADIENE DIMER                             | 17             |               |
| <b>TETRAHYDROFURAN</b>                                   |   | 17             | 2056          |
| Tetrahydro-2H-1,4-oxazine                                | MORPHOLINE  | 17             |               |
| <b>TETRAHYDRONAPHTHALENE</b>                             |   | 17             |               |
| 1,2,3,4-Tetrahydronaphthalene                            | TETRAHYDRONAPHTHALENE                                   | 17             |               |
| Tetrahydro-1,4-oxazine                                   | MORPHOLINE  | 17             |               |
| Tetrahydrothiophene-1-dioxide                            | SULPHOLANE  | 17             |               |
| Tetrahydrothiophene 1,1-dioxide                          | SULPHOLANE  | 17             |               |
| Tetralin   | TETRAHYDRONAPHTHALENE                                   | 17             |               |
| <b>TETRAMETHYLBENZENE (ALL ISOMERS)</b>                  |   | 17             |               |
| 1,2,3,4-Tetramethylbenzene                               | TETRAMETHYLBENZENE (ALL ISOMERS)                        | 17             |               |
| 1,2,3,5-Tetramethylbenzene                               | TETRAMETHYLBENZENE (ALL ISOMERS)                        | 17             |               |

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| 1,2,4,5-Tetramethylbenzene                                      | <b>TETRAMETHYLBENZENE (ALL ISOMERS)</b>                         | 17             |               |
| Tetramethylene cyanide  | <b>ADIPONITRILE</b>   | 17             |               |
| Tetramethylene dicyanide  | <b>ADIPONITRILE</b>   | 17             |               |
| Tetramethylene glycol   | <b>BUTYLENE GLYCOL</b>  | 17             |               |
| Tetramethylene oxide  | <b>TETRAHYDROFURAN</b>  | 17             |               |
| Tetramethylenesulphone  | <b>SULPHOLANE</b>   | 17             |               |
| Tetramethyllead   | <b>MOTOR FUEL ANTI-KNOCK COMPOUNDS (CONTAINING LEAD ALKYLs)</b> | 17             |               |
| Tetrapropylbenzene  | <b>ALKYL(C9+)BENZENES</b>                                       | 17             |               |
| Tetrapropylenebenzene   | <b>DODECYLBENZENE</b>   | 17             |               |
| Tetryl formate  | <b>ISOBUTYL FORMATE</b>   | 17             |               |
| Thiacyclopentan-1,1-dioxide                                     | <b>SULPHOLANE</b>   | 17             |               |
| 4-thiapentanal  | <b>3-(METHYLTHIO)PROPIONALDEHYDE</b>                            | 17             |               |
| Thiacyclopentan-1,1-dioxide                                     | <b>SULPHOLANE</b>   | 17             |               |
| Thiophan sulphone   | <b>SULPHOLANE</b>   | 17             |               |
| Thiosulphuric acid, dipotassium salt                            | <b>POTASSIUM THIOSULPHATE (50% OR LESS)</b>                     | 17             |               |
| Titanium(IV) oxide  | <b>TITANIUM DIOXIDE SLURRY</b>                                  | 17             |               |
| <b>TITANIUM DIOXIDE SLURRY</b>                                  |   | 17             |               |
| <b>TOLUENE</b>  |   | 17             | 1294          |
| <b>TOLUENEDIAMINE</b>   |   | 17             | 1709          |
| 2,4-Toluenediamine  | <b>TOLUENEDIAMINE</b>   | 17             |               |
| 2,6-Toluenediamine  | <b>TOLUENEDIAMINE</b>   | 17             |               |
| <b>TOLUENE DIISOCYANATE</b>                                     |   | 17             | 2078          |
| 2-Toluidine   | <b>O-TOLUIDINE</b>  | 17             |               |
| <b>O-TOLUIDINE</b>  |   | 17             | 1708          |
| Toluol  | <b>TOLUENE</b>  | 17             |               |
| o-Tolylamine  | <b>O-TOLUIDINE</b>  | 17             |               |
| 2,4-Tolylenediamine   | <b>TOLUENEDIAMINE</b>   | 17             |               |
| 2,6-Tolylenediamine   | <b>TOLUENEDIAMINE</b>   | 17             |               |
| Tolylenediisocyanate  | <b>TOLUENE DIISOCYANATE</b>                                     | 17             |               |
| 2,4-Tolylene diisocyanate                                       | <b>TOLUENE DIISOCYANATE</b>                                     | 17             |               |
| m-Tolylene diisocyanate   | <b>TOLUENE DIISOCYANATE</b>                                     | 17             |               |
| Toxilic anhydride   | <b>MALEIC ANHYDRIDE</b>   | 17             |               |
| Toxilic anhydride   | <b>MALEIC ANHYDRIDE</b>   | 17             |               |
| trans-1,3-Pentadiene  | <b>1,3-PENTADIENE</b>   | 17             |               |
| Treacle   | <b>MOLASSES</b>   | 18             |               |
| Triacetin   | <b>GLYOXAL SOLUTION (40% OR LESS)</b>                           | 17             |               |
| 3,6,9-Triazaundecamethylenediamine                              | <b>TETRAETHYLENE PENTAMINE</b>                                  | 17             |               |
| 3,6,9-Triazaundecane-1,11-diamine                               | <b>TETRAETHYLENE PENTAMINE</b>                                  | 17             |               |
| <b>TRIBUTYL PHOSPHATE</b>                                       |   | 17             |               |
| <b>1,2,3-TRICHLOROBENZENE (MOLTEN)</b>                          |   | 17             |               |
| <b>1,2,4-TRICHLOROBENZENE</b>                                   |   | 17             | 2321          |
| 1,2,3-Trichlorobenzol   | <b>1,2,3-TRICHLOROBENZENE (MOLTEN)</b>                          | 17             |               |
| <b>1,1,1-TRICHLOROETHANE</b>                                    |   | 17             | 2831          |
| <b>1,1,2-TRICHLOROETHANE</b>                                    |   | 17             |               |
| beta-Trichloroethane  | <b>1,1,2-TRICHLOROETHANE</b>                                    | 17             |               |
| Trichloroethene   | <b>TRICHLOROETHYLENE</b>  | 17             |               |
| <b>TRICHLOROETHYLENE</b>  |   | 17             | 1710          |
| Trichloromethane  | <b>CHLOROFORM</b>   | 17             |               |
| <b>1,2,3-TRICHLOROPROPANE</b>                                   |   | 17             |               |
| <b>1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE</b>                    |   | 17             |               |
| <b>TRICRESYL PHOSPHATE (CONTAINING 1% OR MORE ORTHO-ISOMER)</b> |   | 17             | 2574          |



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| <b>TRICRESYL PHOSPHATE (CONTAINING LESS THAN 1% ORTHO-ISOMER)</b> |  | 17             |               |
| <b>TRIDECANE</b>  |  | 17             |               |
| <b>TRIDECANOIC ACID</b>   |  | 17             |               |
| Tridecanol  | <b>ALCOHOLS (C13+)</b>                                   | 17             |               |
| Tridecene   | <b>OLEFINS (C13+, ALL ISOMERS)</b>                       | 17             |               |
| Tridecoic acid  | <b>TRIDECANOIC ACID</b>                                  | 17             |               |
| <b>TRIDECYL ACETATE</b>   |  | 17             |               |
| Tridecyl alcohol  | <b>ALCOHOLS (C13+)</b>                                   | 17             |               |
| Tridecylbenzene   | <b>ALKYL(C9+)BENZENES</b>                                | 17             |               |
| Tridecylic acid   | <b>FATTY ACID (SATURATED C13+)</b>                       | 17             |               |
| Tridecylic acid   | <b>TRIDECANOIC ACID</b>                                  | 17             |               |
| Tri(dimethylphenyl) phosphate                                     | <b>TRIXYLYL PHOSPHATE</b>                                | 17             |               |
| <b>TRIE THANOLAMINE</b>   |  | 17             |               |
| <b>TRIE THYLAMINE</b>   |  | 17             | 1296          |
| <b>TRIE THYLBENZENE</b>   |  | 17             |               |
| <b>TRIE THYLENE GLYCOL</b>  |  | 18             |               |
| Triethylene glycol butyl ether                                    | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>   | 17             |               |
| Triethylene glycol ethyl ether                                    | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>   | 17             |               |
| Triethylene glycol methyl ether                                   | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>   | 17             |               |
| Triethylene glycol monobutyl ether                                | <b>POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER</b>   | 17             |               |
| <b>TRIE THYLENETETRAMINE</b>                                      |  | 17             | 2259          |
| <b>TRIE THYL PHOSPHATE</b>  |  | 17             |               |
| <b>TRIE THYLPHOSPHITE</b>   |  | 17             | 2323          |
| Triformol   | <b>1,3,5-TRIOXANE</b>                                    | 17             |               |
| Triglycol   | <b>TRIE THYLENE GLYCOL</b>                               | 18             |               |
| Tri(2-hydroxyethyl)amine  | <b>TRIE THANOLAMINE</b>                                  | 17             |               |
| Tri[2-hydroxyethyl]amine  | <b>TRIE THANOLAMINE</b>                                  | 17             |               |
| Trihydroxypropane   | <b>GLYCERINE</b>   | 18             |               |
| Trihydroxytriethylamine   | <b>TRIE THANOLAMINE</b>                                  | 17             |               |
| <b>TRIE SOPROPANOLAMINE</b>                                       |  | 17             |               |
| <b>TRIE SOPROPYLATED PHENYL PHOSPHATES</b>                        |  | 17             |               |
| <b>TRIE METHYLACETIC ACID</b>                                     |  | 17             |               |
| <b>TRIE METHYLAMINE SOLUTION (30% OR LESS)</b>                    |  | 17             | 1297          |
| Trimethylaminomethane   | <b>BUTYLAMINE (ALL ISOMERS)</b>                          | 17             |               |
| <b>TRIE METHYLBENZENE (ALL ISOMERS)</b>                           |  | 17             |               |
| 1,2,3-Trimethylbenzene  | <b>TRIE METHYLBENZENE (ALL ISOMERS)</b>                  | 17             |               |
| 1,2,4-Trimethylbenzene  | <b>TRIE METHYLBENZENE (ALL ISOMERS)</b>                  | 17             |               |
| 1,3,5-Trimethylbenzene  | <b>TRIE METHYLBENZENE (ALL ISOMERS)</b>                  | 17             |               |
| 2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene                           | <b>ALPHA-PINENE</b>                                      | 17             |               |
| Trimethylcarbinol   | <b>TERT-BUTYL ALCOHOL</b>                                | 17             |               |
| 1,1,3-Trimethyl-3-cyclohexene-5-one                               | <b>ISOPHORONE</b>  | 17             |               |
| 3,3,5-Trimethylcyclohex-2-enone                                   | <b>ISOPHORONE</b>  | 17             |               |
| 3,5,5-Trimethylcyclohex-2-en-1-one                                | <b>ISOPHORONE</b>  | 17             |               |
| 3,3'-Trimethylenedioxydipropan-1-ol                               | <b>TRIE PROPYLENE GLYCOL</b>                             | 17             |               |
| 2,2,4-Trimethylpentane  | <b>OCTANE (ALL ISOMERS)</b>                              | 17             |               |
| <b>2,2,4-TRIE METHYL-1,3-PENTANEDIOL DIIE SOBUTYRATE</b>          |  | 17             |               |
| 2,2,4-Trimethylpentane-1,3-diol diisobutyrate                     | <b>2,2,4-TRIE METHYL-1,3-PENTANEDIOL DIIE SOBUTYRATE</b> | 17             |               |
| <b>2,2,4-TRIE METHYL-1,3-PENTANEDIOL-1-IE SOBUTYRATE</b>          |  | 17             |               |
| 2,4,4-Trimethylpentene-1  | <b>DIIE SOBUTYLENE</b>                                   | 17             |               |

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| 2,4,4-Trimethylpent-1-ene   | DIISOBUTYLENE   | 17             |               |
| 2,4,4-Trimethylpentene-2  | DIISOBUTYLENE   | 17             |               |
| 2,4,4-Trimethylpent-2-ene   | DIISOBUTYLENE   | 17             |               |
| 2,4,6-Trimethyl-1,3,5-trioxane  | PARALDEHYDE   | 17             |               |
| 2,4,6-Trimethyl-s-trioxane  | PARALDEHYDE   | 17             |               |
| Trioxan   | 1,3,5-TRIOXANE  | 17             |               |
| <b>1,3,5-TRIOXANE</b>   |   | 17             |               |
| 3,6,9-Trioxaundecane  | DIETHYLENE GLYCOL DIETHYL ETHER   | 17             |               |
| Trioxin   | 1,3,5-TRIOXANE  | 17             |               |
| Trioxymethylene   | 1,3,5-TRIOXANE  | 17             |               |
| Tripropylene  | PROPYLENE TRIMER  | 17             |               |
| <b>TRIPROPYLENE GLYCOL</b>  |   | 17             |               |
| Tripropylene glycol methyl ether  | POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER                           | 17             |               |
| Tris(dimethylphenyl) phosphate  | TRIXYLYL PHOSPHATE  | 17             |               |
| N,N,N-Tris(2-hydroxyethyl)amine   | TRIETHANOLAMINE   | 17             |               |
| 2,4-D-tris(2-hydroxy-2-methylethyl)ammonium                               | 2,4-DICHLOROPHENOXYACETIC ACID,<br>TRIISOPROPANOLAMINE SALT SOLUTION      | 17             |               |
| Tris(2-hydroxy-2-methylethyl)ammonium 2,4-dichlorophenoxyacetate          | 2,4-DICHLOROPHENOXYACETIC ACID,<br>TRIISOPROPANOLAMINE SALT SOLUTION      | 17             |               |
| Tris(2-hydroxypropyl)amine  | TRIISOPROPANOLAMINE   | 17             |               |
| Tris(2-hydroxy-1-propyl)amine   | TRIISOPROPANOLAMINE   | 17             |               |
| Trisodium 2-[carboxylatomethyl(2-hydroxyethyl)amino]ethyliminodi(acetate) | N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID,<br>TRISODIUM SALT SOLUTION | 17             |               |
| Trisodium N-(carboxymethyl)-N'-(2-hydroxyethyl)-N,N'-ethylenediglycine    | N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID,<br>TRISODIUM SALT SOLUTION | 17             |               |
| Trisodium N-(2-hydroxyethyl)ethylenediamine-N,N',N'-triacetate            | N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID,<br>TRISODIUM SALT SOLUTION | 17             |               |
| Trisodium nitrilotriacetate solution                                      | NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION                            | 17             |               |
| Tritolyl phosphate, containing less than 1% ortho-isomer                  | TRICRESYL PHOSPHATE (CONTAINING LESS THAN 1%<br>ORTHO-ISOMER)             | 17             |               |
| Tritolyl phosphate, containing 1% or more ortho-isomer                    | TRICRESYL PHOSPHATE (CONTAINING 1% OR MORE<br>ORTHO-ISOMER)               | 17             |               |
| Trixylenyl phosphate  | TRIXYLYL PHOSPHATE  | 17             |               |
| <b>TRIXYLYL PHOSPHATE</b>   |   | 17             |               |
| <b>TUNG OIL</b>   |   | 17             |               |
| <b>TURPENTINE</b>   |   | 17             | 1299          |
| Turpentine oil  | TURPENTINE  | 17             |               |
| Turps   | TURPENTINE  | 17             |               |
| Type A Zeolite  | SODIUM ALUMINOSILICATE SLURRY   | 17             |               |
| Undecane  | N-ALKANES (C10+)  | 17             |               |
| 1-Undecanecarboxylic acid   | LAURIC ACID   | 17             |               |
| <b>UNDECANOIC ACID</b>  |   | 17             |               |
| Undecan-1-ol  | UNDECYL ALCOHOL   | 17             |               |
| Undec-1-ene   | 1-UNDECENE  | 17             |               |
| <b>1-UNDECENE</b>   |   | 17             |               |
| <b>UNDECYL ALCOHOL</b>  |   | 17             |               |
| Undecylbenzene  | ALKYL(C9+)BENZENES  | 17             |               |
| Undecylic acid  | UNDECANOIC ACID   | 17             |               |
| n-Undecylic acid  | UNDECANOIC ACID   | 17             |               |
| uns-Trimethylbenzene  | TRIMETHYLBENZENE (ALL ISOMERS)  | 17             |               |
| Urea, ammonia liquor  | UREA/AMMONIUM NITRATE SOLUTION (CONTAINING LESS<br>THAN 1% FREE AMMONIA)  | 17             |               |
| Urea, ammonium carbamate solutions  | UREA/AMMONIUM NITRATE SOLUTION (CONTAINING LESS<br>THAN 1% FREE AMMONIA)  | 17             |               |
| <b>UREA/AMMONIUM NITRATE SOLUTION</b>                                     |   | 17             |               |

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| <b>UREA/AMMONIUM NITRATE SOLUTION (CONTAINING LESS THAN 1% FREE AMMONIA)</b> |  | 17             |               |
| <b>UREA/AMMONIUM PHOSPHATE SOLUTION</b>                                      |  | 17             |               |
| <b>UREA SOLUTION</b>   |  | 17             |               |
| Valeral  | <b>VALERALDEHYDE (ALL ISOMERS)</b>         | 17             |               |
| <b>VALERALDEHYDE (ALL ISOMERS)</b>   |  | 17             | 2058          |
| n-Valeraldehyde  | <b>VALERALDEHYDE (ALL ISOMERS)</b>         | 17             |               |
| Valerianic acid  | <b>PENTANOIC ACID</b>                      | 17             |               |
| Valeric acid   | <b>PENTANOIC ACID</b>                      | 17             |               |
| n-Valeric acid   | <b>PENTANOIC ACID</b>                      | 17             |               |
| Valeric aldehyde   | <b>VALERALDEHYDE (ALL ISOMERS)</b>         | 17             |               |
| Valerone   | <b>DIISOBUTYL KETONE</b>                   | 17             |               |
| Varnoline  | <b>WHITE SPIRIT, LOW (15-20%) AROMATIC</b> | 17             |               |
| <b>VEGETABLE PROTEIN SOLUTION (HYDROLYSED)</b>                               |  | 17             |               |
| Vinegar acid   | <b>ACETIC ACID</b>                         | 17             |               |
| Vinegar naphtha  | <b>ETHYL ACETATE</b>                       | 17             |               |
| <b>VINYL ACETATE</b>   |  | 17             | 1301          |
| Vinylbenzene   | <b>STYRENE MONOMER</b>                     | 17             |               |
| Vinylcarbinol  | <b>ALLYL ALCOHOL</b>                       | 17             |               |
| Vinyl cyanide  | <b>ACRYLONITRILE</b>                       | 17             |               |
| vinyl ethanoate  | <b>VINYL ACETATE</b>                       | 17             |               |
| <b>VINYL ETHYL ETHER</b>   |  | 17             | 1302          |
| Vinylformic acid   | <b>ACRYLIC ACID</b>                        | 17             |               |
| <b>VINYLDENE CHLORIDE</b>  |  | 17             | 1303          |
| <b>VINYL NEODECANOATE</b>  |  | 17             |               |
| <b>VINYLTOLUENE</b>  |  | 17             | 2618          |
| Vinyl trichloride  | <b>1,1,2-TRICHLOROETHANE</b>               | 17             |               |
| Vinyltrichloride   | <b>1,1,2-TRICHLOROETHANE</b>               | 17             |               |
| Vitriol brown oil  | <b>OLEUM</b>                               | 17             |               |
| <b>WATER</b>   |  | 18             |               |
| Water glass  | <b>SODIUM SILICATE SOLUTION</b>            | 17             |               |
| <b>WAXES</b>   |  | 17             |               |
| White bole   | <b>KAOLIN SLURRY</b>                       | 18             |               |
| White caustic  | <b>SODIUM HYDROXIDE SOLUTION</b>           | 17             |               |
| <b>WHITE SPIRIT, LOW (15-20%) AROMATIC</b>                                   |  | 17             | 1300          |
| White tar  | <b>NAPHTHALENE (MOLTEN)</b>                | 17             |               |
| Wine   | <b>ALCOHOLIC BEVERAGES, N.O.S.</b>         | 18             |               |
| Wintergreen oil  | <b>METHYL SALICYLATE</b>                   | 17             |               |
| Wood alcohol   | <b>METHYL ALCOHOL</b>                      | 17             |               |
| Wood naphtha   | <b>METHYL ALCOHOL</b>                      | 17             |               |
| Wood spirit  | <b>METHYL ALCOHOL</b>                      | 17             |               |
| <b>XYLENES</b>   |  | 17             | 1307          |
| <b>XYLENES/ETHYLBENZENE (10% OR MORE) MIXTURE</b>                            |  | 17             |               |
| <b>XYLENOL</b>   |  | 17             | 2261          |
| 2,3-Xylenol  | <b>XYLENOL</b>                             | 17             |               |
| 2,4-Xylenol  | <b>XYLENOL</b>                             | 17             |               |
| 2,5-Xylenol  | <b>XYLENOL</b>                             | 17             |               |
| 2,6-Xylenol  | <b>XYLENOL</b>                             | 17             |               |
| 3,4-Xylenol  | <b>XYLENOL</b>                             | 17             |               |
| 3,5-Xylenol  | <b>XYLENOL</b>                             | 17             |               |

| <b>Index Name</b>                            | <b>Product Name</b>                            | <b>Chapter UN No.</b> |
|--|--|-----------------------|
| Xylols                                       | XYLENES  | 17                    |
| <b>ZINC ALKARYL DITHIOPHOSPHATE (C7-C16)</b> |  | 17                    |
| <b>ZINC ALKENYL CARBOXAMIDE</b>              |  | 17                    |
| <b>ZINC ALKYL DITHIOPHOSPHATE (C3-C14)</b>   |  | 17                    |
| Zinc bromide drilling brine                  | <b>DRILLING BRINES (CONTAINING ZINC SALTS)</b> | 17                    |
| z-Octadec-9-enamine                          | <b>OLEYLAMINE</b>                              | 17                    |
| (Z)-Octadec-9-enoic acid                     | <b>OLEIC ACID</b>                              | 17                    |
| Z-Octadec-9-enoic acid                       | <b>OLEIC ACID</b>                              | 17                    |
| z-Octadec-9-enylamine                        | <b>OLEYLAMINE</b>                              | 17                    |
| z-1,3-Pentadiene                             | <b>1,3-PENTADIENE</b>                          | 17                    |

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## ANNEX 27

**NEW AND AMENDED TRAFFIC SEPARATION SCHEMES  
AND ASSOCIATED ROUTEING MEASURES**

**THE CANARY ISLANDS**

(Reference chart: No.209 in the Catalogue of Nautical Charts of the Spanish Navy Hydrographical Institute, second edition (12th impression of September 2003), which covers the Canary Islands and the west coast of Africa from Cape Yubi to Cape Bojador.

**Note:** This chart is based on WGS 84 Datum.)

**1 Description of the new traffic separation schemes****2 Eastern Traffic Separation Scheme (between Grand Canary and Fuerteventura):**

- Two traffic lanes, each three miles wide;
- An intermediate traffic separation zone two miles wide;
- A rectangular precautionary area;
- Two inshore traffic zones.

**2.1 Description of the traffic separation scheme**

(a) A separation line connecting the following geographical positions:

|     |              |               |
|-----|--------------|---------------|
| (3) | 28° 20'.47 N | 014° 56'.91 W |
| (4) | 28° 12'.30 N | 015° 00'.29 W |
| (5) | 28° 02'.90 N | 015° 04'.17 W |
| (6) | 27° 51'.62 N | 015° 08'.81 W |

(b) An intermediate traffic separation zone bounded by the lines connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (8)  | 27° 50'.60 N | 015° 05'.63 W |
| (9)  | 28° 01'.87 N | 015° 00'.98 W |
| (10) | 28° 11'.27 N | 014° 57'.10 W |
| (11) | 28° 20'.20 N | 014° 53'.41 W |
| (12) | 28° 20'.06 N | 014° 51'.15 W |
| (13) | 28° 10'.66 N | 014° 55'.03 W |
| (14) | 28° 01'.26 N | 014° 58'.91 W |
| (15) | 27° 49'.99 N | 015° 03'.55 W |

(c) A traffic lane for southbound traffic on a 200° (T) course is established between the separation line/zone described in paragraphs (a) and (b) above.

- (d) A line of separation from the inshore traffic zone, connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (16) | 27° 48'.96 N | 015° 00'.36 W |
| (17) | 28° 00'.24 N | 014° 55'.72 W |
| (18) | 28° 09'.63 N | 014° 51'.84 W |
| (19) | 28° 19'.78 N | 014° 47'.76 W |

- (e) A traffic lane for northbound traffic on a 020° (T) course is established between the separation line/zone described in paragraphs (b) and (d) above.

### **Precautionary area**

- (f) A precautionary area bounded by a line connecting the geographical positions 4, 5, 17 and 18.

### **Inshore traffic zones**

- (g) An inshore traffic zone between the east coast of Grand Canary island and a line joining the following geographical positions:

|     |                                   |               |
|-----|-----------------------------------|---------------|
| (1) | Faro de la Isleta (28° 10'.40 N)  | 015° 25'.00 W |
| (2) | 28° 22'.00 N                      | 015° 19'.00 W |
| (3) | 28° 20'.47 N                      | 014° 56'.91 W |
| (4) | 28° 12'.30 N                      | 015° 00'.29 W |
| (5) | 28° 02'.90 N                      | 015° 04'.17 W |
| (6) | 27° 51'.62 N                      | 015° 08'.81 W |
| (7) | Faro Punta Arinaga (27° 51'.70 N) | 015° 23'.00 W |

- (h) An inshore traffic zone bounded by a line joining the following geographical positions:

|      |                                     |               |
|------|-------------------------------------|---------------|
| (16) | 27° 48'.96 N                        | 015° 00'.36 W |
| (17) | 28° 00'.24 N                        | 014° 55'.72 W |
| (18) | 28° 09'.63 N                        | 014° 51'.84 W |
| (19) | 28° 19'.78 N                        | 014° 47'.76 W |
| (20) | 28° 19'.00 N                        | 014° 36'.00 W |
| (21) | Faro de Punta Jandia (28° 03'.80 N) | 014° 30'.30 W |
| (22) | 27° 45'.00 N                        | 014° 44'.00 W |
| (16) | 27° 48'.96 N                        | 015° 00'.36 W |

**Note:** Ships that so wish may give voluntary notification of entry to and departure from the TSS via the Las Palmas Regional MRCC, using VHF channel 16.

### **3 Western Traffic Separation Scheme (between Grand Canary and Tenerife):**

- Two traffic lanes, each three miles wide;
- An intermediate traffic separation zone two miles wide;
- A rectangular precautionary area;
- Two inshore traffic zones.

### 3.1 Description of the traffic separation scheme

(a) A separation line, connecting the following geographical positions:

|     |              |               |
|-----|--------------|---------------|
| (3) | 28° 38'.01 N | 015° 46'.66 W |
| (4) | 28° 27'.28 N | 015° 56'.90 W |
| (5) | 28° 18'.86 N | 016° 04'.94 W |
| (6) | 28° 03'.54 N | 016° 19'.52 W |

(b) An intermediate traffic separation zone bounded by the lines connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (8)  | 28° 01'.61 N | 016° 16'.92 W |
| (9)  | 28° 16'.93 N | 016° 02'.34 W |
| (10) | 28° 25'.36 N | 015° 54'.30 W |
| (11) | 28° 36'.33 N | 015° 43'.84 W |
| (12) | 28° 35'.44 N | 015° 42'.33 W |
| (13) | 28° 24'.26 N | 015° 52'.97 W |
| (14) | 28° 15'.83 N | 016° 01'.00 W |
| (15) | 28° 00'.51 N | 016° 15'.58 W |

(c) A traffic lane for southbound traffic on a 220° (T) course is established between the separation line/zones described in paragraphs (a) and (b) above.

(d) A line of separation from the inshore traffic zone, connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (16) | 27° 58'.58 N | 016° 12'.98 W |
| (17) | 28° 13'.90 N | 015° 58'.40 W |
| (18) | 28° 22'.33 N | 015° 50'.37 W |
| (19) | 28° 33'.81 N | 015° 39'.43 W |

(e) A traffic lane for northbound traffic on a 040° (T) course is established between the separation line/zone described in paragraphs (b) and (d) above.

#### Precautionary area

(f) A precautionary area bounded by the line connecting the geographical positions 4, 5, 17 and 18.

#### Inshore traffic zones

(g) An inshore traffic zone between the east coast of Santa Cruz de Tenerife island and a line connecting the following geographical positions:

|     |                                 |               |
|-----|---------------------------------|---------------|
| (1) | Faro Punta Anaga (28° 34'.80 N) | 016° 08'.30 W |
| (2) | 28° 48'.00 N                    | 016° 04'.00 W |
| (3) | 28° 38'.01 N                    | 015° 46'.66 W |
| (4) | 28° 27'.28 N                    | 015° 56'.90 W |
| (5) | 28° 18'.86 N                    | 016° 04'.94 W |
| (6) | 28° 03'.54 N                    | 016° 19'.52 W |
| (7) | Punta Roja (28° 01'.48 N)       | 016° 32'.88 W |

- (h) An inshore traffic zone between the west coast of Grand Canary island and a line connecting the following geographical positions:

|      |                                 |               |
|------|---------------------------------|---------------|
| (16) | 27° 58'.58 N                    | 016° 12'.98 W |
| (17) | 28° 13'.90 N                    | 015° 58'.40 W |
| (18) | 28° 22'.33 N                    | 015° 50'.37 W |
| (19) | 28° 33'.81 N                    | 015° 39'.43 W |
| (20) | 28° 22'.00 N                    | 015° 19'.00 W |
| (21) | Faro de la Isleta (28°10'.40 N) | 015° 25'.00 W |
| (22) | 28° 00'.00 N                    | 015° 49'.18 W |
| (23) | 28° 00'.00 N                    | 016° 00'.00 W |
| (24) | 27° 44'.00 N                    | 016° 00'.00 W |

**Note:** Ships that so wish may give voluntary notification of entry to and departure from the TSS via Tenerife MRCC, using VHF channel 16.

### **AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME “IN THE STRAIT OF JUAN DE FUCA AND ITS APPROACHES”**

(Reference charts: Canadian Hydrographic Service 3602, 2002 edition, 3481, 2000 edition, and 3526, 2001 edition, United States 18400, 2000 edition; 18421, 2000 edition; 18440, 2000 edition; 18460, 1998 edition; 18465, 1995 edition; 18480, 1999 edition; 18485, 1998 edition; Canadian Hydrographic Service 3440, 1998 edition.

**Note:** The charts are based on WGS 84 Datum.)

#### **Description of the routeing system**

The present description of the routeing system in the “In the Strait of Juan de Fuca and its Approaches” includes two parts. Part I consists of a Western approach (TSS), a Southwestern approach (TSS), and a precautionary area in the approaches to the Strait of Juan de Fuca. Part II consists of Western lanes (TSS), Southern lanes (TSS), Northern lanes (TSS), and a precautionary area in the Strait of Juan de Fuca. This amendment will affect the Western approach and precautionary area of Part I and the Western lanes of Part II.

|         |                             |             |
|---------|-----------------------------|-------------|
| Part I  | Western approaches (TSS)    | (amended)   |
|         | Southwestern approach (TSS) | (no change) |
|         | Precautionary area          | (amended)   |
| Part II | Western lanes (TSS)         | (amended)   |
|         | Southern lanes (TSS)        | (no change) |
|         | Northern lanes (TSS)        | (no change) |
|         | Precautionary area          | (no change) |

#### **Description of the traffic separation schemes**

##### *Part I*

In the approaches to the Strait of Juan de Fuca there are two traffic separation schemes and one precautionary area:



### Western approach

(a) A separation zone is bounded by a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (1) | 48° 30'.10 N | 125° 09'.00 W |
| (2) | 48° 30'.10 N | 125° 04'.67 W |
| (3) | 48° 29'.11 N | 125° 04'.67 W |
| (4) | 48° 29'.11 N | 125° 09'.00 W |

(b) A traffic lane for westbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (5) | 48° 32'.09 N | 125° 04'.67 W |
| (6) | 48° 32'.09 N | 125° 08'.98 W |

(c) A traffic lane for eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (7) | 48° 27'.31 N | 125° 09'.00 W |
| (8) | 48° 28'.13 N | 125° 04'.67 W |

### South-western approach

(a) A separation zone is bounded by a line connecting the following geographical positions:

- |      |              |               |
|------|--------------|---------------|
| (10) | 48° 23'.99 N | 125° 06'.54 W |
| (11) | 48° 27'.63 N | 125° 03'.38 W |
| (12) | 48° 27'.14 N | 125° 02'.08 W |
| (13) | 48° 23'.50 N | 125° 05'.26 W |

(b) A traffic lane for north-eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |      |              |               |
|------|--------------|---------------|
| (14) | 48° 22'.55 N | 125° 02'.80 W |
| (15) | 48° 26'.64 N | 125° 00'.81 W |

(c) A traffic lane for south-westbound traffic is established between the separation zone and a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (8) | 48° 28'.13 N | 125° 04'.67 W |
| (9) | 48° 24'.94 N | 125° 09'.00 W |

### Precautionary area “JF”

A precautionary area “JF”, is bounded by a line connecting the following geographical positions:

- |      |              |               |
|------|--------------|---------------|
| (5)  | 48° 32'.09 N | 125° 04'.67 W |
| (2)  | 48° 30'.10 N | 125° 04'.67 W |
| (3)  | 48° 29'.11 N | 125° 04'.67 W |
| (8)  | 48° 28'.13 N | 125° 04'.67 W |
| (11) | 48° 27'.63 N | 125° 03'.38 W |

|      |              |               |
|------|--------------|---------------|
| (12) | 48° 27'.14 N | 125° 02'.08 W |
| (15) | 48° 26'.64 N | 125° 00'.81 W |
| (16) | 48° 28'.13 N | 124° 57'.90 W |
| (18) | 48° 29'.11 N | 125° 00'.00 W |
| (25) | 48° 30'.10 N | 125° 00'.00 W |
| (17) | 48° 32'.09 N | 125° 00'.00 W |

thence back to the point of origin at (5).

*Part II*

Within Part II there are four traffic separation schemes and one Precautionary area in the Strait of Juan de Fuca.

**Western lanes (TSS)**

(a) A separation zone is bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (18) | 48° 29'.11 N | 125° 00'.00 W |
| (19) | 48° 29'.11 N | 124° 43'.78 W |
| (20) | 48° 13'.89 N | 123° 54'.84 W |
| (21) | 48° 13'.89 N | 123° 31'.98 W |
| (22) | 48° 14'.49 N | 123° 31'.98 W |
| (23) | 48° 17'.02 N | 123° 56'.46 W |
| (24) | 48° 30'.10 N | 124° 43'.50 W |
| (25) | 48° 30'.10 N | 125° 00'.00 W |

(b) A traffic lane for north-westbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (26) | 48° 16'.45 N | 123° 30'.42 W |
| (27) | 48° 15'.97 N | 123° 33'.54 W |
| (28) | 48° 18'.00 N | 123° 56'.07 W |
| (29) | 48° 32'.00 N | 124° 46'.57 W |
| (30) | 48° 32'.09 N | 124° 49'.90 W |
| (17) | 48° 32'.09 N | 125° 00'.00 W |

Traffic may exit the lane between points (29) and (30) or may remain in the lane between points (30) and (17) en route to the precautionary area.

(c) A traffic lane for south-eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (16) | 48° 28'.13 N | 124° 57'.90 W |
| (31) | 48° 28'.13 N | 124° 44'.07 W |
| (32) | 48° 12'.90 N | 123° 55'.24 W |
| (33) | 48° 12'.94 N | 123° 32'.89 W |

### Southern lanes

- (a) A separation zone is bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (34) | 48° 10'.82 N | 123° 25'.44 W |
| (35) | 48° 12'.38 N | 123° 28'.68 W |
| (36) | 48° 12'.90 N | 123° 28'.68 W |
| (37) | 48° 12'.84 N | 123° 27'.46 W |
| (38) | 48° 10'.99 N | 123° 24'.84 W |

- (b) A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (39) | 48° 11'.24 N | 123° 23'.82 W |
| (40) | 48° 12'.72 N | 123° 25'.34 W |

- (c) A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (33) | 48° 12'.94 N | 123° 32'.89 W |
| (41) | 48° 09'.42 N | 123° 24'.24 W |

### Northern lanes

- (a) A separation zone is bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (42) | 48° 21'.15 N | 123° 24'.83 W |
| (43) | 48° 16'.16 N | 123° 28'.50 W |
| (44) | 48° 15'.77 N | 123° 27'.18 W |
| (45) | 48° 20'.93 N | 123° 24'.26 W |

- (b) A traffic lane for southbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (46) | 48° 21'.83 N | 123° 25'.56 W |
| (26) | 48° 16'.45 N | 123° 30'.42 W |

- (c) A traffic lane for northbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (47) | 48° 20'.93 N | 123° 23'.22 W |
| (48) | 48° 15'.13 N | 123° 25'.62 W |

### Eastern lanes

- (a) A separation zone is established bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (49) | 48° 13'.22 N | 123° 15'.91 W |
| (50) | 48° 14'.03 N | 123° 25'.98 W |
| (51) | 48° 13'.54 N | 123° 25'.86 W |
| (52) | 48° 12'.89 N | 123° 16'.69 W |

- (b) A traffic lane for westbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (54) | 48° 14'.27 N | 123° 13'.41 W |
| (55) | 48° 14'.05 N | 123° 16'.08 W |
| (48) | 48° 15'.13 N | 123° 25'.62 W |

- (c) A traffic lane for eastbound traffic is established between the separation zone and a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (40) | 48° 12'.72 N | 123° 25'.34 W |
| (53) | 48° 12'.34 N | 123° 18'.01 W |

### **Precautionary area**

A precautionary area "PA", is bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (33) | 48° 12'.94 N | 123° 32'.89 W |
| (21) | 48° 13'.89 N | 123° 31'.98 W |
| (22) | 48° 14'.49 N | 123° 31'.98 W |
| (26) | 48° 16'.45 N | 123° 30'.42 W |
| (43) | 48° 16'.16 N | 123° 28'.50 W |
| (44) | 48° 15'.77 N | 123° 27'.18 W |
| (48) | 48° 15'.13 N | 123° 25'.62 W |
| (50) | 48° 14'.03 N | 123° 25'.98 W |
| (51) | 48° 13'.54 N | 123° 25'.86 W |
| (40) | 48° 12'.72 N | 123° 25'.34 W |
| (37) | 48° 12'.84 N | 123° 27'.46 W |
| (36) | 48° 12'.90 N | 123° 28'.68 W |

thence back to point of origin at (33).

### **AMENDMENT TO THE EXISTING TRAFFIC SEPARATION SCHEME "OFF CABO DE GATA"**

(Reference chart: No.45 B of the Spanish Navy Hydrographical Institute, March 2001 edition, which covers the area from Cabo Sacratif to Cabo de Gata.

**Note:** This chart is based on European datum (Potsdam).)

### **Description of the amended traffic separation scheme:**

- (a) A separation line connecting the following geographical positions:

|     |              |               |
|-----|--------------|---------------|
| (1) | 36° 26'.89 N | 002° 15'.23 W |
| (2) | 36° 26'.89 N | 002° 11'.47 W |
| (3) | 36° 28'.13 N | 002° 09'.65 W |

- (b) An intermediate separation zone bounded by a line connecting the following geographical positions:

|     |              |               |
|-----|--------------|---------------|
| (4) | 36° 25'.70 N | 002° 09'.37 W |
| (5) | 36° 24'.27 N | 002° 11'.47 W |
| (6) | 36° 23'.70 N | 002° 15'.96 W |
| (7) | 36° 22'.45 N | 002° 16'.24 W |
| (8) | 36° 23'.06 N | 002° 11'.47 W |
| (9) | 36° 24'.55 N | 002° 09'.23 W |

- (c) A traffic lane for south-westbound traffic is established between the separation line and separation zone described in paragraphs (a) and (b) above.

- (d) An outer separation zone bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (10) | 36° 21'.36 N | 002° 08'.85 W |
| (11) | 36° 20'.36 N | 002° 16'.72 W |
| (12) | 36° 19'.84 N | 002° 16'.84 W |
| (13) | 36° 20'.87 N | 002° 08'.80 W |

- (e) A traffic lane for north-eastward bound traffic is established between the separation zones described in paragraphs (b) and (d) above.

#### **Precautionary area**

- (f) A precautionary area bounded by a line connecting the following geographical positions:

|      |              |               |
|------|--------------|---------------|
| (1)  | 36° 26'.89 N | 002° 15'.23 W |
| (12) | 36° 19'.84 N | 002° 16'.84 W |
| (14) | 36° 19'.84 N | 002° 20'.00 W |
| (15) | 36° 26'.89 N | 002° 20'.00 W |

#### **Inshore traffic zone**

- (g) An inshore traffic zone contained between the coast of Cabo de Gata and a line connecting the following geographical positions:

|      |  |               |
|------|--|---------------|
| (16) | Ermita de la Virgen del Mar (36° 49'.60 N) | 002° 17'.80 W |
| (1)  | 36° 26'.89 N                               | 002° 15'.23 W |
| (2)  | 36° 26'.89 N                               | 002° 11'.47 W |
| (3)  | 36° 28'.13 N                               | 002° 09'.65 W |
| (17) | Faro Punta de la Polacra (36° 50'.60 N)    | 002° 00'.10 W |

**Note:** Ships that so wish may give voluntary notification of entry to and departure from the TSS, via the Almería MRCC, using VHF channel 16.

## AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME “OFF PORKKALA LIGHTHOUSE”

(Reference chart: FIN 952, 2004 edition

**Note:** This chart is based on WGS 84 Datum.)

### Description of the amended traffic separation scheme

- (a) A separation zone, one mile wide, is centred upon the following geographical positions:
- |     |              |               |
|-----|--------------|---------------|
| (5) | 59° 48'.75 N | 024° 58'.50 E |
| (6) | 59° 49'.30 N | 025° 04'.50 E |
- (b) A traffic lane, one and a half miles wide, is established on each side of the separation zone.

### Description of the extended precautionary area

- (c) A precautionary area is established upon the following geographical positions:
- |     |              |               |
|-----|--------------|---------------|
| (1) | 59° 43'.95 N | 024° 31'.80 E |
| (2) | 59° 50'.70 N | 024° 57'.90 E |
| (3) | 59° 46'.75 N | 024° 59'.50 E |
| (4) | 59° 47'.85 N | 024° 30'.20 E |

## AMENDMENTS TO THE EXISTING TRAFFIC SEPARATION SCHEME “IN THE STRAITS OF DOVER AND ADJACENT WATERS”

- 1 The existing separation line passing through the F3 station is deleted.
- 2 The geographical positions of the boundary for the new “Precautionary Area” around the F3 Station Buoy are as follows (co-ordinates are based on WGS 84 Datum):
- |     |              |               |
|-----|--------------|---------------|
| (1) | 51° 26'.01 N | 002° 02'.67 E |
| (2) | 51° 25'.31 N | 002° 03'.81 E |
| (3) | 51° 23'.23 N | 001° 58'.69 E |
| (4) | 51° 22'.76 N | 001° 59'.59 E |
- 3 The position of the F3 Station Buoy and the area surrounding it in *IMO Ships’ Routeing, 7th Edition 1999, Part D, I/4* remains unchanged.
- 4 Recommended direction of traffic flow arrows is inserted in accordance with convention for ships crossing the Precautionary Area around the F3 Station, passing the buoy and leaving it on their own port side as follows:
- .1 to the northeast of the F3 Station Buoy indicating a north-westerly traffic flow;  
and
  - .2 to the southwest of the F3 Station Buoy indicating a south-easterly traffic flow.

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**ANNEX 28****ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES****AMENDMENT TO THE EXISTING AREA TO BE AVOIDED: CS4 BUOY, DOVER STRAIT**

(Reference charts: British Admiralty 1610, 2001; 1828, 2002 edition

**Note:** These charts are based on WGS 84 Datum.)

**Description of the area to be avoided**

All ships should avoid the area within a circle of radius 0.3 miles centred upon the following geographical position:

51° 08'.67 N

001° 34'.02 E

This area is established to avoid hazard to the navigational aid which is established at the above geographical position, and which is considered vital to the safety of navigation.

**NEW AREAS TO BE AVOIDED BY SHIPS TRANSITING THE CANARY ISLANDS**

(Reference chart No.209 in the catalogue of charts of the Spanish Navy Hydrographical Institute, second edition 1968, 12th impression 2003.

**Note:** This chart is based on WGS 84 Datum.)

**Description of the areas to be avoided**

In order to prevent the risks of pollution and environmental damage in highly sensitive sea areas, all tankers and ships over 500 gross tonnage carrying oil or dangerous bulk cargo as cargo should avoid the following areas:

**Off Lanzarote island (biosphere reserve)**

An area contained between the meridians of longitude 013° 15'.00 W and 013° 39'.00 W and the parallels of latitude 29° 07'.00 N and 29° 30'.00 N.

**Off the island of Tenerife (cetacean breeding ground)**

An area, between the meridian of longitude 017° 22'.00 W and the south coast of the island and the parallels of latitude 28° 00'.00 N and 28° 21'.00 N.

**Off the island of Grand Canary (cetacean breeding ground)**

An area contained between the meridian of longitude 016° 00'.00 W and the coast and the parallels of latitude 27° 44'.00 N and 28° 00'.00 N.

**Off La Palma island (biosphere reserve)**

An area contained between the meridians of longitude  $017^{\circ} 35'.00$  W and  $018^{\circ} 00'.00$  W and the parallels of latitude  $28^{\circ} 17'.00$  N and  $29^{\circ} 00'.00$  N.

**Off the island of El Hierro (biosphere reserve)**

An area contained within the Canary Islands between the parallel of latitude  $28^{\circ} 00'.00$  N, the meridians of longitude  $017^{\circ} 42'.00$  W and  $018^{\circ} 21'.00$  W and the geographical co-ordinates  $27^{\circ} 48'.00$  N  $017^{\circ} 11'.00$  W,  $27^{\circ} 23'.00$  N  $017^{\circ} 58'.00$  W and  $27^{\circ} 36'.00$  N  $018^{\circ} 25'.00$  W.

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**ANNEX 29**

**RESOLUTION MSC.213(81)  
(adopted on 12 May 2006)**

**MANDATORY SHIP REPORTING SYSTEM FOR THE CANARY ISLANDS**

THE MARITIME SAFETY COMMITTEE,

RECALLING article 28 (b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/11 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, in relation to the adoption of mandatory ship reporting systems by the Organization,

RECALLING FURTHER resolution A.858(20) resolving that the function of adopting ship reporting systems shall be performed by the Committee on behalf of the Organization,

TAKING INTO ACCOUNT the Guidelines and criteria for ship reporting systems, adopted by resolution MSC.43(64) and amended by resolutions MSC.111(73) and MSC.181(79),

HAVING CONSIDERED the recommendation of the Sub-Committee on Safety of Navigation at its fifty-first session,

1. ADOPTS, in accordance with the provisions of SOLAS regulation V/11, the mandatory ship reporting system for the Canary Islands, as described in the Annex to the present resolution;
2. DECIDES that this mandatory ship reporting system shall enter into force at 0000 hours UTC on 1 December 2006;
3. REQUESTS the Secretary-General to bring this resolution and its Annex to the attention of SOLAS Contracting Governments and Members of the Organization that are not parties to the Convention.

ANNEX 1

**DESCRIPTION OF THE MANDATORY SHIP REPORTING SYSTEM FOR  
THE CANARY ISLANDS**

A mandatory reporting system for ships in the Canary Islands (CANREP) is established in the Canary Islands.

**1 Types of ship required to take part in the system**

1.1 Ships required to take part in the CANREP system:

Tankers of 600 tonnes deadweight and upwards, either transiting the Canary Islands or sailing to or from Canarian ports or involved in inter-island navigation, carrying the following:

- .1 heavy-grade crude oils with a density greater than 900 kg/m<sup>3</sup> at 15°C;
- .2 heavy fuel oils with a density greater than 900 kg/m<sup>3</sup> at 15°C or kinematic viscosity greater than 180 mm<sup>2</sup>/s at 50°C; and
- .3 bitumen, coal tar and their emulsions.

**2 Geographical limits of the Canary Islands reporting area**

2.1 The proposed maritime area is bounded by a polygonal line connecting points along the outer limit of the territorial sea (12 nautical miles) that surrounds the archipelago, and having the following inflection points (see chartlet in appendix 3):

| <b>Point</b> | <b>Latitude</b> | <b>Longitude</b> |
|--------------|-----------------|------------------|
| A            | 28° 56' N       | 018° 13' W       |
| B            | 29° 04' N       | 017° 47' W       |
| C            | 28° 48' N       | 016° 04' W       |
| D            | 28° 22' N       | 015° 19' W       |
| E            | 28° 19' N       | 014° 36' W       |
| F            | 29° 37' N       | 013° 39' W       |
| G            | 29° 37' N       | 013° 19' W       |
| H            | 29° 17' N       | 013° 06' W       |
| I            | 27° 57' N       | 013° 48' W       |
| J            | 27° 32' N       | 015° 35' W       |
| K            | 27° 48' N       | 016° 45' W       |
| L            | 27° 48' N       | 017° 11' W       |
| M            | 27° 23' N       | 017° 58' W       |
| N            | 27° 36' N       | 018° 25' W       |

2.2 The reference chart is No.209 of the Spanish Navy Hydrographical Institute (WGS 84 Datum).

### **3 Format and content of reports; time and geographical position for submitting reports; authority to which they must be sent; available services**

#### **3.1 Format**

3.1.1 CANREP reports must be sent to one of the Maritime Rescue Co-ordination Centres listed in appendix 1 and drafted in accordance with the format described in appendix 2.

3.1.2 The reporting format conforms with paragraph 2 of the appendix to resolution A.851(20).

#### **3.2 Content**

3.2.1 The reports to be submitted by participating ships must contain the information needed to achieve the system's aims:

- .1 the ship's name, call sign, IMO or MMSI number and position are necessary in order to establish its identity and initial position (A, B and C);
- .2 the ship's course, speed and destination are important for monitoring its track and launching search and rescue measures should information about it fail to appear on the screen, for ensuring safe navigation, and for preventing pollution in areas where weather conditions are extreme (E, F, G and I);
- .3 the number of people on board, and other relevant information, are important factors when it comes to assigning the resources for a search and rescue operation (P, T and W);
- .4 in accordance with the relevant provisions of the SOLAS and MARPOL Conventions, ships are required to supply information on defects, damage, deficiencies and other limitations (under Q), as well as other information (under X).

#### **3.3 Time and geographical position for submitting reports**

3.3.1 Ships must submit a report:

- .1 on entering the reporting area as defined in paragraph 2; or
- .2 immediately after leaving a port, terminal or anchorage situated in the reporting area; or
- .3 when deviating from the route leading to the originally declared destination, port, terminal, anchorage or position "for orders" given on entry into the reporting area; or
- .4 when it is necessary to deviate from the planned route owing to weather conditions, damaged equipment or a change in navigational status; and
- .5 on finally leaving the reporting area.

3.3.2 Ships are not required to send a report if, during normal sailing through the reporting area, they cross the area's boundary on other occasions apart from initial entry or final departure.

### **3.4 Land-based authorities to which reports must be sent**

3.4.1 On entering the CANREP reporting area, ships must report the fact to one of the MRCCs listed in appendix 1, according to the following criteria:

- (i) Ships that enter the CANREP reporting area at a position east of the meridian of longitude 015° 30' W should notify the Las Palmas MRCC.
- (ii) Ships that enter the reporting area at a position west of the meridian of longitude 015° 30' W should notify the Tenerife MRCC.

3.4.2 On leaving the CANREP reporting area, ships must report the fact to the same MRCC to which they reported on entry.

3.4.3 Reports must be completed in accordance with the format shown in appendix 2.

3.4.4 Reports may be sent by any means capable of being received by the media indicated in appendix 1.

## **4 Information to be provided to participating ships and procedures to be observed**

4.1 When requested, the MRCCs listed in appendix 1 should provide ships with information vital to navigational safety in the ship's reporting area, using their broadcasting equipment.

4.2 If necessary, any ship may ask for information on its own behalf about specific local conditions.

## **5 Requirements regarding radiocommunications for the system, reporting frequencies and information to be reported**

5.1 The Maritime Rescue Co-ordination Centres to which reports must be sent are listed in appendix 1.

5.2 The reports completed by a ship on entering and passing through the reporting area must begin with the word CANREP and include a two-letter abbreviation to indicate their type (sailing plan, final report or deviation report). Reports with these prefixes may be sent free of cost.

5.3 Depending on the type of report, the following information must be included, as described in paragraph 6 of appendix 2:

- A: Ship's identity (name, call sign, IMO No. and MMSI No.);
- B: Date and time;
- C: Position;
- E: True course;
- F: Speed;
- G: Name of last port of call;
- I: Name of next port of call and estimated time of arrival;
- P: Type(s) of cargo, quantity and IMO classification if carrying potentially dangerous goods;
- Q: Used in the event of defects or deficiencies that impair normal navigation;

- T: Address for communication of cargo information;  
W: Number of people on board;  
X: Miscellaneous information relating to tankers:  
- estimated quantity and characteristics of bunker fuel for tankers carrying an amount of it greater than 5,000 tonnes;  
- navigational status (e.g., moving under own propulsion, limited manoeuvrability, etc.).

5.4 The reporting format must be consistent with resolution A.851(20).

## **6 Regulations in force in the area covered by the system**

### *6.1 Regulations on collision prevention*

The International Regulations for Preventing Collisions at Sea (COLREG), 1972, as amended, applies throughout the area covered by the system.

## **7 Shore-based establishments responsible for operation of the system**

7.1 The MRCCs to which these reports must be sent are listed in appendix 1.

7.2 The MRCCs or any other establishment forming part of the service are to be manned constantly.

7.3 The training given to MRCC staff must comply with the national and international recommendations and include a general study of navigational safety measures and the relevant national and international (IMO) provisions.

7.4 All means of communication that can be received by the media indicated in Appendix 1 are acceptable.

## **8 Action to take in the event of a ship's non-compliance with system requirements**

8.1 The system's objectives are to initiate maritime search and rescue and anti-pollution measures as quickly and effectively as possible if an emergency is reported or if a ship that is supposed to report does not and no contact can be established with it. All possible means will be deployed to obtain the participation of the ships required to send in reports. Should these fail to materialize and the offending ship can be identified beyond doubt, the competent authorities in the relevant flag State will be informed with a view to their investigating the situation and possibly starting legal proceedings under their national legislation. The CANREP mandatory ship reporting system exists only for the exchange of information, and does not confer additional powers to impose change in a ship's operations. The reporting system will be implemented in accordance with the provisions of UNCLOS, the SOLAS Convention and other relevant international instruments, and the reporting system will not constitute a basis for preventing the passage of a ship in transit through the reporting area.

APPENDIX 1

**INSTALLATIONS TO WHICH REPORTS MUST BE SENT  
(POSITIONS SENT TO WGS 84 DATUM)**

**MRCC Tenerife** 28° 28' N  
016° 14' W

Tel.: +34 900 202 111.

E-mail: [canrep.tenerife@sasemar.es](mailto:canrep.tenerife@sasemar.es)

VHF channels: 16 and 70

MF channels: 2182

**Automatic identification system (AIS)**

**MRCC Las Palmas** 28° 09' N  
015° 25' W

Tel.: +34 900 202 112.

E-mail: [canrep.laspalmas@sasemar.es](mailto:canrep.laspalmas@sasemar.es)

VHF channels: 16 and 70

MF channels: 2182

**Automatic identification system (AIS)**

## APPENDIX 2

### MANDATORY SHIP REPORTING SYSTEM FOR THE CANARY ISLANDS (CANREP)

#### *Instructions for reports*

- 1 Ships heading for the reporting area of the Canary Islands must send a report:
  - .1 on entering the reporting area; or
  - .2 immediately after leaving a port, terminal or anchorage situated in the reporting area; or
  - .3 when deviating from the route leading to the originally declared destination, port, terminal, anchorage or position “for orders” given on entry into the reporting area; or
  - .4 when it is necessary to deviate from the planned route owing to weather conditions, damaged equipment or when information under Q is required; and
  - .5 on finally leaving the reporting area.
- 2 Ships are not required to send a report if, during normal sailing through the reporting area, they cross the area’s boundary on other occasions apart from initial entry or final departure.
- 3 On entering the CANREP reporting area, ships must report the fact to one of the MRCCs listed in Appendix 1, according to the following criteria:
  - (i) Ships that enter the CANREP reporting area at a position east of the meridian of longitude 015° 30’ W should notify the Las Palmas MRCC.
  - (ii) Ships that enter the reporting area at a position west of the meridian of longitude 015° 30’ W should notify the Tenerife MRCC.
- 4 On leaving the CANREP reporting area, ships must report the fact to the same MRCC to which they reported on entry.
- 5 Every report must begin with the word CANREP and a two-letter abbreviation enabling the type of report to be identified. Messages with this prefix will be sent free of charge and treated as URGENT.
- 6 Reports must be in accordance with the following table. Sections A, B, C, E, F, G, I, P, T, W and X are compulsory for sailing plans, A, B, C, E and F for final reports, and A, B, C, E, F and I for deviation reports. The Q designation is included whenever a problem arises in the reporting area, be it defects, damage, deficiencies or circumstances, that affects normal navigation.

| <b>Designator</b> | <b>Function</b>   | <b>Text</b>   |
|-------------------|---|---|
| Name of system    | Code word   | CANREP  |
|                   | Type of report:<br>Sailing plan:<br>Final report:<br><br>Deviation report | One of the following 2-letter identifiers<br>SP<br>FR (on <u>finally</u> leaving reporting area) to include only <b>A, B, C, E and F</b> .<br>DR to include only <b>A, B, C, E, F and I</b> .   |
| A                 | Ship  | Name and call sign (Name of ship, call sign, IMO No. and MMSI No.), (e.g., NONESUCH/KTOI)   |
| B                 | Date and time corresponding to position at C, expressed as UTC.           | A six-digit group followed by a Z. The first two digits indicate day of the month, the second two the hours and the last two the minutes. The Z indicates that the time is given in UTC (e.g., 081340Z).  |
| C                 | Position (latitude and longitude)   | A 4-digit group giving latitude in degrees and minutes, with the suffix N, and a 5-digit group giving longitude in degrees and minutes, with the suffix W (e.g., 2836N or 01545W).  |
| E                 | Course  | True course. A 3-digit group (e.g., 210).   |
| F                 | Speed   | Speed in knots. A 2-digit group (e.g., 14).   |
| G                 | Name of last port of call   | Name of the last port of call (e.g., Strait of Gibraltar)   |
| I                 | Destination and ETA (UTC)   | Name of destination and date and time group as expressed in B (e.g., Cape Town 181400Z)   |
| P                 | Cargo   | Type(s) of cargo, and quantity and IMO classification if carrying potentially dangerous goods.  |
| Q                 | Defects, damage, deficiencies, limitations.                               | Brief details of defects, including damage, deficiencies and other circumstances that impair normal navigation.   |
| T                 | Address for the communication of cargo information                        | Name, tel No. and fax, e-mail or URL.   |
| W                 | Total number of people on board   | State number  |
| X                 | Miscellaneous   | Miscellaneous information concerning those tankers:<br>Characteristics and approximate quantity of bunker fuel for tankers carrying an amount of it greater than 5,000 tonnes<br>Navigational status (e.g., moving under own propulsion, at anchor, no steering, limited manoeuvrability, depth restriction, moored, aground, etc.) |



7 The sailing plan (SP) is sent as an initial report:

- (a) When entering the reporting area, as defined in paragraph 2.1.
- (b) On leaving the last port of call located in the reporting area.

Example:

Name of station to which report must be sent: CANREP – SP

- A. GOLAR STIRLING/9001007
- B. 261520Z
- C. 2836N01545W
- E. 210
- F. 15
- G. STRAIT OF GIBRALTAR
- I. CAPE TOWN 230230Z
- P. 56,000 TONNES HEAVY FUEL OILS
- T. J Smith, 00 47 22 31 56 10, Fax 00 47 22 31 56 11
- W. 23
- X. NONE, NONE

8 The final report (FR) is sent:

- (a) When leaving the reporting area.
- (b) On arrival at a port of destination located in the reporting area.

Example:

Name of station to which report must be sent: CANREP – FR

- A. GOLAR STIRLING/9001007
- B. 261805Z
- C. 2802N01614W
- E. 175
- F. 16

9 The deviation report (DR) is sent:

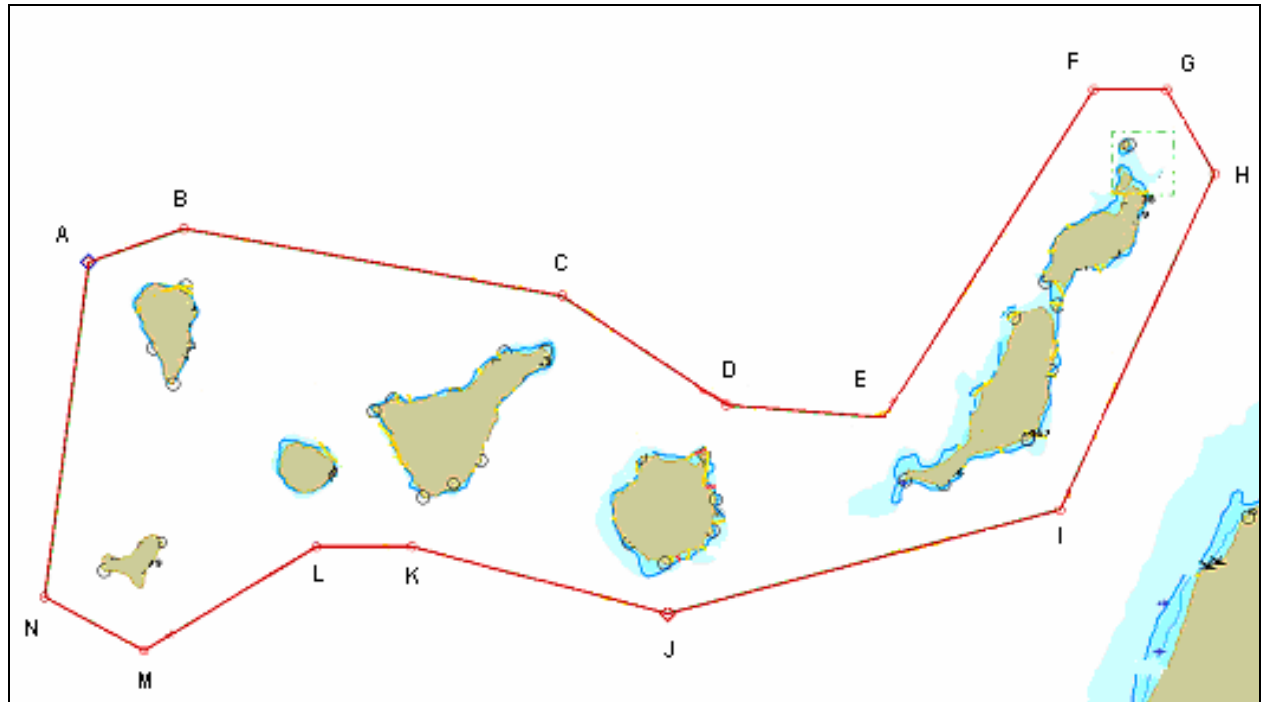
- (a) When deviating from the route leading to the originally declared destination, port, terminal, anchorage or position “for orders” given on entry into reporting area.
- (b) When it is necessary to deviate from the planned route owing to weather conditions, damage to equipment or a change in navigational status.

Example: Name of station to which report must be sent: CANREP – FR

- A. GOLAR STIRLING/9001007
- B. 261605Z
- C. 2821N01557W
- E. 280
- F. 14
- I. SANTA CRUZ DE TENERIFE 261645Z
- X. NONE, SATISFACTORY.

APPENDIX 3

CHARTLET



## ANNEX 2

### SUMMARY

#### **1 Types of ship required to participate in the system**

##### 1.1 Ships required to take part in the CANREP mandatory ship reporting system:

Tankers of 600 tonnes deadweight and upwards, either transiting the Canary Islands or sailing to or from Canarian ports or involved in inter-island navigation, carrying the following:

- .1 heavy-grade crude oils with a density greater than 900 kg/m<sup>3</sup> at 15°C;
- .2 heavy fuel oils with a density greater than 900 kg/m<sup>3</sup> at 15°C or kinematic viscosity greater than 180 mm<sup>2</sup>/s at 50°C; and
- .3 bitumen, coal tar and their emulsions.

#### **2 Geographical position for submitting reports**

Ships travelling towards the Canary Island reporting area or leaving it must report:

- .1 on entering the reporting area; or
- .2 immediately after leaving a port, terminal or anchorage located in the reporting area; or
- .3 when deviating from the route leading to the originally declared destination, port, terminal, anchorage or position “for orders” given on entry into the reporting area; or
- .4 when it is necessary to deviate from the planned route owing to weather conditions, damaged equipment or a change in navigational status; and
- .5 on finally leaving the reporting area.

#### **Reference charts**

The reference chart is No.209 of the Spanish Navy Hydrographic Institute (WGS 84 Datum).

#### **3 Reporting format**

- A: Ship's identity (name, call sign, IMO No. and MMSI No.);  
B: Date and time;  
C: Position;  
E: True course;  
F: Speed;

- G: Name of last port of call;
- I: Name of next port of call and estimated time of arrival;
- P: Type(s) of cargo, quantity and IMO classification if carrying potentially dangerous goods;
- Q: Used in the event of defects or deficiencies that affect normal navigation;
- T: Address for communication of information on cargo;
- W: Number of people on board;
- X: Various particulars relating to tankers:
  - estimated quantity and characteristics of bunker fuel for tankers carrying an amount of it greater than 5,000 tonnes;
  - navigational status (e.g., moving under own propulsion, limited manoeuvrability, etc.).

#### **4 Shore-based authorities to which reports must be sent**

4.1 On entering the CANREP reporting area, ships must report the fact to one of the MRCCs listed in appendix 1, according to the following criteria:

- (i) Ships entering the CANREP reporting area at a position east of the meridian of longitude 015° 30' W should notify the Las Palmas MRCC.
- (ii) Ships entering the reporting area at a position west of the meridian of longitude 015° 30' W should notify the Tenerife MRCC.

4.2 On leaving the CANREP reporting area, ships must report the fact to the same MRCC to which they reported on entry.

#### **5 Telecommunications**

Reports may be sent cost-free by any means capable of being received by the media indicated in appendix 1.

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**ANNEX 30****RESOLUTION MSC.214(81)  
(adopted on 12 May 2006)****ADOPTION OF AMENDMENTS TO THE PERFORMANCE STANDARDS FOR  
SHIPBORNE VOYAGE DATA RECORDERS (VDRS) (RESOLUTION A.861(20))  
AND PERFORMANCE STANDARDS FOR SHIPBORNE SIMPLIFIED VOYAGE  
DATA RECORDERS (S-VDRS) (RESOLUTION MSC.163(78))**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of Committee,

RECALLING ALSO resolution A.886(21), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

HAVING CONSIDERED resolution A.861(20) on Performance standards for shipborne voyage data recorders (VDRs) and resolution MSC.163(78) on Performance standards for shipborne simplified voyage data recorders (S-VDRs) and reviewed requirements for extracting stored data from VDRs and S-VDRs,

RECOGNIZING that, after an accident, there is a need for the investigators to be able to download the stored data and playback the information from VDRs/S-VDRs without delay,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its fifty-first session,

1. ADOPTS the amendments to the Recommendations on performance standards for shipborne voyage data recorders (VDRs) and the Recommendation on performance standards for simplified voyage data recorders (S-VDRs), set out in Annexes 1 and 2, respectively, to the present resolution;
2. RECOMMENDS Governments to ensure that VDRs and S-VDRs:
  - (a) if fitted before 1 June 2008, conform to performance standards not inferior to those specified in the Annexes to resolutions A.861(20) and MSC.163(78), respectively; and
  - (b) if fitted on or after 1 June 2008, conform additionally to the amendments to performance standards not inferior to those specified in Annexes 1 and 2 to the present resolution.

ANNEX 1

**AMENDMENTS TO THE RECOMMENDATION ON PERFORMANCE  
STANDARDS FOR SHIPBORNE VOYAGE DATA RECORDERS (VDRs)  
(RESOLUTION A.861(20))**

**ANNEX TO RESOLUTION A.861(20)**

A new section 8 is added, as follows:

**“8 DOWNLOAD AND PLAYBACK EQUIPMENT FOR INVESTIGATION  
AUTHORITIES**

**8.1 Data output interface**

The VDR should provide an interface for downloading the stored data and playback the information to an external computer. The interface should be compatible with an internationally recognized format, such as Ethernet, USB, FireWire, or equivalent.

**8.2 Software for data downloading and playback**

8.2.1 A copy of the software programme providing the capability to download the stored data and playback the information onto a connected external laptop computer and for the playback of the data should be provided for each VDR installation.

8.2.2 The software should be compatible with an operating system available with commercial-off-the-shelf laptop computers and provided on a portable storage device such as a CD-ROM, DVD, USB-memory stick, etc.

8.2.3 Instructions for executing the software and for connecting the external laptop computer to the VDR should be provided.

8.2.4 The portable storage device containing the software, the instructions and any special (not commercial-off-the-shelf) parts necessary for the physical connection of the external laptop computer, should be stored within the main unit of the VDR.

8.2.5 Where non-standard or proprietary formats are used for storing the data in the VDR, the software for converting the stored data into open industry standard formats should be provided on the portable storage device or resident in the VDR.”

ANNEX 2

**AMENDMENTS TO THE RECOMMENDATION ON PERFORMANCE STANDARDS  
FOR SHIPBORNE SIMPLIFIED VOYAGE DATA RECORDERS (S-VDRs)  
(RESOLUTION MSC.163(78))**

**ANNEX TO RESOLUTION MSC.163(78)**

A new section 8 is added, as follows:

**“8 DOWNLOAD AND PLAYBACK EQUIPMENT FOR INVESTIGATION  
AUTHORITIES**

**8.1 Data output interface**

The S-VDR should provide an interface for downloading the stored data and playback the information to an external computer. The interface should be compatible with an internationally recognized format, such as Ethernet, USB, FireWire, or equivalent.

**8.2 Software for data downloading and playback**

8.2.1 A copy of the software programme providing the capability to download the stored data and playback the information onto a connected external laptop computer and for the playback of the data should be provided for each S-VDR installation.

8.2.2 The software should be compatible with an operating system available with commercial-off-the-shelf laptop computers and provided on a portable storage device such as a CD-ROM, DVD, USB-memory stick, etc.

8.2.3 Instructions for executing the software and for connecting the external laptop computer to the S-VDR should be provided.

8.2.4 The portable storage device containing the software, the instructions and any special (not commercial-off-the-shelf) parts necessary for the physical connection of the external laptop computer, should be stored within the main unit of the S-VDR.

8.2.5 Where non-standard or proprietary formats are used for storing the data in the S-VDR, the software for converting the stored data into open industry standard formats should be provided on the portable storage device or resident in the S-VDR.”

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**ANNEX 31**

**DRAFT AMENDMENTS TO ANNEX B TO THE 1988 PROTOCOL**

**ANNEX B**

**ANNEXES TO THE CONVENTION AS MODIFIED BY THE PROTOCOL OF 1988  
RELATING THERETO**

**ANNEX 1**

**REGULATIONS FOR DETERMINING LOAD LINES**

**CHAPTER II**

**CONDITIONS OF ASSIGNMENT OF FREEBOARD**

**Regulation 22 – Scuppers, inlets and discharges**

- 1 In paragraph (4) of the regulation, the reference to “(2)” is replaced by reference to “(1)”.

**CHAPTER III  
FREEBOARDS**

**Regulation 39 – Minimum bow height and reserve buoyancy**

- 2 In paragraph (1) of the regulation, the words “*d*l is the draught at 85% of the depth *D*, in metres;” are replaced by the words “*d*l is the draught at 85% of the least moulded depth, in metres;”.

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**ANNEX 32****DRAFT AMENDMENTS TO THE INTERNATIONAL CODE FOR  
FIRE SAFETY SYSTEMS (FSS CODE)****CHAPTER 4  
FIRE EXTINGUISHERS****Section 3 – Engineering specifications**

1 The existing paragraph 3.2 is replaced by the following:

*“3.2 Portable foam applicators*

A portable foam applicator unit shall consist of a foam nozzle/branch pipe, either of a self inducing type or in combination with a separate inductor, capable of being connected to the fire main by a fire hose, together with a portable tank containing at least 20 l of foam concentrate and at least one spare tank of foam concentrate of the same capacity.

3.2.1 System performance

3.2.1.1 The nozzle/branch pipe and inductor shall be capable of producing effective foam suitable for extinguishing an oil fire, at a foam solution flow rate of at least 200 l/min at the nominal pressure in the fire main.

3.2.1.2 The foam concentrate shall be approved by the Administration based on guidelines developed by the Organization\*.

3.2.1.3 The values of the foam expansion and drainage time of the foam produced by the portable foam applicator unit shall not differ more than  $\pm 10\%$  of that determined in 3.2.1.2.

3.2.1.4 The portable foam applicator unit shall be designed to withstand clogging, ambient temperature changes, vibration, humidity, shock, impact and corrosion normally encountered on ships.”

**CHAPTER 6  
FIXED FOAM FIRE-EXTINGUISHING SYSTEMS****Section 2 – Engineering specifications**

2 The existing text of paragraph 2.3.1.2 is replaced by the following:

“2.3.1.2 The system shall be capable of discharging through fixed discharge outlets in no more than 5 min, a quantity of foam sufficient to produce an effective foam blanket over the largest single area over which oil fuel is liable to spread.”

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\* Refer to the Guidelines for the performance and testing criteria and surveys of low-expansion foam concentrates for fixed fire-extinguishing systems (MSC/Circ.582/Corr.1).

**CHAPTER 7  
FIXED PRESSURE WATER-SPRAYING AND WATER-MIST  
FIRE-EXTINGUISHING SYSTEMS**

**Section 2 – Engineering specifications**

3 The existing section 2 is replaced by the following:

**“2.1 Fixed pressure water-spraying fire-extinguishing systems**

Fixed-pressure water-spraying fire-extinguishing systems for machinery spaces and cargo pump-rooms shall be approved by the Administration based on the guidelines developed by the Organization\* .

**2.2 Equivalent water-mist fire-extinguishing systems**

Water-mist fire-extinguishing systems for machinery spaces and cargo pump-rooms shall be approved by the Administration based on the guidelines developed by the Organization\* .”

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\* Refer to the Revised Guidelines for the approval of equivalent water-based fire-extinguishing systems for machinery spaces and cargo pump-rooms (MSC/Circ.1165).

**ANNEX 33**

**DRAFT AMENDMENTS TO SOLAS CHAPTER II-2**

**CHAPTER II-2  
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION  
AND FIRE EXTINCTION**

**Regulation 4 – Probability of ignition**

1 The following text is added at the end of paragraph 5.2.3:

“except that “A-0” class standard is acceptable for windows and sidescuttles outside the area specified in regulation II-2/9.2.4.2.5.”

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**ANNEX 34****DRAFT AMENDMENTS TO SOLAS CHAPTER III****CHAPTER III  
LIFE-SAVING APPLIANCES AND ARRANGEMENTS****Regulation 3 – Definitions**

- 1 A new paragraph 25 is added as follows:

“25 *Unfavourable conditions of trim and list* is trim of up to 10° and list of up to 20° either way; or alternatively, the worst combination of maximum trim and list angles for a ship in the intact and, if applicable, damaged stability condition which contributes to the attained index according to regulation II-1/7 if this is less.”

**Regulation 6 – Communications**

- 2 The existing paragraph 4.3 is replaced by the following:

“4.3 The general emergency alarm system shall be audible throughout all the accommodation and normal crew working spaces. On passenger ships the system shall also be audible on all open decks.”

**Regulation 11 – Survival craft muster and embarkation arrangements**

- 3 In the first sentence of paragraph 7, the word “unfavourable” is replaced by the word “all”, the words “up to” are inserted before the terms “10” and “20” and the unit “°” is inserted after the terms “10” and “20”.

**Regulation 13 – Stowage of survival craft**

- 4 Subparagraph .2 in paragraph 1 is replaced by the following:

“.2 as near the water surface as is safe and practicable and, in the case of a survival craft other than a liferaft intended for throw over board launching, in such a position that the survival craft in the embarkation position is not less than 2 m above the waterline with the ship in the fully loaded condition under unfavourable conditions of trim and list, or to the angle at which the edge of the ship’s uppermost complete deck exposed to weather and sea becomes submerged, whichever is less;”

- 5 A new subparagraph .6 is added to paragraph 1 as follows:

“.6 in the case of a free-fall lifeboat, so that the greatest distance measured from the still water surface to the lowest point on the lifeboat when the lifeboat is in the launch configuration under unfavourable conditions of trim and list in the lightest seagoing condition does not exceed the certification height of the lifeboat.”

#### **Regulation 14 – Stowage of rescue boats**

6 The words “, and if the inflated type, in a fully inflated condition at all times” are added at the end of paragraph 14.1.

#### **Regulation 15 – Stowage of marine evacuation systems**

7 The following sentence is added at the beginning of paragraph 1:

“Each marine evacuation system shall be stowed in such a position that it remains usable in its designed manner under unfavourable conditions of trim and list.”

#### **Regulation 16 – Survival craft launching and recovery arrangements**

8 Subparagraph .2 of paragraph 1 is replaced by the following:

“.2 boarded from a position on deck less than 4.5 m above the waterline in the lightest seagoing condition and which are stowed for launching directly from the stowed position under unfavourable conditions of trim and list; or”

9 Subparagraph .4 of paragraph 1 is replaced by the following:

“.4 carried in excess of the survival craft for 200% of the total number of persons on board the ship, and are stowed for launching directly from the stowed position under unfavourable conditions of trim and list; or”

10 Subparagraph .5 of paragraph 1 is replaced by the following:

“.5 provided for use in conjunction with a marine evacuation system, complying with the requirements of paragraph 6.2 of the Code and stowed for launching directly from the stowed position under unfavourable conditions of trim and list.”

11 Paragraph 6 is replaced by the following:

“6 Falls, where used, shall be long enough for the survival craft to reach the water with the ship in its lightest seagoing condition, under unfavourable conditions of trim and list.”

12 Paragraph 10 is replaced by the following:

“10 If partially enclosed lifeboats complying with the requirements of paragraph 4.5 of the Code are carried, a davit span shall be provided, fitted with not less than two lifelines of sufficient length to reach the water with the ship in its lightest seagoing condition, under unfavourable conditions of trim and list.”



### **Regulation 19 – Emergency training and drills**

13 Paragraph 3.3.4 is replaced by the following:

“3.3.4 In the case of a lifeboat arranged for free-fall launching, at least once every three months during an abandon ship drill the crew shall board the lifeboat, properly secure themselves in their seats and commence simulated launch procedure up to but not including the actual release of the lifeboat (i.e., the release hook shall not be released). The lifeboat shall then either be free-fall launched with only the required operating crew on board, or lowered into the water by means of the secondary means of launching without the operating crew on board, and then manoeuvred in the water by the operating crew. At intervals of not more than six months, the lifeboat shall either be launched by free-fall with only the operating crew on board, or simulated launching shall be carried out in accordance with the guidelines developed by the Organization.\*”

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\* Refer to MSC.1/Circ.1206 on Measures to prevent accidents with lifeboats.

### **Regulation 20 – Operational readiness, maintenance and inspections**

14 The text of paragraphs 4.1 and 4.2 is replaced by the following:

“Falls used in launching shall be inspected periodically\* with special regard for areas passing through sheaves, and renewed when necessary due to deterioration of the falls or at intervals of not more than 5 years, whichever is the earlier.”

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\* Refer to MSC.1/Circ.1206 on Measures to prevent accidents with lifeboats.

15 In the third sentence of paragraph 6.2, the words “it should be run for such period as prescribed in the manufacturer’s handbook” are replaced by the words “a suitable water supply may be provided”.

16 The heading of paragraph 8 is replaced by the following:

“8 Servicing of inflatable liferafts, inflatable lifejackets, and marine evacuation systems, and maintenance and repair of inflated rescue boats”

17 The second sentence of paragraph 11.1.3 is replaced by the following:

“The load to be applied shall be the mass of the survival craft or rescue boat without persons on board, except that, at intervals not exceeding five years, the test shall be carried out with a proof load equal to 1.1 times the weight of the survival craft or rescue boat and its full complement of persons and equipment.”

18 The chapeau of paragraph 11.2 is replaced by the following:

“11.2 Lifeboat or rescue boat on-load release gear, including free-fall lifeboat release systems, shall be:”

19 The word “lifeboat” in the first sentence of paragraph 11.2.3 is replaced by the word “boat”.

20 The following new paragraph 11.3 is added to the regulation:

“11.3 Davit-launched liferaft automatic release hooks shall be:

- .1 maintained in accordance with instructions for on-board maintenance as required by regulation 36;
- .2 subject to a thorough examination and operational test during the annual surveys required by regulations I/7 and I/8 by properly trained personnel familiar with the system; and
- .3 operationally tested under a load of 1.1 times the total mass of the liferaft when loaded with its full complement of persons and equipment whenever the automatic release hook is overhauled. Such over-hauling and test shall be carried out at least once every five years.\*”

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\* Refer to the Recommendation on testing of life-saving appliances adopted by the Organization by resolution A.689(17). For life-saving appliances installed on board on or after 1 July 1999, refer to the Revised Recommendations on testing of life-saving appliances, adopted by the Maritime Safety Committee of the Organization by resolution MSC.81(70).

### **Regulation 21 – Survival craft and rescue boats**

21 The chapeau of paragraph 1.2 is replaced by the following:

“1.2 Passenger ships engaged on short international voyages shall carry:”

22 Paragraph 1.3 is deleted and the remaining paragraphs are renumbered accordingly.

23 Paragraph 2.3 is replaced by the following:

“2.3 A lifeboat may be accepted as a rescue boat provided that it and its launching and recovery arrangements also comply with the requirements for a rescue boat.”

24 The words “and complying with the special standards of subdivision prescribed by regulation II-1/6.5” in paragraph 3.2 are deleted.

### **Regulation 31 – Survival craft and rescue boats**

25 Subparagraph .2 of paragraph 1.1 is replaced by the following:

“.2 in addition, one or more inflatable or rigid liferafts, complying with the requirements of section 4.2 or 4.3 of the Code, of a mass of less than 185 kg and stowed in a position providing for easy side-to-side transfer at a single open deck level, and of such aggregate capacity as will accommodate the total number of persons on board. If the liferaft or liferafts are not of a mass of less than 185 kg and stowed in a position providing for easy side-to-side transfer at a single open deck level, the total capacity available on each side shall be sufficient to accommodate the total number of persons on board.”

26 Subparagraph .2 of paragraph 1.3 is replaced by the following:

“.2 unless the liferafts required by paragraph 1.3.1 are of a mass of less than 185 kg and stowed in a position providing for easy side-to-side transfer at a single open deck level, additional liferafts shall be provided so that the total capacity available on each side will accommodate 150% of the total number of persons on board;”

27 Subparagraph .4 of paragraph 1.3 is replaced by the following:

“.4 in the event of any one survival craft being lost or rendered unserviceable, there shall be sufficient survival craft available for use on each side, including any which are of a mass of less than 185 kg and stowed in a position providing for easy side-to-side transfer at a single open deck level, to accommodate the total number of persons on board.”

28 The second sentence of paragraph 2 is replaced by the following:

“A lifeboat may be accepted as a rescue boat, provided that it and its launching and recovery arrangements also comply with the requirements for a rescue boat.”

### **Regulation 32 – Personal life-saving appliances**

29 In the first sentence of paragraph 3.2, the words “, of an appropriate size,” are inserted between the words “Code” and “shall”.

30 In paragraph 3.3, the words “including remotely located survival craft carried in accordance with regulation 31.1.4,” are inserted between the words “stowed,” and “additional” and the words “of an appropriate size” are inserted between the words “suits” and “shall”.

### **Regulation 35 – Training manual and on-board training aids**

31 A new paragraph 5 is added as follows:

“5 The training manual shall be written in the working language of the ship.”

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**ANNEX 35****DRAFT AMENDMENTS TO THE LSA CODE****CHAPTER I  
GENERAL****1.1 Definitions**

1 Paragraph 1.1.8 is deleted and the existing paragraphs 1.1.9, 1.1.10 and 1.1.11 are renumbered as 1.1.8, 1.1.9 and 1.1.10 respectively.

**1.2 General requirements for life-saving appliances**

2 The following sentence is added at the end of paragraph 1.2.3:

“In the case of pyrotechnic lifesaving appliances, the date of expiry shall be indelibly marked on the product by the manufacturer.”

**2.2 Lifejackets**

3 In paragraph 2.2.1.16, the words “line or other” are inserted between the words “buoyant” and “means”.

**2.3 Immersion suits**

4 Subparagraph .1 of paragraph 2.3.1.1 is replaced by the following:

“.1 it can be unpacked and donned without assistance within 2 min, taking into account donning of any associated clothing, donning of a lifejacket if the immersion suit is to be worn in conjunction with a lifejacket, and inflation of orally inflatable chambers if fitted;\*

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\* Refer to paragraph 3.1.3 of the Recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC 81(70).”

5 In paragraph 2.3.1.5, the words “line or other” are inserted between the words “buoyant” and “means”.

**CHAPTER IV  
SURVIVAL CRAFT****4.1 General requirements for liferafts**

6 In paragraph 4.1.2.2, the words “required to be stowed in a position providing” are replaced by the word “intended”.

7 The first sentence of paragraph 4.1.3.3 is replaced by the following:

“A manually controlled exterior light shall be fitted to the uppermost portion of the liferaft canopy or structure.”

8 The first and second sentence of paragraph 4.1.3.4 are replaced by the following:

“A manually controlled interior light shall be fitted inside the liferaft capable of continuous operation for a period of at least 12 h. It shall light automatically when the canopy is erected and shall produce an arithmetic mean luminous intensity of not less than 0.5 cd when measured over the entire upper hemisphere to permit reading of survival and equipment instructions.”

9 Subparagraphs .18 and .19 of paragraph 4.1.5.1 are replaced by the following:

“.18 a food ration consisting of not less than 10,000 kJ (2,400 kcal) for each person the liferaft is permitted to accommodate. These rations shall be palatable, edible throughout the marked life, and packed in a manner which can be readily divided and easily opened taking into account immersion suit gloved hands.

**Note:** A typical suitable composition is:

Ration unit: 500-550 g  
Energy: Minimum 10,000 kJ  
Moisture: Maximum 5%  
Salt (NaCl): Maximum 0.2%  
Carbohydrates: 60-70% weight = 50-60% energy  
Fat: 18-23% weight = 33-43% energy  
Protein: 6-10% weight = 5-8% energy

The rations shall be packed in permanently sealed metal containers or vacuum packed in a flexible packaging material with a negligible vapour transmission rate ( $<0.1 \text{ g/m}^2$  per 24 hours at  $23^\circ\text{C}/85\%$  relative humidity when tested in accordance with an appropriate national or international standard). Flexible packaging materials shall be further protected by outer packaging if needed to prevent physical damage to the food ration and other items as result of sharp edges. The packaging shall be clearly marked with date of packing and date of expiry, the production lot number, the content in the package and instructions for use. Food rations complying with the requirements of an international standard acceptable to the Organization are acceptable in compliance with these requirements;

.19 1.5 l of fresh water for each person the liferaft is permitted to accommodate, of which either 0.5 l per person may be replaced by a de-salting apparatus capable of producing an equal amount of fresh water in 2 days or 1 l per person may be replaced by a manually powered reverse osmosis desalinator, as described in paragraph 4.4.7.5, capable of producing an equal amount of fresh water in 2 days. The water shall satisfy suitable international requirements for chemical and microbiological content, and shall be packed in sealed watertight containers that are of corrosion resistant material or are treated to be corrosion resistant. Flexible packaging materials, if used, shall have a negligible vapour transmission rate ( $<0.1 \text{ g/m}^2$  per 24 hours at  $23^\circ\text{C} / 85\%$  relative humidity when tested in

accordance with an appropriate national or international standard), except that individually packaged portions within a larger container need not meet this vapour transmission requirement. Each water container shall have a method of spill proof reclosure, except for individually packaged portions of less than 125 ml. Each container shall be clearly marked with date of packing and date of expiry, the production lot number, the quantity of water in the container, and instructions for consumption. The containers shall be easy to open, taking into account immersion suit gloved hands. Water for emergency drinking complying with the requirements of an international standard acceptable to the Organization\* is acceptable in compliance with these requirements;

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\* Refer to the recommendations of the International Organization for Standardization, in particular publication ISO 18813 *Ships and marine technology – Survival equipment for survival craft and rescue boats.*”

#### **4.2 Inflatable liferafts**

10 The following new sentence is inserted between the second and third sentence of paragraph 4.2.2.3:

“The inflation system, including any relief valves installed in compliance with paragraph 4.2.2.4, shall comply with the requirements of an international standard acceptable to the Organization\* .

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\* Refer to the recommendations of the International Organization for Standardization, in particular publication ISO 15738 *Ships and marine technology – Gas inflation systems for inflatable life-saving appliances.*”

11 The first sentence of paragraph 4.2.4.1 is replaced by the following:

“At least one entrance shall be fitted with a boarding ramp, capable of supporting a person weighing 100 kg sitting or kneeling and not holding onto any other part of the liferaft, to enable persons to board the liferaft from the sea.”

12 A new subparagraph .8 is inserted in paragraph 4.2.6.3 and the existing subparagraphs .8 and .9 are renumbered as .9 and .10 respectively:

“.8 mass of the packed liferaft, if greater than 185 kg;”

#### **4.3 Rigid liferafts**

13 The first sentence of paragraph 4.3.4.1 is replaced by the following:

“At least one entrance shall be fitted with a boarding ramp, capable of supporting a person weighing 100 kg sitting or kneeling and not holding onto any other part of the liferaft, to enable persons to board the liferaft from the sea.”

#### 4.4 General requirements for lifeboats

14 In paragraph 4.4.1.1, the words “, and are capable of being safely launched under all conditions of trim of up to 10° and list of up to 20° either way” are added at the end of the first sentence.

15 Paragraph 4.4.1.2 is replaced by the following:

“4.4.1.2 Each lifeboat shall be fitted with a permanently affixed approval plate, endorsed by the Administration or its representative, containing at least the following items:

- .1 manufacturer’s name and address;
- .2 lifeboat model and serial number;
- .3 month and year of manufacture;
- .4 number of persons the lifeboat is approved to carry; and
- .5 the approval information required under paragraph 1.2.2.9.

Each production lifeboat shall be provided with a certificate or declaration of conformity which, in addition to the above items, specifies:

- .6 number of the certificate of approval;
- .7 material of hull construction, in such detail as to ensure that compatibility problems in repair should not occur;
- .8 total mass fully equipped and fully manned;
- .9 the measured towing force of the lifeboat; and
- .10 statement of approval as to sections 4.5, 4.6, 4.7, 4.8 or 4.9.”

16 In paragraph 4.4.3.1, in the first sentence, the word “rapidly” is deleted and the words “in not more than 10 min from the time the instruction to board is given” are added at the end.

17 In the first sentence of paragraph 4.4.6.8, the words “a 25-person liferaft” are replaced by the words “the largest liferaft carried on the ship”.

18 Paragraph 4.4.7.6 is replaced by the following:

“4.4.7.6 Every lifeboat to be launched by a fall or falls, except a free-fall lifeboat, shall be fitted with a release mechanism complying with the following requirements subject to subparagraph .9 below:

- .1 the mechanism shall be so arranged that all hooks are released simultaneously;



- .2 the mechanism shall have two release capabilities: normal (off-load) release capability and on-load release capability:
  - .2.1 normal (off-load) release capability shall release the lifeboat when it is waterborne or when there is no load on the hooks, and not require manual separation of the lifting ring or shackle from the jaw of the hook; and
  - .2.2 on-load release capability shall release the lifeboat with a load on the hooks. This release shall be so arranged as to release the lifeboat under any conditions of loading from no load with the lifeboat waterborne to a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment. This release capability shall be adequately protected against accidental or premature use. Adequate protection shall include special mechanical protection not normally required for offload release, in addition to a danger sign. To prevent a premature on-load release, on-load operation of the release mechanism should require a deliberate and sustained action by the operator;
- .3 to prevent an accidental release during recovery of the boat, unless the hook is completely reset, either the hook shall not be able to support any load, or the handle or safety pins shall not be able to be returned to the reset (closed) position without excessive force. Additional danger signs shall be posted at each hook station to alert crew members to the proper method of resetting;
- .4 the release mechanism shall be so designed and installed that crew members from inside the lifeboat can clearly determine when the system is ready for lifting by:
  - .4.1 directly observing that the movable hook portion or the hook portion that locks the movable hook portion in place is properly and completely reset at each hook; or
  - .4.2 observing a non-adjustable indicator that confirms that the mechanism that locks the movable hook portion in place is properly and completely reset at each hook; or
  - .4.3 easily operating a mechanical indicator that confirms that the mechanism that locks the movable hook in place is properly and completely reset at each hook;
- .5 clear operating instructions shall be provided with a suitably worded warning notice using colour coding, pictograms, and/or symbols as necessary for clarity. If colour coding is used, green shall indicate a properly reset hook and red shall indicate danger of improper or incorrect setting;

- .6 the release control shall be clearly marked in a colour that contrasts with its surroundings;
- .7 means shall be provided for hanging-off the lifeboat to free the release mechanism for maintenance;
- .8 the fixed structural connections of the release mechanism in the lifeboat shall be designed with a calculated factor of safety of 6 based on the ultimate strength of the materials used, and the mass of the lifeboat when loaded with its full complement of persons, fuel, and equipment, assuming the mass of the lifeboat is equally distributed between the falls, except that the factor of safety for the hanging-off arrangement may be based upon the mass of the lifeboat when loaded with its full complement of fuel and equipment plus 1,000 kg; and
- .9 where a single fall and hook system is used for launching a lifeboat or rescue boat in combination with a suitable painter, the requirements of paragraphs 4.4.7.6.2.2 and 4.4.7.6.3 need not be applicable; in such an arrangement a single capability to release the lifeboat or rescue boat, only when it is fully waterborne, will be adequate.”

19 The following new paragraph 4.4.7.7 is inserted after paragraph 4.4.7.6 and existing paragraphs 4.4.7.7 to 4.4.7.12 are renumbered as 4.4.7.8 to 4.4.7.13 respectively:

“4.4.7.7 Notwithstanding the requirements of paragraph 4.4.7.6.9, for a fast rescue boat or other single point suspension craft launched by means of an appliance fitted with an automatic high-speed tensioning device, the release mechanism shall be provided with on-load release capability.”

20 In the first sentence of renumbered paragraph 4.4.7.11, the word “lamp” is replaced by the word “exterior light”.

21 The existing text of the renumbered paragraph 4.4.7.12 is replaced by the following:

“4.4.7.12 A manually controlled interior light shall be fitted inside the lifeboat capable of continuous operation for a period of at least 12 h. It shall produce an arithmetic mean luminous intensity of not less than 0.5 cd when measured over the entire upper hemisphere to permit reading of survival and equipment instructions; however, oil lamps shall not be permitted for this purpose.”

22 In paragraph 4.4.8.9, the words “as described in paragraph 4.1.5.1.19” are inserted between the words “fresh water” and “for each person”.

#### **4.5 Partially enclosed lifeboats**

23 Paragraph 4.5.3 is replaced by the following:

“4.5.3 The interior of the lifeboat shall be of a light colour which does not cause discomfort to the occupants.”

#### **4.6 Totally enclosed lifeboats**

24 In paragraph 4.6.2.8, the word “light” is inserted before the second word “colour”.

#### **4.7 Free-fall lifeboats**

25 Paragraph 4.7.3.3 is deleted.

### **CHAPTER V RESCUE BOATS**

#### **5.1 Rescue boats**

26 In the first sentence of paragraph 5.1.1.1, the words “, excluding paragraph 4.4.6.8,” are inserted between the words “4.4.7.4 inclusive” and “and 4.4.7.6” and the references “4.4.7.6, 4.4.7.7, 4.4.7.9, 4.4.7.10” are replaced by “4.4.7.6, 4.4.7.8, 4.4.7.10, 4.4.7.11”.

27 At the end of the first sentence of paragraph 5.1.1.3.2, the words “all wearing immersion suits, and lifejackets if required” are added.

28 Paragraph 5.1.1.6 is replaced by the following:

“5.1.1.6 Every rescue boat shall be provided with sufficient fuel, suitable for use throughout the temperature range expected in the area in which the ship operates, and be capable of manoeuvring at a speed of at least 6 knots and maintaining that speed, for a period of at least 4 h when loaded with its full complement of persons and equipment.”

29 A new paragraph 5.1.1.12 is added after existing paragraph 5.1.1.11:

“5.1.1.12 Every rescue boat shall be so arranged that an adequate view forward, aft, and to both sides is provided from the control and steering position for safe launching and manoeuvring, and in particular with regard to visibility of areas and crew members essential to man-overboard retrieval and marshalling of survival craft.”

30 Paragraph 5.1.3.11 is deleted.

31 The following new section 5.1.4 is added after existing section 5.1.3:

“5.1.4 *Additional requirements for fast rescue boats*

5.1.4.1 Fast rescue boats shall be so constructed as to capable of being safely launched and retrieved under adverse weather and sea conditions.

5.1.4.2 Except as provided by this section, all fast rescue boats shall comply with the requirements of section 5.1, except for paragraphs 4.4.1.5.3, 4.4.1.6, 4.4.7.2, 5.1.1.6 and 5.1.1.10.

5.1.4.3 Notwithstanding paragraph 5.1.1.3.1, fast rescue boats shall have a hull length of not less than 6 m and not more than 8.5 m, including inflated structures or fixed fenders.

5.1.4.4 Fast rescue boats shall be provided with sufficient fuel, suitable for use throughout the temperature range expected in the area in which the ship operates, and be capable of manoeuvring for a period of at least 4 h at a speed of at least 20 knots in calm water with a crew of 3 persons and at least 8 knots when loaded with its full complement of persons and equipment.

5.1.4.5 Fast rescue boats shall be self-righting, or capable of being readily righted by not more than two of their crew.

5.1.4.6 Fast rescue boats shall be self-bailing or be capable of being rapidly cleared of water.

5.1.4.7 Fast rescue boats shall be steered by a wheel at the helmsman's position remote from the tiller. An emergency steering system providing direct control of the rudder, water jet, or outboard motor shall also be provided.

5.1.4.8 Engines in fast rescue boats shall stop automatically or be stopped by the helmsman's emergency release switch should the rescue boat capsize. When the rescue boat has righted, each engine or motor shall be capable of being restarted provided that the helmsman's emergency release, if fitted, has been reset. The design of the fuel and lubricating systems shall prevent the loss of more than 250 ml of fuel or lubricating oil from the propulsion system should the rescue boat capsize.

5.1.4.9 Fast rescue boats shall, if possible, be equipped with an easily and safely operated fixed single-point suspension arrangement or equivalent.

5.1.4.10 A rigid fast rescue boat shall be constructed in such a way that, when suspended by its lifting point it is of sufficient strength to withstand a load of 4 times the mass of its full complement of persons and equipment without residual deflection upon removal of the load.

5.1.4.11 The normal equipment of a fast rescue boat shall include a hands-free and watertight VHF radiocommunication set.”

## **CHAPTER VI LAUNCHING AND EMBARKATION APPLIANCES**

### **6.1 Launching and embarkation appliances**

32 In paragraph 6.1.1.5, the word “factory” is inserted before the words “static proof load” and the word “on” between the words “load” and “test” is deleted.

33 The following new paragraph 6.1.1.11 is added after existing paragraph 6.1.1.10:

“6.1.1.11 Rescue boat launching appliances shall be provided with foul weather recovery strops for recovery where heavy fall blocks constitute a danger.”

34 In paragraph 6.1.2.12, the words “or a mechanism activated by the operator” are replaced by the words “either on deck or in the survival craft or rescue boat”.

35 The following new paragraph 6.1.2.13 is added after existing paragraph 6.1.2.12:

“6.1.2.13 A lifeboat launching appliance shall be provided with means for hanging-off the lifeboat to free the on-load release mechanism for maintenance.”

36 The following new section 6.1.7 is added after existing section 6.1.6:

“6.1.7 *Launching appliances for fast rescue boats*

6.1.7.1 Every fast rescue boat launching appliance shall comply with the requirements of paragraphs 6.1.1 and 6.1.2 except 6.1.2.10 and, in addition, shall comply with the requirements of this paragraph.

6.1.7.2 The launching appliance shall be fitted with a device to dampen the forces due to interaction with the waves when the fast rescue boat is launched or recovered. The device shall include a flexible element to soften shock forces and a damping element to minimize oscillations.

6.1.7.3 The winch shall be fitted with an automatic high-speed tensioning device which prevents the wire from going slack in all sea state conditions in which the fast rescue boat is intended to operate.

6.1.7.4 The winch brake shall have a gradual action. When the fast rescue boat is lowered at full speed and the brake is applied sharply, the additional dynamic force induced in the wire due to retardation shall not exceed 0.5 times the working load of the launching appliance.

6.1.7.5 The lowering speed for a fast rescue boat with its full complement of persons and equipment shall not exceed 1 m/s. Notwithstanding the requirements of paragraph 6.1.1.9, a fast rescue boat launching appliance shall be capable of hoisting the fast rescue boat with 6 persons and its full complement of equipment at a speed of not less than 0.8 m/s. The appliance shall also be capable of lifting the rescue boat with the maximum number of persons that can be accommodated in it as calculated in accordance with paragraph 4.4.2.

6.1.7.6 At least three turns of wire shall remain on the winch after the fast rescue boat is lowered to the sea with the ship in its lightest seagoing condition, against unfavourable conditions of trim and list.”

## **6.2 Marine evacuation systems**

37 Subparagraph .2 of paragraph 6.2.2.1.5 is replaced by the following:

“.2 in the case of a passenger ship, a maximum of 55° under unfavourable conditions of trim and list;”

38 The following new subparagraph .6 of paragraph 6.2.2.1 is added and existing paragraphs 6.2.2.1.6 to 6.2.2.1.9 are renumbered as 6.2.2.1.7 to 6.2.2.1.10 respectively:

- “.6 in the case of being fitted with a vertical passage, such that the system shall be:
- .1 operational in its designed manner under unfavourable conditions of trim and list; and
  - .2 if equipped with integrated liferafts, it shall be provided with an option of independent release of the liferafts.”

## **CHAPTER VII OTHER LIFE-SAVING APPLIANCES**

### **7.2 General alarm and public address system**

39 The third sentence of paragraph 7.2.1.1 is deleted.

40 The second sentence of paragraph 7.2.1.2 is deleted.

### **FOOTNOTES TO BE ADDED TO SOLAS CHAPTER III**

1 The following footnote is added at the end of paragraph 4.4.1.4:

“\* Refer to the Guidelines on fire test procedures for acceptance of fire-retardant materials for the construction of lifeboats (MSC/Circ.1006).”

2 The following footnote is added at the end of the first sentence of paragraph 4.4.6.9:

“\* Refer to the Guidelines on fire test procedures for acceptance of fire-retardant materials for the construction of lifeboats (MSC/Circ.1006).”

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**ANNEX 36****DRAFT AMENDMENTS TO THE REVISED RECOMMENDATION ON TESTING OF  
LIFE-SAVING APPLIANCES (RESOLUTION MSC.81(70))****PART 1  
PROTOTYPE TESTS FOR LIFE-SAVING APPLIANCES****1 LIFEBUOYS**

- 1 Paragraph 1.3 is replaced by the following:

**“1.3 Drop test**

Each lifebuoy should be suspended from its upper edge via a release device so that the lower edge of the lifebuoy is at the height at which it is intended to be stowed on ships in their lightest seagoing condition, or 30 m, whichever is the greater, and dropped into the water without suffering damage. In addition, one lifebuoy should be suspended from its upper edge via a release device so that the lower edge of the lifebuoy is at a height of 2 m, and dropped three times onto a concrete floor, without suffering damage.”

**2 LIFEJACKETS**

- 2 The following words are added at the end of paragraph 2.10.1.1:

“Each lifejacket should then be subjected to the tests in paragraphs 2.2, 2.3 and 2.5. A lifejacket that has been inflated automatically with one compartment uninflated should be subjected to the test in paragraph 2.2 and the test repeated as many times as necessary to perform the test once with each compartment in the uninflated condition. For the fire test in paragraph 2.3, one lifejacket should be inflated and one uninflated.”

- 3 In paragraph 2.10.4.6.2, the term “1°” is replaced by the term “5°”.

- 4 In paragraph 2.10.4.7.2, the word “sprays” is replaced by the words “spray nozzles” and the words “a pressure of 0.3 kPa – 0.4 kPa,” are deleted.

**3 IMMERSION SUITS, ANTI-EXPOSURE SUITS AND THERMAL  
PROTECTIVE AIDS**

- 5 In paragraph 3.1.3, second sentence, the words “inflate any orally inflated chambers if fitted, and don” are inserted between the words “clothing,” and “and a lifejacket” and the word “and” before the words “a lifejacket” is deleted.

- 6 In paragraph 3.1.4, first sentence, the words “a reasonable time” are replaced by the words “5 min”.

7 In paragraph 3.1.7, the following new sentence is inserted between the existing first and second sentences:

“For a buoyant insulated immersion suit worn without a lifejacket, an auxiliary means of buoyancy such as an orally inflated bladder behind the wearer’s head may be used to obtain this freeboard, provided that the freeboard obtained without the auxiliary means of buoyancy is at least 50 mm.”

8 In paragraph 3.3.2, the word “conductivity” is replaced by the word “conductance” and the term “0.25 W/(m K)” is replaced by the term “7,800 W/(m<sup>2</sup> K)”.

#### **4 PYROTECHNICS - ROCKET PARACHUTE FLARES, HAND FLARES AND BUOYANT SMOKE SIGNALS**

9 In paragraphs 4.2.2 and 4.2.3, the words “at that temperature” are replaced by the words “immediately upon removal from the cold chamber” and “immediately upon removal from the hot chamber” respectively.

10 Paragraph 4.6.2 is replaced by the following:

“4.6.2 Laboratory testing of the flare material should establish that it will burn uniformly with an average luminous intensity of not less than 30,000 cd and that the colour of the flame is a vivid red with CIE co-ordinates  $x = 0.61$  to  $0.69$  and  $y = 0.3$  to  $0.39$ , or computed from these co-ordinates: a wavelength of 608 nm +/- 11 nm.”

11 Paragraph 4.7.2 is replaced by the following:

“4.7.2 Laboratory testing of the flare material should establish that it will burn with an average luminous intensity of at least 15,000 cd and that the colour of the flame is vivid red with CIE co-ordinates  $x = 0.61$  to  $0.69$  and  $y = 0.3$  to  $0.39$ , or computed from these co-ordinates: a wavelength of 608 nm +/- 11 nm.”

12 Paragraph 4.8.3 is replaced by the following and the existing footnote is deleted:

“4.8.3 The smoke density and colour of the smoke signal should be determined by laboratory testing conducted at a water temperature of +20°C to +25°C as follows:

- .1 The smoke should be blown through an apparatus consisting of a 190 mm diameter duct with a fan capable of producing an entrance air flow of 18.4 m<sup>3</sup>/min. By means of a light source with at least 10 cd on one side of the tunnel and a photoelectric cell on the other side the density of the passing smoke should be recorded. If the photocell picks up the total emitted light from the light source then the smoke density is zero percent which means that no smoke is passing through the tunnel. The smoke density is then considered to be 100% when the photocell is not able to pick up any light of the light source through the passing smoke in the tunnel. From the amount of light which the photocell is able to pick up the smoke density should be calculated. Before each measurement the light intensity of the 100% value should be checked. Each measurement should be recorded.



- .2 The colour of the orange smoke should be evaluated by means of visual comparison, in daylight, to a colour comparison chart containing the range of acceptable orange colours. The colour comparison chart should have a gloss or matte finish, and consist of a series of at least five orange colour chips, covering the range from reddish orange (Munsell notation 8.75 YR 6/14) to yellowish orange (Munsell notation 5 YR MAX) in gradual steps of hue, chroma, and lightness. The colour chips should be secured adjacent to one another, in order of progression from reddish orange to yellowish orange, and extend on at least one side to the edge of the chart. Each colour chip should be at least 50 mm x 100 mm in size.

**Note:** A typical acceptable progression would be 8.75 YR 6/14; 10 R 6/14; 1.25 YR 6/14; 3.75 YR MAX; 5 YR MAX.

**Note:** ASTM D1535-97 specifies a method to convert between Munsell notation and CIE co-ordinates.”

## **5 LIFERAFTS – RIGID AND INFLATABLE**

- 13 The third sentence of paragraph 5.12 is replaced by the following:

“The accumulation of water inside the liferaft should not exceed 4 l.”

- 14 Paragraph 5.17.8 is replaced by the following:

“5.17.8 The measurement of pressure drop due to leakage can be started when it has been assumed that compartment material has completed stretching due to the inflation pressure and achieved equilibrium.”

- 15 In paragraph 5.17.13.2.2.10.1, the words “100 g weight should not be lifted” are replaced by the words “fabric shall exhibit no blocking”.

- 16 In paragraph 5.17.13.2.2.10.2, the words “the temperature of test should be 70°± 2°C and” are deleted.

## **6 LIFEBOATS**

- 17 In paragraph 6.4.3, the words “remainder of the” are inserted between the words “The” and “weights” in the second sentence and the following new sentence is inserted between the existing first and second sentence:

“Included in this loading should be a weight of 100 kg loaded in one of each type of seat installed in the lifeboat.”

- 18 Paragraph 6.8.2 is replaced by the following:

“6.8.2 Weights representing persons who would be in the water when the lifeboat is flooded (water level more than 500 mm above the seat pan) may be omitted. Weights representing persons who would not be in the water when the lifeboat is flooded (water level less than 500 mm above seat pan) should be placed in the normal seating positions

of such persons with their centre of gravity approximately 300 mm above the seat pan. Weights representing persons who would be partly submerged in the water when the lifeboat is flooded (water level between 0 and 500 mm above the seat pan) should additionally have an approximate density of 1 kg/dm<sup>3</sup> (for example water ballast containers) to represent a volume similar to a human body.”

19 Subparagraph .1 of paragraph 6.9.4 is replaced by the following:

“.1 a force equal to 25% of the safe working load of the hook should be applied to the hook in the lengthwise direction of the boat at an angle of 45° to the vertical. This test should be conducted in the aftward as well as the forward direction;”

20 Subparagraph .3 of paragraph 6.9.4 is replaced by the following:

“.3 a force equal to the safe working load of the hook should be applied to the hook in a direction half-way between the positions of tests 1 and 2 (i.e., 45° to the longitudinal axis of the boat in plan view) at an angle of 33° to the vertical. This test should be conducted in four positions.

There should be no damage to the hook as a result of this test, and in the case of a waterborne test, there should be no damage to the lifeboat or its equipment.”

21 Paragraph 6.10.1 is replaced by the following:

“6.10.1 The lifeboat should be loaded with weights equal to the mass of its equipment and the number of persons for which the lifeboat is to be approved. The engine should be started and the lifeboat manoeuvred for a period of at least 4 h to demonstrate satisfactory operation. The lifeboat should be run at a speed of not less than 6 knots for a period which is sufficient to ascertain the fuel consumption and to establish that the fuel tank has the required capacity. The maximum towing force of the lifeboat should be determined. This information should be used to determine the largest fully loaded liferaft the lifeboat can tow at 2 knots. The fitting designated for towing other craft should be secured to a stationary object by a tow rope. The engine should be operated ahead at full speed for a period of at least 2 minutes, and the towing force measured and recorded. There should be no damage to the towing fitting or its supporting structure. The maximum towing force of the lifeboat should be recorded on the type approval certificate.”

22 Paragraph 6.15 is replaced by the following:

**“6.15 Air supply test for lifeboats with a self-contained air support system**

All entrances and openings of the lifeboat should be closed, and the air supply to the inside of the lifeboat turned on to the design air pressure. The engine should then be run at revolutions necessary to achieve full speed with the fully loaded boat including all persons and with the sprinkler system in use for a period of 5 min, stopped for 30 s, then restarted for a total running time of 10 min. During this time the atmospheric pressure within the enclosure should be continuously monitored to ascertain that a small positive air pressure is maintained within the lifeboat and to confirm that noxious gases cannot enter. The internal air pressure should never fall below the outside atmospheric pressure nor should it exceed outside atmospheric pressure by more than 20 hPa during the test. It should be ascertained, by starting the engine with air supply turned off, that when the air

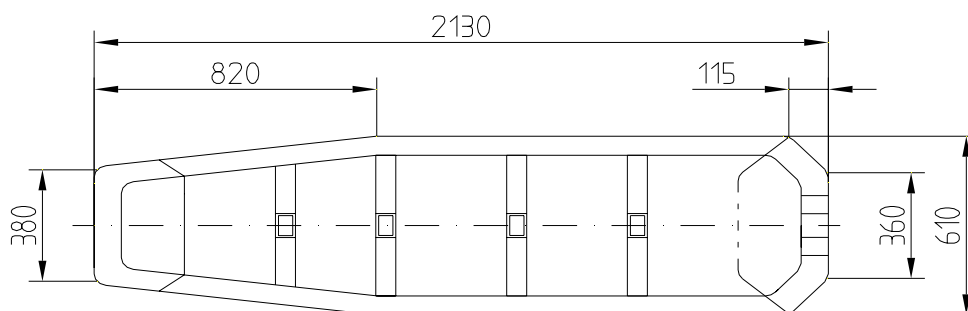
supply is depleted, automatic means are activated to prevent a dangerous underpressure of more than 20 hPa being developed within the lifeboat.”

## 7 RESCUE BOATS AND FAST RESCUE BOATS

23 Paragraph 7.1.2 is replaced by the following:

“7.1.2 The maximum towing force of the rescue boat should be determined. This information should be used to determine the largest fully loaded liferaft the rescue boat can tow at two knots. The fitting designated for towing other craft should be secured to a stationary object by a tow rope. The engine should be operated ahead at full speed for a period of at least 2 min, and the towing force measured and recorded. There should be no damage to the towing fitting or its supporting structure. The maximum towing force of the rescue boat should be recorded on the type approval certificate.”

24 In paragraph 7.1.3, in the second sentence, the words “on a stretcher of similar dimensions to those shown in figure 4” are inserted between the words “lie down” and “and the others” and the following figure is inserted after the paragraph:



**Figure 4 – Stretcher dimensions**

25 In paragraph 7.1.7, the word “rigid” in the first sentence is deleted and the following text is added at the end of the paragraph:

“In the case of fast rescue boats which are not self-righting, the engine should be running in neutral position and, after stopping automatically or by the helmsman’s emergency release switch when inverted, it should be easily restarted and run for 30 min after the rescue boat has returned to the upright position. For rescue boats with inboard engines, the test without engine and fuel is not applicable.”

26 In the chapeau of paragraph 7.2.14, the words “to the satisfaction of the Administration” are replaced by the following:

“and comply with the requirements of an international standard acceptable to the Organization\*.”

\* Refer to the recommendations of the International Organization for Standardization, in particular publication ISO 15372 *Ships and marine technology – Inflatable rescue boats – Coated fabrics for inflatable chambers*.

27 The following text is added at the end of paragraph 7.4.1:

“In the case of open fast rescue boats, the self-righting test should only be done in the light condition, and 6.14.1.1, 6.14.3, 6.14.4, and 6.14.5 are not applicable. With regard to 6.14.2, a boat fitted with a helmsman’s emergency release switch should be considered to be arranged to stop automatically when inverted.”

28 The following new paragraph 7.7.11 is added after existing paragraph 7.7.10:

*“Engine inversion test (for engines destined for fast rescue boats only)”*

7.7.11 The engine and its fuel tank should be mounted on a frame that is arranged to rotate about an axis equivalent to the longitudinal axis of the boat at the height of the boat transom. The propeller should be in a water basin to the height of the cavitation plate. The engine should then be subjected to the test procedure specified in paragraphs 6.14.7.1 through 6.14.7.13, and then dismantled for examination. With regard to 6.14.7.9, the engine should be stopped automatically or by the helmsman’s emergency release switch when inverted. During these tests, the engine should not overheat or fail to operate or leak more than 250 ml of oil during any one inversion. When examined after being dismantled the engine should show no evidence of overheating or excessive wear.”

## **8 LAUNCHING AND EMBARKATION APPLIANCES**

29 In paragraph 8.1.1, the following new sentence is inserted between the existing fifth and sixth sentence:

“The launching ramp and its connection to the release mechanism should be subjected to a static proof load of 2.2 times the maximum working load.”

## **10 POSITION-INDICATING LIGHTS FOR LIFE-SAVING APPLIANCES**

30 In the first sentence of paragraph 10.1.2, the word “sea-activated” is replaced by the words “seawater cell”.

31 In the first sentence of paragraph 10.1.3, the word “dry-activated” is replaced by the words “dry cell” and the last sentence is replaced by the following:

“The interior lights should provide an arithmetic mean luminous intensity of not less than 0.5 cd when measured over the entire upper hemisphere to permit reading of survival instructions and equipment instructions for a period of not less than 12 h.”

32 Paragraph 10.3.3 is replaced by the following:

“10.3.3 One light attached to a lifejacket should be subjected to a drop test from 4.5 m as prescribed in 2.8.8. The light should not suffer damage, should not be dislodged from the lifejacket and should be switched on and seen to be illuminated and conspicuous whilst the test subject is still in the water.”

33 In paragraph 10.4.7, the words “IEC 945: 3rd edition (Nov.1996)” are replaced by the words “IEC 60945: 4th edition (Aug. 2002)” in the two places they appear.

## 11 HYDROSTATIC RELEASE UNITS

34 The following new subparagraph .6 is added after paragraph 11.2.5:

“.6 *Solar radiation test*

One unit should be subjected to a solar radiation test to IEC 60945: 4th edition (Aug. 2002), paragraph 8.10.

**Note:** The solar radiation test may be waived where the manufacturer is able to produce evidence that the materials employed will satisfy the test, i.e., UV stabilized.”

## PART 2 PRODUCTION AND INSTALLATION TESTS

### 5 SURVIVAL CRAFT

35 The following new paragraph 5.3.4 is added after existing paragraph 5.3.3:

“5.3.4 The connection of each release gear which is fixed to the boat should be subjected to a load equal to the weight of the boat with its full complement of persons and equipment (or two times the weight of the boat in the case of single fall systems). There should be no damage to the release gear or its connection to the boat.”

### 6 LAUNCHING AND STOWAGE ARRANGEMENTS

36 In paragraph 6.1.1, the following new sentence is inserted between the existing first and second sentences:

“For a free-fall lifeboat launching appliance, each launching ramp and its connection to the release mechanism should be tested with a static load of 2.2 times the working load.”

37 The heading “Installation tests” is inserted after paragraph 6.1.1.

38 The last sentence of paragraph 6.1.3 is replaced by the following:

“A person should then board the survival craft or rescue boat and perform a test of the launching operation from within the boat.”

## APPENDIX 1 ADULT REFERENCE TEST DEVICE (RTD) DESIGN AND CONSTRUCTION

39 In paragraph 2.1.3, the figure “155.6” is replaced by the figure “149”.

40 In the appendix of Appendix 1, in the second row of table 1, the figures “103.5”, “46.5” and “150” are replaced by the figures “103”, “46” and “149” respectively.

41 In the appendix of Appendix 1, in the second row of table 2, the figures “17.75”, “51.75” and “18.5” are replaced by the figures “17.5”, “51.5” and “18” respectively, in all places they appear.

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**ANNEX 37****IMO POSITION ON WRC-07 AGENDA ITEMS CONCERNING  
MATTERS RELATING TO MARITIME SERVICES****Agenda item 1.3**

1.3 *in accordance with Resolution 747 (WRC-03), consider upgrading the radiolocation service to primary allocation status in the bands 9 000 – 9 200 MHz and 9 300 – 9 500 MHz, and extending by up to 200 MHz the existing primary allocations to the Earth exploration-satellite service (active) and the space research service (active) in the band 9 500 – 9 800 MHz without placing undue constraint on the services to which the bands are allocated.*

**Background**

Maritime radars have operated as a safety service in the band 9 300 – 9 500 MHz for over five decades, for the purposes of navigation and collision avoidance. SOLAS requires all Convention ships to carry a radar working in the band 9 300 – 9 500 MHz and also to carry SARTs which operate in the same band. RACONS also operate in this band.

The radiolocation service has emerging requirements for increased image resolution and increased range accuracy, which necessitates wider contiguous emission bandwidths than are currently available. Therefore, there is a need to upgrade the status of frequency allocations to the radiolocation service in the frequency range 9 000 – 9 200 MHz and 9 300 – 9 500 MHz in order for existing and planned radar systems to satisfy their required missions.

The advantages to the maritime community of this upgrading are:

- a) provision of an increased deterrent to non-radiodetermination services to sharing within this band; and
- b) enhanced protection of the safety service by prolonging the life of this band as an exclusive radiodetermination band.

Radiolocation services have demonstrated compatible operations with radionavigation services in the bands 9 000 – 9 200 MHz and 9 300 – 9 500 MHz over many years through the use of similar system characteristics such as low-duty cycle emissions and scanning beams as well as interference reduction techniques. Study is ongoing within the ITU-R to confirm the compatibility between the radiolocation and radionavigation services in these bands.

The band 9 500 – 9 800 MHz is allocated on a primary basis to the Earth exploration-satellite (EESS) (active), space research (SRS) (active), radiolocation and radionavigation services. In order to satisfy global environmental monitoring requirements for improved resolution, EESS (active) and the SRS (active) allocations require an increase of 200 MHz. This additional bandwidth will greatly improve the resolution of the features for global monitoring and for environmental and land-use purposes. Study is ongoing to confirm the compatibility between EESS (active), SRS (active) and the existing services in the possible extension bands around 9 500 – 9 800 MHz.

## **IMO's position**

While there is a long history of successful co-band operations between radiolocation and radionavigation systems near 9 GHz, new systems may not necessarily be compatible with existing systems. Therefore, IMO supports measurement tests and ITU-R studies to ensure compatible operation in these bands. If the outcome of these measurements and studies is favourable, IMO anticipates supporting the allocation upgrades for radiolocation. However, it is the position of IMO that there would also need to be regulatory text in the form of a footnote to protect radionavigation systems so that there will be no constraints on radionavigation use in these bands, regardless of the outcome of the studies. Concerning the possible extension to the EESS and SRS allocations, IMO could support such an extension provided that there is a favourable outcome from the sharing studies and that the existing primary services are protected. Some regulatory text in the form of one or more applicable footnotes may be necessary to ensure such protection.

### **Agenda item 1.13**

1.13 *taking into account Resolutions 729 (WRC-97), 351 (WRC-03) and 544 (WRC-03), to review the allocations to all services in the HF bands between 4 MHz and 10 MHz, excluding those allocations to services in the frequency range 7 000 – 7 200 kHz and those bands whose allotment plans are in Appendices 25, 26 and 27 and whose channelling arrangements are in Appendix 17, taking account of the impact of new modulation techniques, adapting control techniques and spectrum requirements for HF broadcasting.*

### **Background**

The GMDSS is defined in SOLAS regulation IV/4 as having nine functional requirements which include, *inter alia*, 1) transmitting and receiving maritime safety information (MSI) and 2) transmitting and receiving general radiocommunication to and from shore based radio systems or networks.

Ships have traditionally made extensive use of the HF bands for long distance safety and general communications using Morse telegraphy, radiotelex and speech. The introduction of the GMDSS removed the dependence on Morse telegraphy and introduced a standard radiotelex system, known as Narrow Band Direct Printing (NBDP), as a carriage requirement in SOLAS chapter IV together with the option of using Inmarsat satellite services. These latter do not however operate in the polar regions (sea area A4). There is evidence that communications in the polar regions is increasing due to the melting of sea ice.

NBDP is now a rather technically limited system and is little supported by coast stations around the world. At WRC-03, Appendix 17 was modified by the addition of a new footnote (p) which permitted initial testing and possible future introduction in certain bands of new digital technologies. These new digital technologies are becoming widely used and their use is growing. Globe Wireless reported in 2004 that their HF data communication system had grown threefold over the previous five years to 5,000 ships and that the kilobit usage per ship per day had also tripled over the same period. The company was currently using 300 3 kHz duplex channels - 75% of which used Appendix 17 frequencies and the remaining 25% shared other frequencies, particularly in the gap of Appendix 17 frequencies between 8 and 12 MHz.



Resolution **351 (WRC-03)** resolves that there should be interoperable technologies implemented under Appendix **17** and ITU-R is preparing recommendations on technical standards with assistance of IMO.

COMSAR 9 studied the usage of NBDP and concluded that it was little used for general communications. However it was still considered to be required for shore transmission of MSI in sea area A4, that there was a requirement for ships to transmit weather observations and position reports in sea area A4 for which NBDP could be used (although other technologies could also be possible) and that due to the more robust propagation of NBDP compared to voice, NBDP could not immediately be discontinued in sea area A4 as a distress follow up communication. COMSAR 9 therefore concluded that the frequencies of Appendix **15** concerning NBDP should be retained for the foreseeable future.

HF broadcasting services are looking for more spectrum under the scope of Resolution **544** and the marine allocations may be considered for use by other services to offer more flexibility of use by the fixed and mobile services in general. It is therefore necessary for IMO to justify the use of the HF bands under the scope of Resolution **351** by the new HF services which are replacing Morse telegraphy, NBDP and speech.

### **IMO's position**

- 1 ITU should be encouraged to review Article 33 (Urgency and Safety communications) to better explain MSI, safety communications and safety related general communications.
- 2 NBDP should be retained on the Appendix **15** channels and any new HF equipment installed on ships should be capable of working FEC NBDP.
- 3 ITU-R Working Party 8B should continue its studies into technical Recommendations for interoperable world-wide technologies and Appendix **17** should be revised to facilitate the use of new systems whilst maintaining provisions for maritime operation including NBDP.
- 4 The Conference should be made aware by IMO of the use made of the Appendix **17** bands for general communications by the maritime community and the importance of the bands to the maritime community. Proposals should be developed for extra HF spectrum for new systems, particularly in the range 10 to 18 MHz.
- 5 The need for additional spectrum resources in the range 9 to 10 MHz should be addressed in order to facilitate the introduction of new technologies in the mobile maritime service, by overcoming the large gap between the 8 and 12 MHz maritime mobile bands.
- 6 IMO will note that the means to effect access to additional spectrum could include increased use of the mobile service which is currently allowed in the Radio Regulations, as well as increased sharing of mobile within the fixed service.

### **Agenda item 1.14**

1.9 *to review the operational procedures and requirements of the Global Maritime Distress and Safety System (GMDSS) and other related provisions of the Radio Regulations, taking into account Resolutions **331 (Rev.WRC-03)** and **342 (Rev.WRC-2000)** and the continued transition to the GMDSS, the experience since its introduction and the needs of all classes of ships.*

## Background

During the transition period to implementation of the GMDSS, the Radio Regulations have maintained dual provisions; Chapter **VII** for operations within the GMDSS and Appendix **13** for non-GMDSS operations. However, maintaining support for both old and new distress and safety systems for an extended period of time is costly and inconvenient for search and rescue authorities and also complicates shipboard procedures. It may be noted that many of the Appendix **13** procedures are now no longer used.

Additionally, in order to ensure the safety of ships at sea, the ITU over the years has adopted numerous regulations and operational procedures for operators of shipborne radiocommunication stations. These requirements have not lessened with the advent of the GMDSS. Appendix **16** of the Radio Regulations, for example, requires GMDSS-equipped ships to carry four large publications: the Alphabetical List of Call Signs, the List of Coast Stations and Coast Earth Stations, the List of Ship Stations and the Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services. Given that the post of Radio Officer has disappeared on board most ships following the introduction of the GMDSS, the remaining shipboard personnel can no longer be expected to remain proficient in all of these regulations, or even to use these publications to the extent originally intended when these regulations were first developed. It may not be possible to drop these regulations entirely, but they and the associated publications should be simplified significantly.

When the GMDSS was first developed, computer software was in its infancy, and neither IMO nor ITU equipment performance technical standards included software requirements. As a consequence, many operational details, such as those contained in the DSC operational procedures, were applied to operators of equipment rather than to designers of software for that equipment, with the result that operational inconsistencies exist. Improved equipment design has however enabled more of the operational procedures to be built into software and ITU and IEC are currently working on defining a more useable operator interface.

Because of the many vessels around the world that are not subject to SOLAS, in particular small commercial and leisure craft, there remains an important requirement to maintain some of the procedures used prior to the introduction of the GMDSS so that a common means of communication is available between all classes of vessels for distress and safety purposes. In this respect, the seventy-eighth session of the IMO Maritime Safety Committee (May 2004) decided that for the feasible future SOLAS ship, while at sea, shall maintain a listening watch on VHF Channel 16, where practicable. This is both for alerting purposes and to ensure that SOLAS ships can communicate effectively with such vessels and provide bridge to bridge communications for themselves.

The procedures given in Chapter VII and Appendix 13 for VHF operation are in fact very similar except for the initial alerting procedures. The current procedures given in Chapter VII are not however very specific in describing DSC procedures and not very specific in describing procedures to relay a distress alert received by voice to GMDSS equipped coast stations and ships. It is important however to encourage all vessels to be able to participate fully in the GMDSS by equipping with DSC so that any changes to procedures should not result in an implication that GMDSS is not required for vessels not subject to SOLAS.

In some areas of the world there is congestion on Appendix **18** channels. WRC 2000 revised Appendix **18** to permit flexibility of use for 12.5 kHz channelling, enabling the upper legs of some duplex channels to be operated as separate simplex channels and permitting testing

of new digital technologies. This process should now be extended to all duplex channels but it should be noted that digital technologies are now in use in some parts of the world and the development of digital services should not be hampered.

Of the channels of Appendix 18, only channel 16 is afforded protection from interference under Article 5. Consideration should be given to affording extra protection to channel 70. IMO is also studying the introduction of Long-Range Identification and Tracking of ships and one proposed method of achieving this is by use of satellites receiving the transmissions from the Automatic Identification Systems (AIS) carried by ships. Depending on the results of studies, an additional channel may be required for AIS purposes. This, and the existing AIS channels 1 and 2, will then require protection and also authorization to operate in the mobile satellite service by appropriate changes to the regulations.

### **IMO's position**

1 ITU should be encouraged to simplify and clarify operational procedures and technical requirements as much as possible.

2 Appropriate provisions for the use of VHF channel 16 for distress, urgency, safety and general calling by voice should be maintained and aligned with the GMDSS procedures in Chapter 7, with particular emphasis on procedures for permitting distress relays to GMDSS equipped stations.

3 The remaining rules and procedures for 500 kHz and 2182 kHz operation are not applicable to SOLAS ships and Appendix 13 can be suppressed.

4 ITU and IMO should nevertheless encourage all ships to adopt the techniques of the GMDSS to improve safety.

5 ITU should conduct studies to review, modify and reduce the scope and content of regulations and publications required to be carried on ships under Appendix 16. To help accomplish this, ITU should consider applying future regulations to the design and operation of shipboard radiocommunication equipment, rather than to persons onboard ship.

6 Appendix 18 should be further reviewed to improve efficiency of VHF use. ITU should study reserving a channel for the use of AIS suitable for satellite reception with appropriate protection.

7 Protection should be considered for VHF channel 70 (156.525 MHz) and the AIS channels AIS1 (161.975 MHz) and AIS2 (162.025 MHz) depending on the results of studies.

### **Agenda item 1.16**

1.16 *to consider the regulatory and operational provisions for Maritime Mobile Service Identities (MMSIs) for equipment other than shipborne mobile equipment, taking into account Resolutions 344 (Rev.WRC-03) and 353 (WRC-03).*

### **Background**

Maritime Mobile Service Identities (MMSIs) are required for many shipborne communication equipment (e.g., DSC, ship earth stations). The MMSI is a nine-digit figure that

provides a unique identification for ship stations, group ship stations, coast stations and group coast stations. Three of the nine MMSI digits are the Maritime Identification Digits (MIDs). MIDs represent the territory or geographical area of administrations and are assigned by ITU.

WRC-03 revised the arrangements for the assignment of MMSIs to ships. However, a new class of radios is now being installed on ships which require MMSIs known as Automatic Identification Systems (AIS). In the case of a ship the same MMSI is used by the DSC and the AIS.

However it is anticipated that AIS will be used on platforms which are not ships such as Aids to Navigation and Search and Rescue aircraft. The number of these will be relatively small so MMSIs can be made available without exhausting the supply. However it may be advantageous to select numbers which clearly indicate the type of platform.

ITU-R WP.8B has prepared draft amendments to Recommendation M.585 and Article 19 (Identification of stations). These propose reserving the prefix "111" for aircraft station identification and "99" for identification of Aids to Navigation. This allows 1,000 aircraft per MID and 10,000 Aids to Navigation per MID.

### **IMO's position**

IMO is in agreement with the work that has been carried out in the ITU.

### **Agenda item 2**

*2 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution 28 (Rev.WRC-03), and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution 27 (Rev.WRC-03).*

### **Background**

The concept of incorporation by reference is also employed by IMO. Resolutions 27 and 28 clarify the meaning of incorporation by reference which, for ITU purposes, is restricted to references to text intended to have mandatory effect. The rules for identifying text suitable for incorporation by reference, the method of reference and related WRC procedures for treating instances of incorporation by reference are set out clearly. New instances of incorporation by reference will only be allowed if forming part of the action required under a substantive WRC agenda item. The procedures to be employed during WRCs demand that the actual texts proposed for incorporation be available as conference documents. Also, a conference document summarizing new or updated instances of incorporation by reference has to be developed during the conference in order to ensure that Vol. 4 of the Radio Regulations, which contains the complete texts of all referenced material, is both up-to-date and complete.

Future action on this standing agenda item will be limited to approving new instances of incorporation by reference associated with the substantive agenda items and the "housekeeping tasks" of updating references to revised ITU-R Recommendations. The Bureau will carry prime responsibility for advising on the necessary housekeeping tasks. The role of administrations will therefore be limited to determining whether proposals for new instances of incorporation by reference are preferable to other solutions, such as including vital text directly within the Radio Regulations, and monitoring for any mistakes or inconsistencies regarding updated references.

Because of the number of ITU-R Recommendations dealing with the design and operation in the maritime mobile and maritime mobile-satellite services the task of ensuring that references are kept up to date is of direct interest to IMO. Incorporation by reference is quite well-suited to material of an operational nature or to stable technical material.

Careful consideration therefore needs to be given to the use of the incorporation by reference procedure in respect of procedures or regulations affecting maritime communication services in order to ensure that the matter in question is indeed of a mandatory nature and that no simpler methods are available to achieve the same objective. Where references are non-mandatory, it is not necessary to establish specific conditions in applying the texts quoted. In such cases, reference should be made using the terminology “the most recent version” of a Recommendation.

### **IMO’s position**

- 1 IMO has studied the Recommendations of relevance and commented on each as given at annex 1.
- 2 Incorporation by reference is of importance to IMO because of the close relationship between many of the ITU-R Recommendations related to GMDSS equipment and its operation, to IMO performance standards.
- 3 IMO requests early indication of any changes proposed by ITU to the mechanism of incorporation by reference and to the list of incorporated Recommendations.

### **Agenda item 4**

4 *in accordance with Resolution 95 (Rev.WRC-03), to review the Resolutions and Recommendations of previous conferences with a view to their possible revision, replacement or abrogation;*

### **Background**

There are number of Resolutions and Recommendations of previous conferences which are of interest of IMO such as Resolution 331 concerning the transition to the GMDSS. There is a need for IMO to review all these Resolutions and Recommendations.

### **IMO’s position**

IMO has studied the Resolutions and Recommendations of relevance and commented on each as given at annex 2.

### **Agenda item 7.2**

7.2 *to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Resolution 803 (WRC-03).*

## **Background**

Chapter IV (Radiocommunications) of the SOLAS Convention was amended in 1988 to introduce the GMDSS which entered into force on 1 February 1992. The chapter has been amended on a number of occasions since then to modify provisions in the light of experience.

The seventy-eighth session of the IMO Maritime Safety Committee (May 2004) gave permission for COMSAR 9 to consider further revisions to align the provisions for satellite equipment carriage with IMO resolution A.888(21). The COMSAR Sub-Committee is further considering new technologies for the use by ships in the GMDSS. It is inevitable that chapter IV will further evolve over time and changes to ITU regulatory provisions may result as a consequence.

It is anticipated that changes technologies in the HF bands will require more efficient use to be made of the available spectrum which may result in modifications being required to Appendix 25.

## **IMO's position**

1 The agendas of future ITU World Radio Conferences should make provision to enable necessary amendments to ITU Regulatory provisions consequential to changes in SOLAS chapter IV. This could be achieved by extending the existing standing item resolving inconsistencies in the Radio Regulations to resolving inconsistencies between the Radio Regulations and the SOLAS Convention.

2 A future revision of Appendix 25 should be permitted.

ANNEX 1

RECOMMENDATION ITU-R M.257-3

**SEQUENTIAL SINGLE FREQUENCY SELECTIVE-CALLING SYSTEM  
FOR USE IN THE MARITIME MOBILE SERVICE**

(1959-1970-1978-1995)

*No longer needed by IMO. Probably no longer needed by the maritime community. The last coast station using this calling system (in Malaysia) closed two years ago.*

RECOMMENDATION ITU-R M.476-5

**DIRECT-PRINTING TELEGRAPH EQUIPMENT  
IN THE MARITIME MOBILE SERVICE\***

(Question ITU-R 5/8)

(1970-1974-1978-1982-1986-1995)

*Currently needed by IMO to support the NBDP carriage requirement in SOLAS IV although the system is little used. Is associated with Agenda item 1.13. Also see footnote.*

RECOMMENDATION ITU-R M.489-2

**TECHNICAL CHARACTERISTICS OF VHF RADIOTELEPHONE  
EQUIPMENT OPERATING IN THE MARITIME MOBILE  
SERVICE IN CHANNELS SPACED BY 25 kHz**

(1974-1978-1995)

*Needed by IMO to support the carriage requirements of SOLAS IV and needed by the maritime community in general. Will likely be needed into the foreseeable future.*

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\* This Recommendation is retained in order to provide information concerning existing equipment, but will probably be deleted at a later date. New equipment should conform to Recommendation ITU-R M.625 which provides for the exchange of identification signals, for the use of 9 digit maritime mobile service identification signals and for compatibility with existing equipment built in accordance with this Recommendation.

*Note by the Secretariat:* The references made to the Radio Regulations (RR) in this Recommendation refer to the RR as revised by the World Radiocommunication Conference 1995. These elements of the RR will come into force on 1 June 1998. Where applicable, the equivalent references in the current RR are also provided in square brackets.

RECOMMENDATION ITU-R M.492-6

**OPERATIONAL PROCEDURES FOR THE USE OF DIRECT-PRINTING  
TELEGRAPH EQUIPMENT IN THE MARITIME MOBILE SERVICE**

(Question ITU-R 5/8)

(1974-1978-1982-1986-1990-1992-1995)

*Currently needed by IMO to support the NBDP carriage requirement in SOLAS IV although the system is little used. Is associated with Agenda item 1.13.*

RECOMMENDATION ITU-R M.541-8

**OPERATIONAL PROCEDURES FOR THE USE OF DIGITAL SELECTIVE-CALLING  
EQUIPMENT IN THE MARITIME MOBILE SERVICE**

(Question ITU-R 9/8)

(1978-1982-1986-1990-1992-1994-1995-1996-1997)

*The current recommendation is ITU-R M.541-9. The need for the recommendation to be incorporated by reference depends on outcome of the revision of Chapter VII under agenda item 1.14.*

RECOMMENDATION ITU-R M.625-3

**DIRECT-PRINTING TELEGRAPH EQUIPMENT EMPLOYING AUTOMATIC  
IDENTIFICATION IN THE MARITIME MOBILE SERVICE\*\***

(Question ITU-R 5/8)

(1986-1990-1992-1995)

*Currently needed by IMO to support the NBDP carriage requirement in SOLAS IV although the system is little used. Is associated with Agenda item 1.13. Also see footnote.*

RECOMMENDATION ITU-R M.627-1

**TECHNICAL CHARACTERISTICS FOR HF MARITIME RADIO  
EQUIPMENT USING NARROW-BAND PHASE-SHIFT  
KEYING (NBPSK) TELEGRAPHY**

(Question ITU-R 54/8)

(1986-1995)

*Believed not to be used by IMO or the maritime community.*

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\*\* Newly developed equipment should conform to the present Recommendation which provides for compatibility with existing equipment built in accordance with Recommendation ITU-R M.476.



RECOMMENDATION ITU-R M.690-1

**TECHNICAL CHARACTERISTICS OF EMERGENCY POSITION-INDICATING  
RADIO BEACONS (EPIRBs) OPERATING ON THE CARRIER  
FREQUENCIES OF 121.5 MHz AND 243 MHz**

(Question ITU-R 31/8)

(1990-1995)

*Required by IMO to define the homing signal characteristics for the satellite EPIRB required by SOLAS IV. Likely to be used by the maritime community for some time to come for EPIRBs and man overboard devices. COSPAS-SARSAT will provide a service which detects 121.5 MHz signals by satellite until 2009.*

RECOMMENDATION ITU-R M.1169

**HOURS OF SERVICE OF SHIP STATIONS**

(1995)

*No longer needed by IMO or the maritime community. There are now no morse services and radio officers.*

RECOMMENDATION ITU-R M.1171

**RADIOTELEPHONY PROCEDURES IN THE  
MARITIME MOBILE SERVICE**

(1995)

*Required by IMO and the maritime community as long as coast stations offer a public correspondence service. The number of such coast stations is however declining.*

RECOMMENDATION ITU-R M.1172

**MISCELLANEOUS ABBREVIATIONS AND SIGNALS TO BE USED  
FOR RADIOCOMMUNICATIONS IN THE MARITIME MOBILE SERVICE**

(1995)

*No longer required by IMO which uses the Standard Marine Communication Phrases but required by the maritime community.*

RECOMMENDATION ITU-R M.1173

**TECHNICAL CHARACTERISTICS OF SINGLE-SIDEBAND TRANSMITTERS USED  
IN THE MARITIME MOBILE SERVICE FOR RADIOTELEPHONY IN THE BANDS  
BETWEEN 1 606.5 kHz (1 605 kHz REGION 2) AND 4 000 kHz  
AND BETWEEN 4 000 kHz AND 27 500 kHz**

(1995)

*Required by IMO and the maritime community and likely to be required into the foreseeable future.*

RECOMMENDATION ITU-R M.1174-1

**TECHNICAL CHARACTERISTICS OF EQUIPMENT USED  
FOR ON-BOARD VESSEL COMMUNICATIONS IN  
THE BANDS BETWEEN 450 AND 470 MHz**

(1995-1998)

*Required by the maritime community and useful to IMO.*

RECOMMENDATION ITU-R M.1175

**AUTOMATIC RECEIVING EQUIPMENT FOR RADIOTELEGRAPH  
AND RADIOTELEPHONE ALARM SIGNALS**

(1995)

*No longer required by IMO since all Convention vessels use the techniques of the GMDSS. The Radiotelegraph alarm signal is no longer used. The radiotelephone alarm signal may be still in use for certain non-Convention vessels such as fishing vessels.*

RECOMMENDATION ITU-R M.1638

**CHARACTERISTICS OF AND PROTECTION CRITERIA FOR SHARING STUDIES  
FOR RADIOLOCATION, AERONAUTICAL RADIONAVIGATION AND  
METEOROLOGICAL RADARS OPERATING IN THE FREQUENCY BANDS  
BETWEEN 5 250 AND 5 850 MHz**

(2003)

*Not required by IMO but may be required by the maritime community where radars in this band are used.*

ANNEX 2

RESOLUTION 13 (Rev.WRC-97)

**Formation of call signs and allocation of new international series**

*Retain.*

RESOLUTION 18 (Mob-83)

**Relating to the procedure for identifying and announcing the position of ships and aircraft of States not parties to an armed conflict**

*Revise in accordance with Chapter VII and Appendix 13 (agenda item 1.14).*

RESOLUTION 21 (Rev.WRC-03)

**Implementation of changes in frequency allocations between 5 900 kHz and 19 020 kHz**

*Abrogate. Changes will be completed in 2007.*

RESOLUTION 205 (Rev.Mob-87)

**Protection of the band 406-406.1 MHz allocated to the mobile-satellite service**

*Retain.*

RESOLUTION 207 (Rev.WRC-03)

**Measures to address unauthorized use of and interference to frequencies in the bands allocated to the maritime mobile service and to the aeronautical mobile (R) service**

*Possibly revise in accordance agenda item 1.14.*

RESOLUTION 222 (WRC-2000)

**Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the mobile-satellite service**

*Retain.*

RESOLUTION 331 (Rev.WRC-03)

**Transition to the Global Maritime Distress and Safety System (GMDSS)**

*Subject of agenda item 1.14.*

RESOLUTION 339 (Rev.WRC-03)

**Co-ordination of NAVTEX services**

*Revise to remove instruction to publish in the List of Coast Stations. Use MARS web-site?*

RESOLUTION 340 (WRC-97)

**Need for additional search and rescue information in databases**

*Revise to urge Administrations who have not conformed to conform. Note that Art 20.16 requires the procedure.*

RESOLUTION 342 (Rev.WRC-2000)

**New technologies to provide improved efficiency in the use of the  
band 156-174 MHz by stations in the maritime mobile service**

*Retain noting that Appendix 18 may be modified under agenda item 1.14.*

RESOLUTION 343 (WRC-97)

**Maritime certification for personnel of ship stations and ship earth stations  
for which a radio installation is not compulsory**

*Retain to ensure common operations between Convention and non-Convention ships.*

RESOLUTION 344 (Rev.WRC-03)

**Management of the maritime mobile service identity  
numbering resource**

*Revise to note revision of Recommendation ITU-R M.585 and review in 2015 as there is now no evidence of lack of capacity of MMSIs.*

RESOLUTION 345 (WRC-97)

**Operation of Global Maritime Distress and Safety System  
equipment on and assignment of maritime mobile service  
identities to non-compulsory fitted vessels**

*Revise. Resolves 1 has been carried out through Res 340. Resolves 2 has been carried out through Res 340, Res 344 and agenda item 1.16. In Resolves 2 and 3 Res 344 removed ITU-T role.*

RESOLUTION 349 (WRC-97)

**Operational procedures for cancelling false distress alerts in the  
Global Maritime Distress and Safety System**

*Retain.*

RESOLUTION 351 (WRC-03)

**Review of the frequency and channel arrangements in the MF and HF bands allocated to the maritime mobile service with a view to improving efficiency by considering the use of new digital technology by the maritime mobile service**

*Subject of agenda item 1.13.*

RESOLUTION 352 (WRC-03)

**Use of the carrier frequencies 12 290 kHz and 16 420 kHz for safety-related calling to and from rescue coordination centres**

*Retain.*

RESOLUTION 353 (WRC-03)

**Maritime mobile service identities for equipment other than shipborne mobile equipment**

*Subject of agenda item 1.16.*

RESOLUTION 747 (WRC-03)

**Possible upgrade of the radiolocation service to primary allocation status in the frequency bands 9 000-9 200 MHz and 9 300-9 500 MHz, and possible extension of the existing primary allocations to the Earth exploration-satellite service (active) and the space research service (active) in the band 9 500-9 800 MHz**

*Subject of agenda item 1.3.*

RECOMMENDATION 7 (Rev.WRC-97)

**Adoption of standard forms for ship station and ship earth station licences and aircraft station and aircraft earth station licences**

*Retain.*

RECOMMENDATION 14 (Mob-87)

**Identification and location of special vessels, such as medical transports, by means of standard maritime radar transponders**

*Abrogate. Radar transponders have not been implemented. Identification and location is now achieved with Automatic Identification Systems conforming to recommendation ITU-R M.1371.*

RECOMMENDATION 37 (WRC-03)

**Operational procedures for earth stations  
on board vessels (ESVs) use**

*Retain.*

RECOMMENDATION 316 (Rev.Mob-87)

**Use of ship earth stations within harbours and other waters  
under national jurisdiction**

*Retain.*

RECOMMENDATION 318 (Mob-87)

**Improved efficiency in the use of the Appendix 18 VHF frequency spectrum  
for maritime mobile communications**

*Subject of agenda item 1.14.*

RECOMMENDATION 604 (Rev.Mob-87)

**Future use and characteristics of emergency position-indicating  
radiobeacons (EPIRBs)**

*Abrogate. EPIRB requirements are defined in SOLAS IV. Note however that there may still be ICAO interest.*

RECOMMENDATION 605 (Rev.Mob-87)

**Technical characteristics and frequencies for  
shipborne transponders**

*Abrogate. Radar transponders have not been implemented. Identification and location is now achieved with Automatic Identification Systems conforming to recommendation ITU-R M.1371.*

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## ANNEX 38

## WORK PROGRAMMES OF THE SUB-COMMITTEES

## SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG)

|     |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|-----|--|--|---|
| 1   | <b>Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments</b> | Continuous   | BLG 10/19, section 3  |
| 2   | <b>Casualty analysis</b> (co-ordinated by FSI)   | Continuous   | MSC 70/23, paragraphs 9.17 and 20.4; MSC 80/24, paragraph 21.6; BLG 10/19, section 10 |
| 3   | <b>Consideration of IACS unified interpretations</b>   | Continuous   | MSC 78/26, paragraph 22.12; BLG 10/19, section 9                                      |
| H.1 | Environmental and safety aspects of alternative tanker designs under MARPOL 73/78, regulation I/13F        |  | BLG 3/18, paragraph 15.7  |
|     | .1 assessment of alternative tanker designs, if any (as necessary)   | Continuous   | BLG 1/20, section 16; BLG 4/18, paragraph 15.3  |
| H.2 | <b>Oil tagging systems</b>   | 2008   | MEPC 45/20, paragraph 17.4; BLG 8/18, section 10 and paragraph 15.4.3                 |

**Notes:** 1 “H” means a high priority item and “L” means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2 Items printed in bold letters have been selected for the provisional agenda for BLG 11.

**Sub-Committee on Bulk Liquids and Gases (BLG) (continued)**

|     |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>                                   |
|-----|--|--|--|
| H.3 | <b>Development of provisions for gas-fuelled ships</b> (in co-operation with FP and DE)  | 2007   | MSC 78/26, paragraph 24.11; BLG 10/19, section 6   |
| H.4 | <b>Development of guidelines for uniform implementation of the 2004 BWM Convention</b>   | 2007   | MEPC 52/24, paragraph 2.21.6; BLG 10/19, section 4 |
| H.5 | <b>Guidelines on other technological methods verifiable or enforceable to limit SO<sub>x</sub> emissions</b>                   | 2007   | MEPC 53/24, paragraph 4.40                         |
| H.6 | <b>Amendments to MARPOL Annex I for the prevention of marine pollution during oil transfer operations between ships at sea</b> | 2007   | MEPC 53/24, paragraph 20.6; BLG 10/19, section 15  |
| H.7 | <b>Review of MARPOL Annex VI and the NO<sub>x</sub> Technical Code</b>   | 2007   | MEPC 53/24, paragraph 4.50; BLG 10/19, section 14  |



**SUB-COMMITTEE ON DANGEROUS GOODS, SOLID CARGOES AND CONTAINERS (DSC)**

|     |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>   |
|-----|---|--|--|
| 1   | <b>Harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods</b>                       | Continuous   | MSC 63/23, paragraph 10.6; DSC 9/15, section 3                           |
| 2   | <b>Reports on incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas</b> | Continuous   | CDG 45/22, section 11 and paragraph 20.2; DSC 9/15, section 6            |
| 3   | <b>Amendments to the BC Code, including evaluation of properties of solid bulk cargoes</b>                                  | Continuous   | BC 34/17, section 3; DSC 9/15, section 4                                 |
| 4   | <b>Casualty analysis (co-ordinated by FSI)</b>  | Continuous   | MSC 70/23, paragraphs 9.17 and 20.4; DSC 9/15, section 6                 |
| H.1 | <b>Amendment (34-08) to the IMDG Code and supplements</b>   | 2007   | DSC 3/15, paragraph 12.6; DSC 10/17, section 14                          |
| H.2 | <b>Mandatory application of the BC Code</b>   | 2007   | DSC 3/15, paragraph 12.7; MSC 78/25, paragraph 13.7; DSC 9/15, section 4 |
| H.3 | <b>Measures to enhance maritime security</b>  | 2006   | MSC 75/24, paragraph 22.9; DSC 9/15, section 9                           |

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2 Items printed in bold letters have been selected for the provisional agenda for DSC 11.

**Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) (continued)**

|      |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>                                   |
|------|---|--|--|
| H.4  | <b>Guidance on serious structural deficiencies in containers: reporting procedure on serious structural deficiencies</b>    | 2006   | DSC 10/17, section 8                               |
| H.5  | <b>Review of the SPS Code</b> (co-ordinated by DE)  | 2007   | MSC 78/26, paragraph 24.9                          |
| H.6  | <b>Amendments to the CSS Code</b>   | 2006   | MSC 78/26, paragraph 24.15.3; DSC 10/17, section 7 |
| H.7  | <b>Revision of the LHNS and OSV Guidelines</b>  | 2006   | MSC 79/23, paragraph 20.8                          |
| H.8  | <b>Extension of the BLU Code to include grain</b>   | 2006   | MSC 79/23, paragraph 20.7                          |
| H.9  | <b>Guidance on providing safe working conditions for securing of containers</b>   | 2006   | MSC 80/24, paragraph 21.8                          |
| H.10 | <b>Review of the Recommendations on the safe use of pesticides in ships</b>   | 2007   | DSC 10/17, paragraph 4.23                          |
| H.11 | <b>Application of requirements for dangerous goods in packaged form in SOLAS and the 2000 HSC Code</b> (co-ordinated by FP) | 2007   | MSC 81/25, paragraphs 23.9 and 23.14               |
| H.12 | Guidance on protective clothing   | 2 sessions   | MSC 81/25, paragraph 23.8                          |

**Sub-Committee on Fire Protection (FP)**

|     |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>                                 |
|-----|---|--|--|
| 1   | <b>Analysis of fire casualty records</b>  | Continuous   | MSC 75/24, paragraph 22.18; FP 50/21, section 12 |
| 2   | <b>Consideration of IACS unified interpretations</b>                              | Continuous   | MSC 78/26, paragraph 22.12; FP 50/21, section 11 |
| H.1 | <b>Performance testing and approval standards for fire safety systems</b>         | 2009   | MSC 74/24, paragraph 21.12; FP 50/21, section 4  |
| H.2 | <b>Comprehensive review on the Fire Test Procedures Code</b>                      | 2008   | MSC 80/24, paragraph 21.11; FP 50/21, section 10 |
| H.3 | <b>Recommendation on evacuation analysis for new and existing passenger ships</b> | 2008   | MSC 73/21, paragraph 4.16; FP 50/21, section 5   |
| H.4 | <b>Review of the SPS Code (co-ordinated by DE)</b>                                | 2007   | MSC 78/26, paragraph 24.9; FP 50/21, section 8   |
| H.5 | <b>Development of provisions for gas-fuelled ships (co-ordinated by BLG)</b>      | 2007   | MSC 78/26, paragraph 24.19; FP 50/21, section 6  |
| H.6 | <b>Measures to prevent fires in engine-rooms and cargo pump-rooms</b>             | 2009   | MSC 79/23, paragraph 20.11; FP 50/21, section 7  |

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**Notes:** 1 “H” means a high priority item and “L” means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2 Items printed in bold letters have been selected for the provisional agenda for FP 51.

**Sub-Committee on Fire Protection (FP) (continued)**

|      |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>                         |
|------|---|--|--|
| H.7  | <b>Fire resistance of ventilation ducts</b>   | 2007   | MSC 81/25, paragraph 23.13               |
| H.8  | <b>Application of requirements for dangerous goods in package form in SOLAS and the 2000 HSC Code (in co-operation with DSC)</b>                      | 2007   | MSC 81/25, paragraph 23.14               |
| H.9  | <b>Unified interpretation on the number and arrangement of portable extinguishers in accommodation spaces, service spaces, control stations, etc.</b> | 2008   | MSC 81/25, paragraphs 23.15 and 23.16    |
| H.10 | <b>Review of fire safety of external areas on passenger ships</b>   | 2007   | MSC 81/25, paragraph 23.17.1             |
| H.11 | <b>Performance standards for fixed-spraying, fire detection and fire alarm systems for cabin balconies</b>  | 2008   | MSC 81/25, paragraph 23.17.2             |
| L.1  | Smoke control and ventilation   | 2 sessions   | FP 39/19, section 9; FP 46/16, section 4 |

**Sub-Committee on Flag State Implementation (FSI)**

|   |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|---|--|--|---|
| 1 | <b>Mandatory reports under MARPOL 73/78</b>  | Continuous   | MSC 70/23, paragraph 20.12.1; FSI 13/23, section 3                                  |
| 2 | <b>Casualty statistics and investigations</b>  | Continuous   | MSC 68/23, paragraphs 7.16 to 7.24; FSI 13/23, section 4                            |
| 3 | <b>Harmonization of port State control activities</b>  | Continuous   | MSC 71/23, paragraph 20.16; FSI 13/23, sections 6 and 7; MSC 80/24, paragraph 21.16 |
| 4 | <b>Responsibilities of Governments and measures to encourage flag State compliance</b>             | Continuous   | MSC 68/23, paragraphs 7.2 to 7.8; FSI 13/23, section 10                             |
| 5 | <b>Comprehensive analysis of difficulties encountered in the implementation of IMO instruments</b> | Continuous   | MSC 69/22, paragraph 20.28; FSI 8/19, paragraph 4.3; FSI 13/23, section 11          |
| 6 | <b>Review of the Survey Guidelines under the HSSC (resolution A.948(23))</b>                       | Continuous   | MSC 72/23, paragraph 21.27; FSI 13/23, section 12                                   |

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**Notes:** 1 “H” means a high priority item and “L” means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.

2 Items printed in bold letters have been selected for the provisional agenda for FSI 14.

**Sub-Committee on Flag State Implementation (FSI) (continued)**

|     |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|-----|---|--|---|
| 7   | <b>Consideration of IACS unified interpretations</b>  | Continuous   | MSC 78/26, paragraph 22.12;<br>FSI 13/23, section 18  |
| H.1 | <b>PSC on seafarers' working hours</b>  | 2006   | MSC 70/23, paragraph 20.12.3;<br>FSI 7/14, paragraphs 7.11 to 7.13;<br>MSC 71/23, paragraph 13.13;<br>FSI 13/23, section 14 |
| H.2 | <b>Illegal, unregulated and unreported (IUU) fishing and implementation of resolution A.925(22)</b> | 2007   | MSC 72/23, paragraph 21.28;<br>FSI 10/17, section 11;<br>MSC 75/24, paragraphs 13.11 and 22.25.3;<br>FSI 13/23, section 15  |
| H.3 | <b>Development of survey guidelines required by regulation E-1 of the 2004 BWM Convention</b>       | 2006   | MEPC 51/22, paragraph 2.11.6;<br>FSI 13/23, section 13  |
| H.4 | <b>Development of guidelines on port State control under the 2004 BWM Convention</b>                | 2006   | MEPC 52/24, paragraph 2.21.2;<br>FSI 13/23, section 8   |
| H.5 | <b>Review of the Code for the investigation of marine casualties and incidents</b>                  | 2007   | MSC 79/23, paragraphs 20.15 to 20.18;<br>FSI 13/23, section 5   |
| H.6 | <b>Port reception facilities-related issues</b>   | 2007   | MEPC 53/24, paragraph 9.7   |

**SUB-COMMITTEE ON RADIOCOMMUNICATIONS AND SEARCH AND RESCUE (COMSAR)**

|   |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>                                     |
|---|---|--|--|
| 1 | <b>Global Maritime Distress and Safety System (GMDSS)</b>   |  | COMSAR 10/16, section 3                              |
|   | .1 <b>matters relating to the GMDSS Master Plan</b>   | Continuous   | COMSAR 10/16, paragraphs 3.1 to 3.4                  |
|   | .2 exemptions from radio requirements   | Continuous   | COMSAR 4/14, paragraphs 3.38 to 3.41                 |
| 2 | Promulgation of maritime safety information (MSI) (in co-operation with ITU, IHO, WMO and IMSO)   |  |  |
|   | .1 <b>operational and technical co-ordination provisions of maritime safety information (MSI) services, including review of the related documents</b> | Continuous   | COMSAR 10/16, paragraphs 3.5 to 3.29                 |
| 3 | <b>ITU World Radiocommunication Conference matters</b>  | Continuous   | COMSAR 10/16, paragraphs 4.3 to 4.6 and 4.13 to 4.20 |
| 4 | <b>Radiocommunication ITU-R Study Group 8 matters</b>   | Continuous   | COMSAR 10/16, paragraphs 4.1, 4.2 and 4.9 to 4.12    |
| 5 | <b>Satellite services (Inmarsat and COSPAS-SARSAT)</b>  | Continuous   | COMSAR 10/16, section 5                              |

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- Notes:**
- 1 "H" means a high priority item and "L" means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.
  - 2 Items printed in bold letters have been selected for the provisional agenda for COMSAR 11.

**Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) (continued)**

|          |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|----------|---|--|---|
| <b>6</b> | <b>Matters concerning search and rescue, including those related to the 1979 SAR Conference and the implementation of the GMDSS</b> |  |   |
| .1       | <b>harmonization of aeronautical and maritime search and rescue procedures, including SAR training matters</b>                      | 2007   | COMSAR 10/16, paragraphs 6.1 to 6.16                              |
| .2       | <b>plan for the provision of maritime SAR services, including procedures for routing distress information in the GMDSS</b>          | Continuous   | COMSAR 10/16, paragraphs 6.27 to 6.41                             |
| .3       | <b>revision of the IAMSAR Manual</b>  | Continuous   | MSC 71/23, paragraph 20.2; COMSAR 10/16, section 8                |
| .4       | <b>medical assistance in SAR services</b>   | 2007   | MSC 75/24, paragraph 22.29; COMSAR 10/16, paragraphs 6.42 to 6.49 |
| <b>7</b> | <b>Casualty analysis (co-ordinated by FSI)</b>  | Continuous   | MSC 70/23, paragraphs 9.17 and 20.4; MSC 78/26, paragraph 24.8    |
| H.1      | Amendments to SOLAS chapter IV pursuant to the criteria set out in resolution A.888(21)   | 3 sessions   | MSC 72/23, paragraph 21.33.1.2                                    |
| H.2      | <b>Developments in maritime radiocommunication systems and technology</b>   | 2007   | MSC 74/24, paragraph 21.25.1; COMSAR 10/16, section 7             |



**Sub-Committee on Radiocommunications and Search and Rescue (COMSAR) (continued)**

|     |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>                                     |
|-----|---|--|--|
| H.3 | <b>Revision of the performance standards for SART</b>   | 2007   | MSC 78/26, paragraph 24.26; COMSAR 10/16, section 12 |
| H.4 | <b>Amendments to COLREGs Annex IV relating to distress signals</b> (co-ordinated by NAV)                                  | 2007   | MSC 81/25, paragraphs 23.24, and 23.38               |
| H.5 | <b>Guidelines on the control of ships in an emergency</b> (co-ordinated by NAV)   | 2007   | MSC 81/25, paragraphs 23.22, and 23.28 to 23.32      |
| H.6 | <b>Guidelines for uniform operating limitations of high-speed craft</b> (co-ordinated by DE)                              | 2008   | MSC 81/25, paragraph 23.45                           |
| H.7 | <b>Development of an e-navigation strategy</b> (co-ordinated by NAV)  | 2008   | MSC 81/25, paragraphs 23.34 to 23.37                 |
| L.1 | <b>Replacements for use of NBDP (radio telex) for maritime distress and safety communications in maritime MF/HF bands</b> | 2008   | MSC 81/25, paragraph 23.23                           |

**SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV)**

|     |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|-----|--|--|---|
| 1   | <b>Routeing of ships, ship reporting and related matters</b>                             | Continuous   | MSC 72/23, paragraphs 10.69 to 10.71, 20.41 and 20.42; NAV 51/19, section 3 |
| 2   | <b>Casualty analysis</b> (co-ordinated by FSI)   | Continuous   | MSC 70/23, paragraphs 9.17 and 20.4; NAV 51/19, section 13                  |
| 3   | <b>Consideration of IACS unified interpretations</b>                                     | Continuous   | MSC 78/26, paragraph 22.12; NAV 51/19, section 14                           |
| H.1 | <b>Worldwide radionavigation system (WWRNS)</b>  | 2008   | MSC 75/24, paragraph 22.37  |
| .1  | new developments in the field of GNSS, especially Galileo                                | 2008   | NAV 50/19, paragraphs 13.1 to 13.3  |
| .2  | <b>performance standards for shipborne Galileo receiver equipment</b>                    | 2006   | NAV 51/19, paragraphs 12.8, 12.9 and 16.3.3; MSC 81/25, paragraph 23.33     |
| .3  | review and amendment of IMO policy for GNSS (resolution A.915(22))                       | 2008   | NAV 48/19, paragraph 16.3.2   |
| .4  | recognition of radionavigation systems as components of the WWRNS (resolution A.953(23)) | 2008   | NAV 48/19, paragraph 16.3.3   |

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- Notes:** 1 “H” means a high priority item and “L” means a low priority item. However, within the high and low priority groups, items have not been listed in any order of priority.
- 2 Items printed in bold letters have been selected for the provisional agenda for NAV 52.

**Sub-Committee on Safety of Navigation (NAV) (continued)**

|      |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|------|--|--|---|
| H.2  | <b>ITU matters, including Radiocommunication ITU-R Study Group 8 matters</b>   | 2006   | MSC 69/22, paragraphs 5.69 and 5.70; NAV 51/19, section 9 |
| H.3  | <b>Revision of the performance standards for INS and IBS</b>   | 2006   | MSC 78/26, paragraph 24.30; NAV 51/19, section 4          |
| H.4  | <b>Evaluation of the use of ECDIS and ENC development</b>  | 2006   | MSC 78/26, paragraph 24.33; NAV 51/9, section 6           |
| H.5  | <b>Amendments to the ECDIS performance standards</b>   | 2007   | MSC 80/24, paragraph 21.22                                |
| H.6  | <b>Development of guidelines for the installation of shipborne radar equipment</b>                                       | 2008   | MSC 80/24, paragraph 21.23                                |
| H.7  | <b>Amendments to COLREGs Annex I related to colour specification of lights</b>   | 2007   | MSC 80/24, paragraph 21.24.1                              |
| H.8  | <b>Development of performance standards for navigation lights, navigation light controllers and associated equipment</b> | 2007   | MSC 80/24, paragraph 21.24.2                              |
| H.9  | Carriage requirements for a bridge navigational watch alarm system   | 2008*  | MSC 81/25, paragraph 23.27                                |
| H.10 | Guidelines on the control of ships in an emergency (in co-operation with COMSAR)   | 2007*  | MSC 81/25, paragraphs 23.28 to 23.32                      |
| H.11 | Development of an e-navigation strategy (in co-operation with COMSAR)  | 2008*  | MSC 81/25, paragraphs 23.34 to 23.37                      |

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\* To be included in the provisional agenda for NAV 53.  
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**Sub-Committee on Safety of Navigation (NAV) (continued)**

|      |   | <b>Target<br/>completion<br/>date/number<br/>of sessions<br/>needed for<br/>completion</b> | <b>Reference</b>                      |
|------|---|--|---------------------------------------|
| H.12 | Amendments to COLREGs Annex IV relating to distress signals (in co-operation with COMSAR) | 2007*  | MSC 81/25, paragraph 23.28            |
| H.13 | Development of carriage requirements for ECDIS  | 2008*  | MSC 81/25, paragraphs 23.39 and 23.40 |
| H.14 | Guidelines for uniform operating limitations of high-speed craft (co-ordinated by DE)     | 2008*  | MSC 81/25, paragraph 23.45            |
| H.15 | Guidelines on the layout and ergonomic design of safety centres on passenger ships        | 2008*  | MSC 81/25, paragraph 23.42            |

**SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT (DE)**

|     |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|-----|---|--|---|
| 1   | <b>Casualty analysis</b> (co-ordinated by FSI)  | Continuous   | MSC 70/23, paragraphs 9.17 and 20.4   |
| 2   | <b>Consideration of IACS unified interpretations</b>  | Continuous   | MSC 78/26, paragraph 22.12  |
| H.1 | <b>Amendments to resolution A.744(18)</b>   | 2007   | DE 45/27, paragraphs 7.18 and 7.19;<br>DE 49/20, paragraphs 3.4 to 3.8      |
| H.2 | <b>Measures to prevent accidents with lifeboats</b> (in co-operation with FSI, NAV and STW)       | 2008   | MSC 74/24, paragraph 21.34;<br>DE 48/25, section 5;<br>FP 50/21, section 13 |
| H.3 | <b>Performance standards for protective coatings</b>  | 2007   | MSC 76/23, paragraphs 20.41.2 and 20.48;<br>DE 49/20, section 6             |
| H.4 | <b>Inspection and survey requirements for accommodation ladders</b>                               | 2007   | MSC 77/26, paragraph 23.32;<br>DE 49/20, section 8                          |
| H.5 | <b>Mandatory emergency towing systems in ships other than tankers of not less than 20,000 dwt</b> | 2007   | MSC 77/26, paragraph 23.33;<br>DE 49/20, section 7                          |

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2 Items printed in bold letters have been selected for the provisional agenda for DE 50.

**Sub-Committee on Ship Design and Equipment (DE) (continued)**

|      |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>   |
|------|---|--|--|
| H.6  | <b>Compatibility of life-saving appliances</b>  | 2008   | DE 47/15, paragraph 5.3; MSC 78/26, paragraph 24.37.1; DE 48/25, section 8; FP 50/21, section 14 |
| H.7  | <b>Review of the SPS Code</b> (in co-operation with DSC, FP, NAV, COMSAR and SLF)   | 2007   | MSC 78/26, paragraph 24.9; DE 49/20, section 12  |
| H.8  | <b>Development of provisions for gas-fuelled ships</b> (co-ordinated by BLG)  | 2007   | MSC 78/26, paragraph 24.39; DE 49/20, section 10   |
| H.9  | <b>Test standards for extended service intervals of inflatable liferafts</b>  | 2007   | MSC 78/26, paragraph 24.41; DE 48/25, section 20; FP 50/20, section 16                           |
| H.10 | <b>Amendments to the Guidelines for ships operating in Arctic ice-covered waters</b> (in co-operation with SLF, as necessary) | 2008   | MSC 79/23, paragraph 8.25  |
| H.11 | <b>Revision of the Code on Alarms and Indicators</b> (in co-operation with appropriate sub-committees, as necessary)          | 2007   | MSC 79/23, paragraph 20.28; DE 49/20, section 13   |
| H.12 | <b>Amendments to the MODU Code</b>  | 2007   | MSC 79/23, paragraph 22.51; DE 49/20, section 14   |
| H.13 | <b>Guidelines for uniform operating limitations of high-speed craft</b> (in co-operation with COMSAR, NAV and SLF)            | 2009   | DE 49/20, section 5; MSC 81/25, paragraph 23.45  |

**Sub-Committee on Ship Design and Equipment (DE) (continued)**

|      |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|------|---|--|---|
| H.14 | Guidelines on equivalent methods to reduce on-board NOx emission                                    | 2007*  | MEPC 41/20, paragraph 8.22.1; BLG 10/19, paragraph 12.3           |
| H.15 | <b>Guidelines for maintenance and repair of protective coatings</b>                                 | 2008   | MSC 81/25, paragraph 23.48.1                                      |
| H.16 | <b>Requirements and standard for corrosion protection of permanent means of access arrangements</b> | 2008   | MSC 81/25, paragraph 23.48.2                                      |
| H.17 | <b>Performance standards for recovery systems</b>   | 2008   | MSC 81/25, paragraph 23.49.1                                      |
| H.18 | <b>Guidelines for the approval of novel life-saving appliances</b>                                  | 2008   | MSC 81/25, paragraph 23.49.2                                      |
| L.1  | <b>Revision of resolution A.760(18)</b>   | 2008   | DE 46/32, paragraph 31.23; DE 47/25, paragraph 22.6               |
| L.2  | Free-fall lifeboats with float-free capabilities  | 1 session  | MSC 76/23, paragraphs 20.41.3 and 20.48; DE 47/25, paragraph 22.6 |

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\* Subject to the decision by the MEPC, as BLG 10 agreed that there was no need for such guidelines and invited the MEPC to delete the item from the Sub-Committee's work programme.

**SUB-COMMITTEE ON STABILITY AND LOAD LINES AND ON FISHING VESSELS SAFETY (SLF)**

|     |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>   |
|-----|--|--|--|
| 1   | Analysis of intact stability casualty records  | Continuous   | MSC 70/23, paragraph 20.4; SLF 30/18, paragraphs 4.16 and 4.17               |
| 2   | <b>Analysis of damage cards</b>  | Continuous   | MSC 70/23, paragraph 20.4;   |
| .1  | <b>revision of the IMO damage card</b>   | 2006   | SLF 41/18, paragraph 17.5; MSC 78/26, paragraph 12.10; SLF 48/21, section 15 |
| 3   | <b>Consideration of IACS unified interpretations</b>   | Continuous   | MSC 78/26, paragraph 22.12   |
| H.1 | <b>Development of explanatory notes for harmonized SOLAS chapter II-1</b>                                  | 2006   | MSC 69/22, paragraph 20.60.1; SLF 48/21, section 3                           |
| H.2 | <b>Safety of small fishing vessels</b><br>(in co-operation with DE, COMSAR, FP, NAV and STW, as necessary) | 2009   | MSC 79/23, paragraphs 11.15 and 20.32; SLF 48/21, section 16                 |
| H.3 | <b>Passenger ship safety</b>   | 2006   | MSC 74/24, paragraph 21.4; SLF 48/21, section 6                              |
| H.4 | <b>Revision of the Intact Stability Code</b>   | 2007   | SLF 41/18, paragraph 3.14; SLF 48/21, section 4                              |

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2 Items printed in bold letters have been selected for inclusion in the provisional agenda for SLF 49.



**Sub-Committee on Stability and Load Lines and on Fishing Vessels Safety (SLF)**  
(continued)

|     |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>   |
|-----|---|--|--|
| H.5 | <b>Review of the SPS Code</b> (co-ordinated by DE)  | 2006   | MSC 78/26, paragraph 24.9  |
| H.6 | Development of options to improve effect on ship design and safety of the 1969 TM Convention  | 2008*  | MSC 81/25, paragraphs 23.52 and 23.53  |
| H.7 | Guidelines for uniform operating limitations on high-speed craft (co-ordinated by DE)   | 2008*  | MSC 81/25, paragraph 23.45   |
| H.8 | Time dependant survivability of passenger ships in damaged condition  | 3 sessions   | MSC 81/25, paragraph 23.54   |
| L.1 | <b>Harmonization of damage stability provisions in other IMO instruments, including the 1993 Torremolinos Protocol (probabilistic method)</b> | 2006   | MSC 62/25, paragraph 21.23; SLF 47/17, section 9; SLF 48/18, section 7                         |
| L.2 | <b>Revision of resolution A.266(VIII)</b>   | 2006   | SLF 45/14, paragraphs 3.19 and 11.1.4.1; MSC 76/23, paragraph 20.50; SLF 47/17, paragraph 14.2 |
| L.3 | <b>Tonnage measurement of open-top containerships</b>   | 2006   | MSC 78/26, paragraph 24.50; SLF 47/17, paragraph 14.2  |
| L.4 | <b>Revision of MSC/Circ.650</b>   | 2006   | SLF 47/17, paragraph 3.8   |

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\* To be included in the provisional agenda for SLF 50.

**SUB-COMMITTEE ON STANDARDS OF TRAINING AND WATCHKEEPING (STW)**

|     |  | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>  |
|-----|--|--|---|
| 1   | <b>Validation of model training courses</b>  | Continuous   | STW 31/17, paragraph 14.4; STW 37/18, section 3   |
| 2   | <b>Casualty analysis (co-ordinated by FSI)</b>   | Continuous   | MSC 70/23, paragraphs 9.17 and 20.4; MSC 77/26, paragraphs 18.10 and 23.40.2; STW 37/18, section 11 |
| H.1 | <b>Unlawful practices associated with certificates of competency</b>   | Continuous   | MSC 71/23, paragraph 20.55.2; STW 37/18, section 4  |
| H.2 | <b>Passenger ship safety</b>   | 2007   | MSC 74/24, paragraph 21.4; STW 37/18, section 5   |
| H.3 | <b>Measures to enhance maritime security</b>   | 2007   | MSC 75/24, paragraphs 22.9 and 22.45; STW 37/18, section 7  |
| H.4 | <b>Education and training requirements for fatigue prevention, mitigation and management</b>                     | 2007   | MSC 75/24, paragraph 22.48; STW 37/18, section 8  |
| H.5 | <b>Development of training requirements for the control and management of ship's ballast water and sediments</b> | 2007   | MSC 71/23, paragraph 20.55.3; STW 37/18, section 9  |

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2 Items printed in bold letters have been selected for the provisional agenda for STW 38.

**Sub-Committee on Standards of Training and Watchkeeping (STW) (continued)**

|      |   | <b>Target completion date/number of sessions needed for completion</b> | <b>Reference</b>   |
|------|---|--|--|
| H.6  | <b>Development of competences for ratings</b>   | 2007   | MSC 77/26, paragraph 23.40.1; STW 37/18, section 10                            |
| H.7  | <b>Identification of areas in chapter VI of the STCW Code where training cannot be conducted on board</b>       | 2008   | STW 37/18, section 17; MSC 81/25, paragraph 23.57.1                            |
| H.8  | <b>Comprehensive review of the STCW Convention and the STCW Code</b>  | 2008   | STW 37/18, section 15; MSC 81/25, paragraphs 23.57.2, 23.40.2, 23.62 and 23.63 |
| H.9  | <b>Review of the principles for establishing the safe manning levels of ships</b>                               | 2008   | MSC 81/25, paragraphs 23.58 to 23.60   |
| H.10 | Development of training standards for recovery systems  | 2 sessions   | MSC 81/25, paragraph 23.64   |
| L.1  | Review of the implementation of STCW chapter VII  | 2 sessions   | MSC 72/23, paragraph 21.56; STW 35/19, section 14                              |
| L.2  | Clarification of the STCW-F Convention provisions and follow-up action to the associated Conference resolutions | 2 sessions   | STW 34/14, paragraph 11.8  |

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**ANNEX 39****PROVISIONAL AGENDAS FOR THE FORTHCOMING SESSIONS  
OF THE SUB-COMMITTEES****SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG) – 11TH SESSION \***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments
  - 4 Development of guidelines for uniform implementation of the 2004 BWM Convention
  - 5 Review of MARPOL Annex VI and the NO<sub>x</sub> Technical Code
  - 6 Development of provisions for gas-fuelled ships
  - 7 Amendments to MARPOL Annex I for the prevention of marine pollution during oil transfer operations between ships at sea
  - 8 Oil tagging systems
  - 9 Guidelines on other technological methods verifiable or enforceable to limit SO<sub>x</sub> emissions
  - 10 Casualty analysis
  - 11 Consideration of IACS unified interpretations
  - 12 Work programme and agenda for BLG 12
  - 13 Election of Chairman and Vice-Chairman for 2008
  - 14 Any other business
  - 15 Report to the Committees

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\* Agenda item number do not necessarily indicate priority.

**SUB-COMMITTEE ON DANGEROUS GOODS, SOLID CARGOES AND CONTAINERS (DSC) –  
11TH SESSION\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Amendments to the IMDG Code and supplements, including harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods
    - .1 harmonization of the IMDG Code with the UN Recommendations on the Transport of Dangerous Goods
    - .2 amendment (34-08) to the IMDG Code and supplements
  - 4 Amendments to the BC Code, including evaluation of properties of solid bulk cargoes
  - 5 Mandatory application of the BC Code
    - .1 identification of mandatory and recommendatory parts of the BC Code, including consequential amendments
    - .2 amendments to SOLAS chapters VI and VII on making the BC Code mandatory
  - 6 Casualty and incident reports and analysis
  - 7 Measures to enhance maritime security
  - 8 Guidance on serious structural deficiencies in containers: reporting procedure on serious structural deficiencies
  - 9 Review of the SPS Code
  - 10 Amendments to the CSS Code
  - 11 Revision of the LHNS and OSV Guidelines
  - 12 Extension of the BLU Code to include grain

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\* Agenda item numbers do not necessarily indicate priority.

- 13 Guidance on providing safe working conditions for securing of containers
- 14 Review of the Recommendations on the safe use of pesticides in ships
- 15 Application of requirements for dangerous goods in package form in SOLAS and the 2000 HSC Code
- 16 Work programme and agenda for DSC 12
- 17 Election of Chairman and Vice-Chairman for 2007
- 18 Any other business
- 19 Report to the Maritime Safety Committee

**SUB-COMMITTEE ON FIRE PROTECTION (FP) – 51ST SESSION\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Performance testing and approval standards for fire safety systems
  - 4 Comprehensive review of the Fire Test Procedures Code
  - 5 Recommendation on evacuation analysis for new and existing passenger ships
  - 6 Review of the SPS Code
  - 7 Development of provisions for gas-fuelled ships
  - 8 Measures to prevent fires in engine-rooms and cargo pump-rooms
  - 9 Consideration of IACS unified interpretations
  - 10 Analysis of fire casualty records
  - 11 Fire resistance of ventilation ducts
  - 12 Application of requirements for dangerous goods in SOLAS and the 2000 HSC Code
  - 13 Unified interpretation on the number and arrangement of portable extinguishers in accommodation spaces, service spaces, control stations, etc.
  - 14 Review of fire safety of external areas on passenger ships
  - 15 Performance standards for fixed water spraying, fire detection and fire alarm systems for cabin balconies
  - 16 Work programme and agenda for FP 52
  - 17 Election of Chairman and Vice-Chairman for 2008
  - 18 Any other business
  - 19 Report to the Maritime Safety Committee

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\* Agenda item numbers do not necessarily indicate priority.



**SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI) – 14TH SESSION\***

- Opening of the session
- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Responsibilities of Governments and measures to encourage flag State compliance\*\*
- 4 Mandatory reports under MARPOL 73/78\*\*
- 5 Casualty statistics and investigations\*\*
- 6 Review of the Code for the investigation of marine casualties and incidents
- 7 Harmonization of port State control activities\*\*
- 8 PSC on seafarers' working hours
- 9 Development of guidelines on port State control under the 2004 BWM Convention
- 10 Comprehensive analysis of difficulties encountered in the implementation of IMO instruments\*\*
- 11 Review of the Survey Guidelines under the HSSC (resolution A.948(23))\*\*
- 12 Development of survey guidelines required by regulation E-1 of the 2004 BWM Convention
- 13 Port reception facilities-related issues
- 14 Consideration of IACS unified interpretations\*\*
- 15 Illegal, unregulated and unreported (IUU) fishing and implementation of resolution A.925(22)
- 16 Work programme and agenda for FSI 15
- 17 Election of Chairman and Vice-Chairman for 2006 and 2007
- 18 Any other business
- 19 Report to the Committees

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\* Agenda item numbers do not necessarily indicate priority.

\*\* Item under continuous review.

**SUB-COMMITTEE ON RADIOCOMMUNICATIONS AND SEARCH AND RESCUE (COMSAR) –  
11TH SESSION\***

- Opening of the session
- 1 Adoption of the agenda
- 2 Decisions of other IMO bodies
- 3 Global Maritime Distress and Safety System (GMDSS)
  - .1 matters relating to the GMDSS Master Plan
  - .2 operational and technical co-ordination provisions of maritime safety information (MSI) services, including review of the related documents
- 4 ITU maritime radiocommunication matters
  - .1 Radiocommunication ITU-R Study Group 8 matters
  - .2 ITU World Radiocommunication Conference matters
- 5 Satellite services (Inmarsat and COSPAS-SARSAT)
- 6 Matters concerning search and rescue, including those related to the 1979 SAR Conference and the implementation of the GMDSS
  - .1 harmonization of aeronautical and maritime search and rescue procedures, including SAR training matters
  - .2 plan for the provision of maritime SAR services, including procedures for routing distress information in the GMDSS
  - .3 medical assistance in SAR services
- 7 Developments in maritime radiocommunication systems and technology
- 8 Revision of the IAMSAR Manual
- 9 Revision of the performance standards for SART
- 10 Amendments to COLREGs Annex IV relating to distress signals
- 11 Guidelines on the control of ships in an emergency
- 12 Replacements for use of NBDP (radio telex) for maritime distress and safety communications in maritime MF/HF bands

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\* Agenda item numbers do not necessarily indicate priority.

- 13 Guidelines for uniform operating limitations of high-speed craft
- 14 Development of an e-navigation strategy
- 15 Work programme and agenda for COMSAR 12
- 16 Election of Chairman and Vice-Chairman for 2008
- 17 Any other business
- 18 Report to the Maritime Safety Committee

**SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV) – 52ND SESSION\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Routing of ships, ship reporting and related matters
  - 4 Revision of the performance standards for INS and IBS
  - 5 Amendments to the ECDIS performance standards
  - 6 Evaluation of the use of ECDIS and ENC development
  - 7 Development of guidelines for the installation of shipborne radar equipment
  - 8 Amendments to COLREGs Annex I related to colour specification of lights
  - 9 ITU matters, including Radiocommunication ITU-R Study Group 8 matters
  - 10 Performance standards for shipborne Galileo receiver equipment
  - 11 Development of performance standards for navigation lights, navigation light controllers and associated equipment
  - 12 Worldwide radionavigation system (WWRNS)
  - 13 Casualty analysis
  - 14 Consideration of IACS unified interpretations
  - 15 Work programme and agenda for NAV 53
  - 16 Election of Chairman and Vice-Chairman for 2007
  - 17 Any other business
  - 18 Report to the Maritime Safety Committee

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\* Agenda item numbers do not necessarily indicate priority.

**SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT (DE) – 50TH SESSION\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Amendments to resolution A.744(18)
  - 4 Performance standards for protective coatings
  - 5 Inspection and survey requirements for accommodation ladders
  - 6 Mandatory emergency towing systems in ships other than tankers of not less than 20,000 dwt
  - 7 Development of provisions for gas-fuelled ships
  - 8 Consideration of IACS unified interpretations
  - 9 Review of the SPS Code
  - 10 Revision of the Code on Alarms and Indicators
  - 11 Amendments to the MODU Code
  - 12 Measures to prevent accidents with lifeboats
  - 13 Compatibility of life-saving appliances
  - 14 Test standards for extended service intervals of inflatable liferafts
  - 15 Amendments to the Guidelines for ships operating in Arctic ice-covered waters
  - 16 Revision of resolution A.760(18)
  - 17 Casualty analysis
  - 18 Guidelines for uniform operating limitations of high-speed craft
  - 19 Guidelines for maintenance and repair of protective coatings

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\* Agenda item numbers do not necessarily indicate priority.

- 20 Requirements and standard for corrosion protection of permanent means of access arrangements
- 21 Performance standards for recovery systems
- 22 Guidelines for the approval of novel life-saving appliances
- 23 Work programme and agenda for DE 51
- 24 Election of Chairman and Vice-Chairman for 2008
- 25 Any other business
- 26 Report to the Maritime Safety Committee

**SUB-COMMITTEE ON STABILITY AND LOAD LINES AND ON FISHING VESSELS SAFETY (SLF) –  
49TH SESSION\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Development of explanatory notes for harmonized SOLAS chapter II-1
  - 4 Passenger ship safety
  - 5 Revision of the Intact Stability Code
  - 6 Safety of small fishing vessels
  - 7 Harmonization of damage stability provisions in other IMO instruments
  - 8 Consideration of IACS unified interpretations
  - 9 Revision of resolution A.266(VIII)
  - 10 Tonnage measurement of open-top containerships
  - 11 Review of the SPS Code
  - 12 Analysis of damage cards: revision of the IMO damage card
  - 13 Revision of MSC/Circ.650
  - 14 Work programme and agenda for SLF 50
  - 15 Election of Chairman and Vice-Chairman for 2007
  - 16 Any other business
  - 17 Report to the Maritime Safety Committee

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\* Agenda item numbers do not necessarily indicate priority.

**SUB-COMMITTEE ON STANDARDS OF TRAINING AND WATCHKEEPING (STW) - 38TH SESSION\***

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Validation of model training courses
  - 4 Unlawful practices associated with certificates of competency
  - 5 Passenger ship safety
  - 6 Measures to enhance maritime security
  - 7 Education and training requirements for fatigue prevention, mitigation and management
  - 8 Development of training requirements for the control and management of ship's ballast water and sediments
  - 9 Development of competences for ratings
  - 10 Casualty analysis
  - 11 Identification of areas in chapter VI of the STCW Code where training cannot be conducted on board
  - 12 Comprehensive review of the STCW Convention and the STCW Code
  - 13 Review of the principles for establishing the safe manning levels of ships
  - 14 Work programme and agenda for STW 39
  - 15 Election of Chairman and Vice-Chairman for 2008
  - 16 Any other business
  - 17 Report to the Maritime Safety Committee

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\* Agenda item numbers do not necessarily indicate priority.



## ANNEX 40

**ADDRESS OF THE SECRETARY-GENERAL  
AT THE OPENING OF THE EIGHTY-FIRST SESSION OF  
THE MARITIME SAFETY COMMITTEE  
(10 to 19 May 2006)**

Good morning, distinguished delegates,

It is a great pleasure also for me to welcome you to the eighty-first session of the Maritime Safety Committee. I particularly welcome those delegates who may be attending, for the first time, a meeting of this Committee, which, for the first time also, will be chaired by its **new Chairman, Mr. Ponomarev of the Russian Federation**, to whom I wish good luck and success in the discharge of his multi-faceted important duties. His predecessor, Mr. Tom Allan, has left a heavy legacy behind and it will be a hard act to follow, but I have every confidence that Mr. Ponomarev will prove to be a worthy successor.

**Safety at sea** has been at the forefront of IMO's activities throughout its history. While, in the process, the scope of the Organization's work has been significantly expanded to include marine environmental concerns and, later on, to address facilitation and security issues, the importance placed on safeguarding human life at sea continues to occupy central stage in the work of the Organization.

While the world and civil society move steadily and rapidly towards new peaks of economic and technological development and shipping strives to adapt to the emerging new circumstances, the challenge for IMO is to be able to keep abreast of changes in the maritime domain and thus continue serving satisfactorily safety, security, environmental protection and maritime traffic issues in line with the expectations of its founders, its members and the maritime community at large.

While we endeavour to do this, we should remain focused on IMO's *raison d'être* and never lose sight of the fact that human life is the only thing on which we cannot put any price and that, therefore, **no other consideration should be allowed to take precedence over the safety of human beings**, be it at the design board or in the construction, equipment and operation of ships; or in the seafarers' education and training and their working conditions on board ships and in port facilities.

Distinguished delegates,

All of you will be aware of the tragic and heavy loss of life resulting from the foundering of the ro-ro ferry **al-Salam Boccaccio 98** in the Red Sea last February. It is extremely sad and disappointing that accidents of this kind still happen, in spite of the extensive and thorough work on the safety of ro-ro passenger ships that IMO has done over the years and, in particular, in the wake of casualties such as those involving the ferries **Herald of Free Enterprise**, **Scandinavian Star** and **Estonia**.

I am confident that the investigation into the Red Sea casualty – which was promptly launched jointly by the Governments of Egypt and Panama with technical expertise and advice provided through IMO's technical co-operation programme – will be able to identify the causes of the disaster and, should it bring to light any areas where remedial action might be required, that the IMO system will be mobilized for action to be undertaken rapidly and expeditiously.

Meanwhile and although we have not yet reached the half of the year, I am concerned that 2006 will go down in the annals of maritime safety as a bad year – if not for the number of ships and tonnage lost, certainly for the number of people who have tragically died since the beginning of the year. My assessment is based on the loss of life (some 1,400 in total) in the context of the casualties involving the passenger ferries:

- **al-Salaam Boccaccio 98**, with approximately 1,000 victims;
- the passenger boat that sank off the coast of Cameroon in March causing the loss of some 127 lives;
- the **Al Dana**, causing the loss of 58 persons when it capsized off the coast of Bahrain in April;
- the dhow **Al Baraka 2**, which caused the loss of 73 persons when it capsized as it left the main harbour of the port of Djibouti in April;
- the **Born Again 604**, that sank in Lake Volta in Ghana, also in April, causing the loss of some 120 lives;

as well as the bulk carrier, **Alexandros T**, which sank off the South African coast last week with, it is feared, the loss of some 26 crew members. This latter loss of life is exceptionally high and, apart from the grief for those perished, it obscures the good news of improving safety in bulk carrier operations, which, in accordance with INTERCARGO's casualty report for 2005, resulted in only six bulk carriers over 10,000 dwt being identified as total losses, of which only one was attributable to structural failure, with a total loss of eight seafarers during the entire year.

Except for the **al-Salaam Boccaccio 98** and the **Alexandros T**, the indications are that all the other ships I mentioned capsized at short distance from the shore, in weather conditions that could not be considered as extraordinarily bad and because, as was widely reported, of overloading.

Of the six accidents involving passenger ships, five happened off the coast or in the internal waters of Africa, and four concerned **non-Convention vessels** – indeed, passenger ships of traditional construction, according to reports. If overloading played a significant role in their sinking, then, while tragedies of this kind fill anyone with sadness for the unnecessary loss of precious human lives, they also fill one with despair, even anger, that in the 21st Century there are still people in positions of authority who allow ships to sail with passengers onboard exceeding in number those allowed for safe passage. We, at IMO, cannot hide behind the fact that the ships did not fall under the Organization's purview since, as I have said many times before, one human life lost at sea is one life lost and one too many, irrespective of where and the circumstances under which this has happened. With this in mind, and recalling also that one of this Committee's priorities for IMO's technical co-operation programme is the promotion and enhancement of the safety aspects of non-Convention vessels, including small fishing vessels and domestic passenger ferries, I offered to all the countries concerned IMO's assistance in whatever way it might be needed. Bahrain has already responded and we are in the process of designing an appropriate technical co-operation project.

In a wider context, we are executing, jointly with Interferry, a project aimed at enhancing the safety of non-Convention ferries in developing countries, by identifying issues to address (such as over crowding, terminal management, vessel design and management,

passenger-carrying arrangements, stowage, hazardous weather, crew training and certification systems); highlighting obstacles to overcome; and proposing solutions to implement. The lessons learnt from this project, which envisages an initial pilot phase in Bangladesh, will serve as a model for similar projects in other countries facing non-Convention ferry safety difficulties.

The provision of assistance, such as this, was very much in the Council's mind when it decided, last November, that the theme for this year's World Maritime Day should be "**Technical Co-operation: IMO's response to the 2005 World Summit**", with special emphasis on the maritime needs of Africa. The theme was chosen in order to give the Organization the opportunity to contribute, from its perspective, to the fulfilment of the **Millennium Development Goals**, adopted by the 2000 Millennium Summit and re-affirmed by last year's World Summit, as the world community's response to identified new needs and challenges presented, first and foremost, by the fact that hundreds of millions of people are left defenceless against hunger, disease and environmental degradation, even though the means to protect them against these are available. Maritime activity has a key role to play in meeting these Goals, for shipping moves the world's burgeoning trade, while international commerce promotes production, job creation and greater socio-economic prosperity. And the combination of all these has undoubtedly the potential to lift people from hunger and poverty and also eradicate life-threatening diseases.

In responding to the special emphasis accorded to Africa, we have identified a wide range of topics to address and, to this end, we have committed significant funding from our technical co-operation programme. Current activities of significance include a feasibility study on an **integrated Coast Guard system for West and Central African countries**, the **establishment of search and rescue co-ordination facilities**; and a number of **maritime security assessments and advisory missions**. And I was extremely pleased to assist, last week, in the formal commissioning of a Regional Maritime Rescue Co-ordination Centre in Mombasa, Kenya, which, together with two sub-centres, one in Seychelles and the other in Tanzania, will form the first integrated SAR system in Africa to respond to one of the recommendations of the 2000 Florence Conference on SAR and the GMDSS. I am confident that the facilities established, and the effective implementation of the Multilateral Agreement on Co-ordination of Maritime Search and Rescue Services concluded, in Zanzibar in 2002, by the Governments of the three countries involved in the Mombasa SAR region, will contribute significantly to increased safety of life at sea and maritime security in East Africa – and I wish to take this opportunity to warmly thank not only Kenya, Seychelles and Tanzania but also the contributors to the SAR and the Tsunami Maritime Relief Funds for financially supporting the Mombasa MRCC and its two sub-centres; and our former colleague in the Secretariat, Mr. Lebedev, and staff in the Maritime Safety and Technical Co-operation Divisions who, together with the IMO Regional Co-ordinator in East Africa, worked hard for the implementation of the SAR system in the region. The experience we have gained there will be very useful as we move to cover other African regions identified as lacking an adequate SAR infrastructure.

Returning for a moment to the **al-Salaam** accident, I wish to take this opportunity to thank the French and United Kingdom Governments for providing experts to assist in the investigation – and, more particularly, to the British Marine Accident Investigation Branch (MAIB) whose assistance in locating, retrieving (from a depth exceeding 900 metres) and downloading information from the ill-fated ship's voyage data recorder during the crucial hours since it left the Saudi port of Dhaha until it met its fate in the middle of the Red Sea, was instrumental in all respects. The clarity of the information derived from the retrieved voyage data recorder does credit to this Committee and its subsidiary bodies involved for their success in developing the relevant performance standards.

Equal appreciation is due to the MAIB for its work on the fire incident involving the cruise ship **Star Princess** while on passage from Grand Cayman to Jamaica last March. The same should, of course, be said for the speed and high degree of responsibility with which the United Kingdom Government acted on the MAIB's findings in submitting document MSC 81/4/6, which, in spite of the late time of its submission, I have, in consultation with your Chairman, sanctioned for circulation in view of the circumstances. I am confident that the Committee will share our concern for expeditious action on the United Kingdom's proposals and, with the desire to strengthen further the safety of passenger ships from the fire protection viewpoint, will take appropriate action to resolve the issues that came to light in the MAIB investigation with maximum speed.

With the accidents I mentioned before and the UK initiative to enhance fire protection, the Committee's work on **passenger ship safety** continues to be of the highest importance. At your previous session, you updated your relevant work plan with a view to your subsidiary bodies finalizing their respective tasks in 2006. At this session, you will consider the outcomes of the sub-committees involved and prepare an appropriate regulatory framework that will address proactively the risks that passenger ships, in particular those to be designed and built in the future, may encounter, taking into account the guiding philosophy and strategic goals approved at MSC 74.

Now that this important initiative, which has taken some five years to progress, is drawing to a conclusion, I wish to thank all who contributed to it for their efforts to ensure safety in passenger ship operations while instilling the highest degree of confidence among the travelling public.

However, before I conclude my references to passenger ship safety, I wish to pay tribute to the UK Maritime Incident Response Group, which, with the assistance of French SAR units and the crew, co-ordinated, with commendable professional efficiency, the extinction of last week's fire incident on board the cruise ship **Calypso** off the southern coast of England with more than 700 persons on board.

Mr. Chairman,

In January, I had the pleasure of delivering the keynote address at the **Ministerial Conference on International Transport Security** which was convened in Tokyo at the initiative of the Government of Japan. The Conference exchanged views and information on international transport security in the aviation, land and maritime sectors, and identified a number of issues to be addressed by Governments and the industry. It also made a number of recommendations concerning the current and future work of IMO on maritime security and I am sure that the Committee will take due note of them when discussing relevant security issues, in particular **security of freight containers** and **security measures for non-SOLAS vessels**.

One of the most important issues before the Committee concerns the proposed **long-range identification and tracking of ships (LRIT) system**. At this session, you will consider proposed amendments to SOLAS as well as draft performance standards and functional requirements, based on the recommendations of two intersessional meetings you authorized at your last session and COMSAR 10. The complexity of the issues involved and those on which you are invited to make decisions this time are as vast and essential as the beneficial impact the system is expected to have on security, search and rescue, navigational safety and environmental

protection and I look forward to meaningful decisions and successful conclusions in the coming days.

At your last session, you agreed basic principles and aims for the concept of **goal-based new ship construction standards**, which the Committee put on its agenda three years ago, following an initial discussion at the Council. Substantial progress has already been made in the development of the Tier II functional requirements for new tankers and bulk carriers, and the correspondence group established at your last session has submitted a comprehensive report covering the verification of compliance, or Tier III, part of the system.

A large number of documents submitted under this agenda item deal with the **risk-based approach to the development of goal-based standards** and I expect an intensive debate on the subject. I hope that those of you who attended the workshop, which was organized by a group of interested IMO members yesterday aimed at enhancing understanding of the so-called “safety-level approach” in relation to GBS, benefited from the presentations made and, therefore, appreciation is due to the organizers. Meetings such as this contribute to taking the matter forward and I sincerely hope that a solution can be found to reconcile the “deterministic” and the “risk-based” approach to GBS, in pursuance of the ultimate goal of developing standards capable of enhancing maritime safety further.

Among the most interesting proposals for discussion at this session is the creation of a framework for the verification process to be carried out with the assistance of a group of experts, which would include the review and audit of classification societies, in the course of which you might consider how the recently adopted IACS Common Structural Rules would fit into the system.

The development, by the DE Sub-Committee at its last session, of requirements for **protective coatings for dedicated seawater ballast tanks and double-side skin spaces of bulk carriers** to ensure that they are of an adequate standard merits special mention. Although draft performance standards and related SOLAS amendments were then prepared for you to consider and adopt, there still remain some unresolved issues, in particular concerning the detailed technical requirements for tanker and bulk carrier protective coatings and their date of application. I hope that the Committee will be able to reach agreement on these issues, so that the proposed performance standards may be approved at this session and adopted at the next.

Distinguished delegates, I will now move on to **human element and operational safety** issues.

Since its major revision in 1995, the **STCW Convention** has been amended four times and a need has now emerged for further amendments to include provisions relating to maritime security, LNG carrier training, hours of work and ratings’ training. In responding to this real need to ensure that the Convention meets, from its perspective, the new challenges facing the shipping industry today and in the foreseeable future, the STW Sub-Committee has recommended a comprehensive review of the Convention and the STCW Code to which I hope that the Committee will respond positively.

Looking more widely at the human element issue, I am sure you will share my concern about the reported **shortage of seafarers**. The BIMCO/ISF manpower update of 2005 highlights the need for recruitment levels to be increased to meet anticipated demands and, at the same time, stresses that it is imperative to reduce the numbers of seafarers leaving the industry. To succeed in achieving both ends, I think that we should work together to ensure, among other things, that

seafarers are treated with the respect they deserve in full recognition of their vital contribution to the community, seaborne trade and the economy at large. Acting in a manner that will not only attract promising young people to follow a career at sea but will also create strong incentives for those in service to stay in the profession will undoubtedly bear fruit for all of us to reap.

When considering seafarer issues, one that causes considerable concern is **fatigue**. The outcome of recent analyses of accidents indicate that, due to inappropriate levels of manning and watchkeeping arrangements, particularly on short sea voyages, **fatigue has emerged as a significant contributory factor in accidents**. While the **IMO principles of safe manning** provide comprehensive guidance, perhaps the time has come for those principles to be reassessed. In this context, I consider the proposal made in document MSC 81/23/3 on the review of resolution A.890(22) timely and look forward to fruitful discussions on the issue.

At MSC 79, I advised of the establishment of an Independent Group of Experts to collect data for an in-depth **analysis of the impact and contribution of the ISM Code**, as requested by resolution A.741(18). The report of the group, providing interesting findings and some meaningful recommendations, is now before you and the Marine Environment Protection Committee for consideration and I look forward to the outcome of your deliberations on a Code which, although it has been tangibly beneficial to safety and environmental protection, has attracted some criticism which we should try to eliminate **now** and prevent and avoid **in the future**.

Under your work programme agenda item, you will consider a proposal calling for the development of a strategic vision for **e-navigation**, to integrate existing and new navigational tools, in particular electronic tools, in an all-embracing system. As the basic technology for such an innovative step is already available, the challenge lies in ensuring the availability of all the other components of the system, including electronic navigational charts, and in using it effectively in order to simplify, to the benefit of the mariner, the display of the occasional local navigational environment. There seem to be clear advantages in the development of e-navigation that will contribute to enhanced navigational safety (with all the positive repercussions this will have on maritime safety overall and environmental protection) while simultaneously reducing the burden on the navigator and I am sure that all relevant factors will be meticulously examined before the Organization moves on to endorsing the proposed system. This may take some time but even the longest walk starts with the first step.

On the issue of **piracy and armed robbery against ships**, you will certainly be as pleased as I am to know that the number of reported incidents globally has dropped for a second successive year, in particular in the Malacca Strait and the South China Sea. Notwithstanding this welcome news, not only has the number of passengers and crew taken hostage or kidnapped increased dramatically but the number of ships hijacked and the number of passengers and crew assaulted has also risen in other regions, most notably in the **waters off the Horn of Africa, particularly off the coast of Somalia**.

This latter situation (which has even seen an audacious attack on a cruise ship last November) prompted me to submit, through the Council, to the last Assembly a draft resolution on **Piracy and armed robbery against ships in waters off the coast of Somalia**, which was subsequently unanimously adopted as resolution A.979(24). In that resolution, the Assembly, among other things, condemned and deplored all acts of piracy and armed robbery against ships and appealed to all parties, which might be able to assist, to take immediate remedial action, within the provisions of international law. The Assembly also invited me to transmit it to the United Nations Secretary-General, for consideration and any action he might deem appropriate,

including bringing the matter to the attention of the Security Council. This was done last December and, in March, the Security Council, in a Presidential Statement addressing various issues relating to the situation in Somalia, encouraged Member States, whose naval vessels and military aircraft operate in international waters and airspace adjacent to the coast of Somalia, to be vigilant to any incident of piracy therein and to take appropriate action to protect merchant shipping, in particular the transportation of humanitarian aid, against any such act, in line with relevant international law.

I am grateful to all Security Council members and other non-Council members for their support and action on the IMO request and hope that implementation of the Security Council's statement, by all UN Member States in a position to contribute, will help to bring about a significant reduction in the number of attacks on innocent merchant shipping in the area and will lead eventually to the eradication of the problem of piracy off the coast of Somalia.

Distinguished delegates, I will now invite your attention to a few additional issues of a more general nature.

First of all: **security at IMO meetings**. In these turbulent times, we cannot be complacent about security and no compromise should be allowed on this critical issue. I, therefore, appeal to all of you to abide by the security rules in place. Circular letter No.2692, providing updated information, was issued on 20 January of this year and I would appreciate your compliance with its requirements.

Secondly, from all the various and many tasks we will pursue this year, there are two that I consider will make a difference between a very successful term and one less successful, namely:

- the implementation of the **Voluntary IMO Member State Audit Scheme**; and
- the first phase of the **refurbishment of the Organization's Headquarters building**.

The Audit Scheme is widely anticipated as the catalyst in IMO's numerous, persistent and consistent attempts to eliminate sub-standard shipping. Following last year's decisions of the Council and Assembly, based on sound advice provided by the MSC, MEPC and TCC, the Scheme is now ready for implementation. There are three things on which I would appreciate receiving favourable responses from our Members:

- **one**, that they offer themselves for audit – as requested by the Assembly in resolution A.974(24);
- **two**, that they nominate auditors to enable me to select audit teams from among them to conduct the audit of volunteering Members; and
- **three**, that they nominate qualified auditors to participate in the regional training courses the Organization is planning to convene (in addition to those already conducted in Slovenia, Sri Lanka and Ecuador) to provide uniform training to auditors to be used for the effective implementation of the Scheme.

Having pledged my personal commitment to the Scheme, for the success of which the Assembly and the Council have assigned to me and the staff important tasks, I will appreciate the

support and co-operation of anyone in a position to contribute to the wide and effective implementation of the Scheme, including you, distinguished delegates. We have already been notified by 18 Governments of their preparedness to be audited and 38 individuals have so far been nominated by Governments, for consideration as auditors to assist in the implementation of the Scheme. Although 31 March was the deadline from which the initial IMO audit timetable would be developed for those States that had volunteered by that date to be audited, I wish to clarify that that deadline does not preclude other Members from volunteering thereafter. Therefore, I look forward to receiving many more offers in the near future – together with the particulars of many more auditors from whom to choose audit teams.

The Scheme apart, your understanding and co-operation will also be required for the implementation of last year's decision of the Council and the Assembly concerning the **refurbishment of the Headquarters Building**, which, for that purpose, will be closed for approximately 12 months between the summers of 2006 and 2007. During that period, the Secretariat will move to offices provided by the Host Government, located at No. 55 Victoria Street, and the meetings of the Council, Committees and Sub-Committees will be held elsewhere in London and abroad. Among those few meetings to be held abroad is your next session, which, following a generous offer by the Government of Turkey, will be held in Istanbul, from 29 November to 8 December 2006, as scheduled. I look forward to an exciting meeting in Istanbul and extend the Organization's appreciation to the Government of Turkey not only for the invitation and the arrangements it is making for a successful session but also for the considerable funding it has offered to provide for it, over and above the budgeted cost for a meeting in London.

I hope that you will be willing and prepared to face, with resolute spirit and good humour, any discomfort and disruption from normal operations that we may experience during the refurbishment period, and that you will accept them as your contribution to our efforts to create and, eventually, pass on to the next generation of IMO delegates and staff a building worthy of the technological, IT and communication facilities of the 21st century – one, which will also incorporate state-of-the-art safety, security and health features and of which we will all be proud. Because of the limited facilities available at Victoria Street and the venues of meetings in London, compared with the facilities we enjoy at our Headquarters here, every possible effort to contribute to our endeavours to be able to continue providing the quality services you are accustomed to (for example, keeping your submissions to the minimum number of pages possible; and accepting reports from correspondence and working groups and Sub-Committees that are as short as possible) will be greatly appreciated.

Before concluding, I wish to take this opportunity to draw your attention to Circular letter No.2694, dated 23 January and entitled "**Highly Pathogenic H5N1 Avian Influenza**". Its purpose is to provide guidance, based on relevant recommendations of the World Health Organization, with a view to minimizing any relevant risks that may present themselves to passengers, seafarers and the public at large and ensuring that the maritime community is fully aware of the precautions that ought to be taken. The Circular makes mention of a related statement made by Transport Ministers attending the **Conference on International Transport Security**, which I referred to earlier, among other things agreeing to endeavour to minimize any negative impact for transport systems arising from the disease in question.

Distinguished delegates,

Out of the extensive number of items on your agenda, I have highlighted only a few and, judging from the large number of submissions, I reckon that this is going to be another extremely



heavy and important session. The maritime community as a whole will focus on your work again this week and your decisions will provide direction, guidance and assistance to all those concerned with enhancing maritime safety and security. I have no doubt that your new Chairman, who has an excellent record of successfully chairing the DE Sub-Committee and the Technical Committee of the last Assembly, will lead the Committee efficiently so that, once again, you will be able to reach sound decisions; also that, with the usual spirit of co-operation, you will produce satisfactory results to serve well the cause of maritime safety, security and environmental protection.

Before concluding, I wish to pay a special tribute to all the Sub-Committees which are reporting to this session of the Committee, their Chairmen, Vice-Chairmen and other officers, as well as those of correspondence and working groups, and the Secretariat that served them, for their excellent work, which I am sure the Committee will be able to confirm in the course of this meeting.

Thank you.

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**ANNEX 41****STATEMENT BY THE DELEGATION OF THE UNITED KINGDOM**

The United Kingdom has listened very carefully to all the views expressed in this debate – both here and in the working group, and over the years of previous work by the experts at the COMSAR and DE Sub-Committees. We would like to start by noting the points of agreement.

First, every delegation that has spoken on this issue has supported the general principle that they wish to see people rescued at sea. Of course, everyone supports this. The moral duty to help save people in distress at sea has been accepted for centuries, and the legal obligation is clearly established in the SOLAS Convention. So, that is the first point of agreement. We all want to save lives.

Second, it is implicit that, if there is a duty on SOLAS ships to save lives, they should be equipped for the task. We all agree this too. Again, it is obvious. To say that SOLAS ships should help save lives – whether members of their own ship's complement overboard or other people in distress – yet to leave them incapable of doing so would be unthinkable. That is the second point of agreement. We all want SOLAS ships to be capable of saving lives.

Third – and let us be quite clear about this – current life-saving appliances to rescue persons from the water are generally acknowledged as requiring improvement. They do not always work, especially if the weather is not good – sometimes even when it is. Again, no one disagrees on this. Every seaman here knows how very difficult it is to recover people onto rescuing ships – and our search and rescue colleagues tell us, first, that they depend on ships to carry out rescue when no dedicated SAR units are available (helicopters, specialized rescue craft and so on), and, second, that, time and again, and often despite heroic efforts, ships report great difficulty in carrying out the task, or fail completely in their attempts to do so.

What else do we agree on? Well, we all agree that we want to enhance ship's recovery capability within reasonable parameters; we agree on most of the specifics of the proposed requirement, and we all agree that we want the DE Sub-Committee to underpin it with a performance standard. It seems, then, that the *only* point of disagreement now is on which way round we should approach the problem. Do we set the requirement by adopting the regulation, and then develop a performance standard to meet it? Or do we develop the performance standard first, before adopting the regulation? We all agree on what we want to achieve: we only disagreed on the best way to achieve it.

The United Kingdom, as everyone at least in the working group knows, believes that we should have set the goal, the target, now. We believe that we should be saying to the design experts at the DE Sub-Committee and in industry: "This is what we want you to achieve. It is a clear target, and we are giving you a period of years in which to achieve it. Now achieve it."

Is this approach unreasonable? Obviously, this delegation does not think so.

This delegation notes that the COMSAR Sub-Committee has developed this goal, after careful and thorough consideration of the issue at many sessions – and while, of course, the DE Sub-Committee should do further detailed work on it, let us also remember that the DE Sub-Committee, monitoring COMSAR's development work as this Committee instructed

them to do, have *already* endorsed this work in general principle. We should not ignore our own expert opinion.

Do the design and manufacturing experts think it achievable? Yes: they do, according to the companies we have consulted. Let me quote just one designer and manufacturer of life-saving equipment: “The requirements as drafted [by the COMSAR Sub-Committee] leave scope for a wide variety of designs to be developed, for use on the wide variety of SOLAS vessels. The operational requirements for the system are realistic, and would demonstrate that the system is capable of recovering personnel in hostile conditions.”

Sir, to shrink from adoption of the goal now would, in our firm opinion, also significantly undermine much of the other work this Committee has done in the last few years to address passenger ship safety. Our search and rescue colleagues tell us that, to ultimately ensure the safety of those going to sea in passenger ships, they will need SOLAS ships to conduct rescue operations should the worst come to the worst. In many parts of the world, away from those coasts where are dedicated SAR units, SOLAS ships may be the *only* SAR facilities available: if they can not do the work, there is no one else to do it, and people will die. The United Kingdom is fortunate to have plentiful dedicated SAR units available – but I can say for the United Kingdom that even we do not have nearly enough for this purpose. We too will depend upon the help of SOLAS ships if a large passenger ship abandons in our waters.

Seafarers have both a moral and a loyal obligation to come to the assistance of their colleagues who are in distress. Let us give them the proper tools to do the job without delay.

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## ANNEX 42

## STATEMENTS BY THE DELEGATION OF THE UNITED STATES

INTERVENTION RELATING TO THE CONSIDERATION AND ADOPTION OF AMENDMENTS  
TO MANDATORY INSTRUMENTS: LONG-RANGE IDENTIFICATION AND TRACKING OF SHIPS

Thank you Mr. Chairman.

I would like to confirm that our proposal MSC 80/3/3 submitted at the 80th session of the Maritime Safety Committee remains in effect. We acknowledge that most of the provisions of our proposal are now contained in the United Kingdom submission MSC 81/3/5, or they are contained in the draft Performance Standards developed by the COMSAR Sub-Committee. However, the element of coastal State access to LRIT is also contained in the United States proposal and if, or when, it is necessary, the United States delegation will remind the Committee and the Maritime Security Working Group of the salient elements of our proposal.

If I might, Mr. Chairman, I would like to say a few short words about the important work the Committee has done to advance the proposal for long-range identification and tracking of Ships.

We have now arrived at the threshold of agreeing to a LRIT amendment that will positively impact legitimate maritime trade. The draft SOLAS amendments, under consideration at this session will bring the maritime industry into a new era of transparency and maritime domain awareness. It will benefit **all** maritime nations and legitimate maritime interests by providing information that is, not only relevant to security, but is also relevant to safety.

The increased transparency that it will provide will also benefit the free flow of commerce as it will help avoid delays associated with increased enforcement efforts of the port States that seek to counter the effects of the community's long-standing tradition of maintaining anonymity. Simply stated, by making legitimate trade transparent, we can focus more of our efforts on those vessels that present anomalies.

Mr. Chairman, we have all worked very hard to find agreeable text for this important amendment over the course of the last four years and I commend all of those who have helped shape this amendment. Clearly, the most difficult of all of the provisions to agree upon has been the issue of a coastal State's access to LRIT information. The United States originally proposed a distance of 2,000 nautical miles for this purpose. That figure was contained in our submission MSC 80/3/3 which remains under consideration at this session. We now have before us two additional proposals for coastal State access to LRIT information – one for a much smaller distance of 200 nm, submitted by the distinguished delegation of Brazil, and a second – compromise text – agreed to by most delegations at the LRIT Intersessional Working Group. That compromise proposal is for a distance of 1,200 nm and is submitted by the distinguished delegation of Norway. We support that proposal although 2,000 nm remains our preference.

Mr. Chairman no delegation has submitted a paper suggesting that the coastal State should **not** have access to LRIT information; it appears that it is only a matter of the appropriate distance and the basis for granting such access that remains under discussion.

I would like to also point out that although the United States originally proposed the LRIT amendment at MSC 78 for the sole purposes of security, we are now convinced of the potential benefits that LRIT could provide for the safety of life at sea. Let me reference the Communiqué of the Ninth Asia Pacific Heads of Maritime Security Agencies Forum that strongly supported the use of LRIT by Search and Rescue services. And I quote: “The Forum urges the IMO to have the Maritime Safety Committee consider as large a distance as possible for LRIT information in order to give the SAR Regional Centers the most comprehensive data possible.”

Mr. Chairman, without a coastal State LRIT element there would be no need for comprehensive mid-ocean tracking of vessels and lives could needless be lost in our search and rescue efforts. An LRIT system with a coastal State element, as suggested by APHMSA Forum would have the greatest benefit for not only security, but also for safety.

Mr. Chairman, the United States delegation supports the addition of the coastal State element to the LRIT System – but only at a distance that provides meaningful security and safety benefits. We respectfully request that all draft SOLAS amendments be referred to the Maritime Security Working Group, one final time, to determine if it is possible to gain consensus on this very important issue.

Thank you Mr. Chairman.

#### **INTERVENTION ON RESOLUTION A.888(21) AMENDMENT PROPOSAL**

Thank you, Mr. Chairman.

We appreciate the support of this Committee for establishing an orderly and expeditious procedure to incorporate additional mobile satellite systems into the GMDSS. However, we do not believe that such a procedure has yet been established.

The present draft amendment to resolution A.888(21) has shortcomings that we believe would actually discourage, rather than encourage new providers from offering their services. The most serious shortcoming is that it excludes IMO and Contracting Governments from the approval process of new providers. Instead, it would put IMSO in the role of both approving new satellite providers, as well as providing continuing oversight thus creating a fundamental conflict of interest.

Mr. Chairman, we note that the IMSO Secretariat has insisted that there must exist a “clean break” from IMO to address issues of legal liability and immunity of Member States from costly litigation. This argument is being made in support of the IMSO taking on the additional responsibility of approving new entrants to the GMDSS. The United States very respectfully, disagrees with this legal analysis, and believes that IMSO and IMO stand in virtually identical legal positions with respect to immunity from liability for approval of new system provider decisions. The IMO’s and its Member States’ immunity from legal liability for exercise of approval and oversight responsibilities has stood the test of time. We are unaware of any instance where either IMO or a Member State has been held legally liable for actions of the Organization or this Committee in its approval or oversight role.

Mr. Chairman, the draft resolution is also unacceptable because the associated draft public service agreement would require each approved satellite provider to share equally in the costs of oversight without any guarantee that they will obtain a sufficient share of the market to make a rational business case. As such, the proposed public service agreement has not received support from the potential new providers.

Further, we also note that there are no accompanying SOLAS amendments with this draft resolution that would actually implement the expansion of GMDSS to other satellite providers. Currently, chapter IV of SOLAS refers exclusively to Inmarsat and, if we are going to allow other satellite providers to compete in GMDSS services, chapter IV will certainly need to be amended.

For these reasons the United States firmly believes that this Committee should not endorse and forward a draft resolution that is not ready in critical respects for the consideration of the Assembly.

At the conclusion of COMSAR 10, its distinguished Chairman offered a way ahead that we believe deserves further consideration. Mr. Hallberg suggested that the Sub-Committee might consider the idea of the establishment of a panel of experts to review and make an objective recommendation concerning the approval of new satellite providers on behalf of the Organization. We believe this idea should be explored, as it would most expeditiously move us in a direction and encourage the entry of new GMDSS service providers. It would also facilitate an effective and efficient oversight mechanisms; and, minimize costs that would adversely affect incentives to improve safety. We, therefore, urge the Committee to remit this draft resolution back to the COMSAR Sub-Committee so that its serious shortcomings can be addressed, and appropriate SOLAS amendments can be drafted.

Mr. Chairman, we can see no reason to rush the approval of this updated guidance. This is a very important issue for all Contracting Governments because, if properly implemented, it will promote competition and, most importantly, enhance the availability and reliability of GMDSS.

Thank you, Mr. Chairman.

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**ANNEX 43****STATEMENT OF THE DELEGATION OF THE PEOPLE'S REPUBLIC OF CHINA****IN CONNECTION WITH AGENDA ITEM 5 ON  
"GENERAL COMMENTS ON LRIT"****General comments**

The Chinese delegation appreciates the efforts exerted by other delegations and the IMO Secretariat for the establishment of LRIT system. China has consistently supported the introduction of effective measures by the international community to enhance maritime security and has been positive towards the establishment of an LRIT system. China is willing to make joint efforts with other delegations, so as to make progress on the issue of LRIT.

This delegation believes that the LRIT system should be established on the following principles:

- it should be in conformity with existing rules of international law, particularly the provisions of UNCLOS;
- attention should be given to balancing the rights and obligations of the parties concerned, i.e., it should not only alleviate the valid concern of port States and coastal States on security, but also practically respect the exclusive jurisdiction of flag States over their fleets and satisfy the need of flag States in relation to security on board their ships;
- it should be practicable and based on the common and real needs of the international community; and
- in view of the importance and sensitivity of maritime security, and in order to ensure universal acceptance of the LRIT system, maximize its benefits and serve the purpose of maritime security, delegations from different States should uphold the co-operative spirit of IMO and reach consensus on this issue through full consultation and avoid hasty decision.

**Whether to discuss the issue of receiving LRIT information by coastal states**

Because of the different ideas expressed at the Intersessional Working Group Meeting last year, the draft SOLAS amendment does not include the regulation for coastal States to receive LRIT information. At present stage, if we continue to discuss the issue of receiving LRIT information by coastal States, it may be very difficult to reach consensus. It may influence the progress of the LRIT as a whole. Therefore, with a view to establishing LRIT as soon as possible, we think that it is not appropriate to continue the discussion on this matter at this moment.

**Comments on the proposal submitted by the United Kingdom**

This delegation thanks the United Kingdom for the work done. With regard to the draft amendment included in the United Kingdom document on LRIT, the Chinese delegation would make the following comments:

- 1 As to paragraph 2.1.2 (the application of the amendment), this delegation is of the view that ships under 500 gross tonnage usually only operate in sea areas A1 and A2, and not equipped with satellite communication equipment. However, LRIT is based on the satellite communication techniques. If the proposed amendment applies to the ships below 500 gross tonnage, these ships need to fix new equipment, this will cause additional costs. Therefore, the amendment should only apply to the ships of 500 gross tonnage and above.
- 2 With regard to paragraph 7.2, the Chinese delegation does not agree that ships located in the territory waters of a contracting party should provide LRIT information to the port State.
- 3 It is suggested that a text be inserted in an appropriate place of the amendment stating that under special circumstances, the master of a ship is entitled to switch off the LRIT system onboard. Such provision has been approved by COMSAR 9. As to the specific text, please refer to paragraph 3.4 of annex 1 to COMSAR 9/WP.5/Rev.1.

### **Comments on proposals of Brazil and Norway**

The Chinese delegation thanks Brazil and Norway for their proposals. This delegation expresses its concern on receiving LRIT information by coastal States. We believe vessels engaged in international shipping, if not entering into the territorial sea or EEZ of coastal States, legally and factually has no association with coastal States. Under such circumstances, to require transmitting LRIT information to coastal States is neither necessary nor the basis of international law. At the same time, we believe coastal States receiving LRIT information is an important issue which involves international law, maritime security and other factors, cautious consideration must be given, especially to the following issues:

- 1 According to UNCLOS, flag States have exclusive jurisdiction over vessels flying its flag. Coastal States have limited control over vessels engaged in international shipping only in its territorial waters and EEZ. Allowing coastal States to receive LRIT information should not affect the jurisdiction of flag States over its vessel, nor should it breach the provisions of UNCLOS by giving extra rights to coastal States.
- 2 From the view point of either international law or real practice, maritime security requires flag States, port States and coastal States to co-operate effectively and take joint efforts. Relying on either single party alone will not effectively guarantee maritime security. This amendment has clarified the right of flag States to acquire LRIT information, coastal States' need for maritime security could well be resolved through co-operations with the administrations of the flag States, including acquiring related information on suspected vessels. On the other hand, in practice, it is hard to imagine vessels with unlawful intent will voluntarily provide LRIT information to coastal States. Against vessels that may pose a threat, to get the LRIT information it requires, the most effective way for the coastal State concerned is to acquire the co-operation of the administration of the flag State.

- 3 LRIT is one of the important system of securing maritime security, it should be generally applicable, and reflecting the need of most of the countries in the world. Viewed from the present international shipping practice, a coastal State at a too long distance acquiring LRIT information would only be meaningful to countries of special geographic locations.
- 4 The concern of flag States over the security of their vessels should also be fully satisfied. Flag States have made tremendous efforts in implementing the ISPS Code and other security measures of IMO, and shouldered heavy international obligations, their own security should also be fully guaranteed. For vessels that truly implement the ISPS Code and other IMO security measures, during their normal voyages, the longer the distance coastal States are allowed to acquire their LRIT information, the larger the number of coastal States that will receive LRIT information, the longer the time vessels will be tracked, the higher the risk the ship related information may be leaked and misused, and the greater will be the potential threat posed against ships and the flag States.

(Comments on the issue of the LRIT used for SAR and maritime environmental protection)

China has been taking active actions in protecting the marine environment and improving the capacity of maritime search and rescue, and believes that, LRIT can also contribute to this purpose. However, China believes that item 5 is only on the maritime security, the maritime environmental protection is not under terms of reference of the MSC, therefore, the application of LRIT to environment protection should not be considered at this meeting.

The application of LRIT to search and rescue is different from its application to maritime security. Maritime accidents can not be predicted. When maritime accidents happen, SAR centre can immediately receive information in the SAR region and organize search and rescue, which will satisfy the needing for search and rescue, however, it is unnecessary that the SAR centre tracks all of ships within a long range for a longer time continuously even if no accidents happen. If most of countries have concerns on the application of LRIT to SAR, we suggest a new provision for this purpose to meet this concern: for the purpose of search and rescue, LRIT data centre(s) should, as requested by SAR service of contracting governments, transfer relevant ships' LRIT information to the coastal State(s) on time.

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**ANNEX 44****STATEMENTS BY THE OBSERVER FROM IMSO****INTERVENTION ON LONG-RANGE IDENTIFICATION AND TRACKING OF SHIPS**

The observer from IMSO drew the attention of the Committee to the fact that the legal opinion of the Legal Division of the IMO Secretariat referred to in paragraph 15.14 of this report in respect of evaluation and approval of new providers of the GMDSS services under the revised resolution A.888(21) must logically apply, *mutatis mutandis*, to the evaluation and approval of providers of the LRIT services under the relevant provisions of the Performance Standard. The exposure to claims for liability resulting from any decisions that are taken during the evaluation and approval process, and the imperative need to protect the IMO and its Member States from such liability, is exactly the same in both cases.

In addition, it may happen that either IMO or IMSO, depending on the decisions which will be taken at the eighty-second session of the MSC in Istanbul, will have to apply different procedures on evaluation and approval of the new providers of GMDSS and LRIT services. This will also apply to those companies which will provide both GMDSS and LRIT services.

In the view of the observer from IMSO, this kind of dual approach would unnecessarily complicate the procedures and should be avoided by all means. Delegates should, therefore, be prepared that, in the light of the advice to be provided by the Legal Division, the LRIT Performance Standard may need to be reviewed and possibly amended at the eighty-second session of the MSC in Istanbul to correspond with what will be decided by the MSC in respect of the evaluation and approval of GMDSS providers under the revised resolution A.888(21).

**INTERVENTION ON RESOLUTION A.888(21) AMENDMENT PROPOSAL**

- 1 Proposed draft revised resolution A.888(21) is based on the following legal basis:
  - .1 the IMSO Convention gives IMSO the direct right to oversee commercial mobile satellite communications operator(s) (Article 4 applies); the IMO Convention does not provide the same scope for IMO;
  - .2 the IMSO Convention provides IMSO with the legal mandate to conclude contractual arrangements (such as the PSA) with a private company (Article 4 again applies); the IMO Convention does not provide the same scope for IMO; and
  - .3 the IMSO Convention specifically exonerates IMSO from liability (Article 11 applies); the IMO Convention does not provide such a protection clause.

2 The practical consequences of these differences in the legal status of the two Organizations are significant:

- .1 IMSO cannot oversee satellite communications operators on behalf of IMO nor share such responsibility with IMO because IMO has no legal mandate to do so; IMSO can carry out such oversight solely on the basis of the IMSO Convention, and take full responsibility for its actions, as at present;
- .2 IMO policies, standards and regulations do not apply directly to the satellite communications operator(s); they will apply to the operator(s) on the basis only of contractual arrangements (PSA) between IMSO and each satellite communications operator, as is done in respect of Inmarsat plc; and
- .3 whilst IMSO could conceivably be sued by a satellite communications operator, IMO Parties are not legally liable for their actions nor for the consequences of those actions; however, IMO Parties would be liable when sued.

3 In the light of the above analysis, and considering that IMO has already decided that the international oversight provided by IMSO of GMDSS in respect of Inmarsat plc shall be extended to all other potential providers of mobile satellite services for the GMDSS, it is essential to establish a CLEAR CUT principle between the regulatory functions of IMO and the oversight functions of IMSO, as envisaged in the constituent instruments of both organization, and to reflect this principle harmoniously in the Reference Public Services Agreement and IMO resolution A.888(21).

4 In practical terms, this clear cut principle means that IMO must continue to confine its role as regulator to the establishment of standards and regulations within which IMSO and the operators would work, and may choose, through the Maritime Safety Committee, to establish relevant policies and express general views on the subject, leaving the implementation of those policies, standards and regulations to IMSO.

5 This has been reflected in the latest text of the draft Reference Public Services Agreement and in the amendments to IMO resolution A.888(21).

At the Meeting of the Advisory Committee of IMSO, the representatives of Japan, Italy and Denmark informed the Committee that they had each received legal advice that the clear distinction, which specifies IMSO as the responsible organization for oversight of GMDSS, as detailed in the present draft Reference PSA, is the correct approach. In the light of this, the majority of members of the Committee agreed that this principle should form the basis for the draft Reference PSA and the revision of resolution A.888(21).

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## ANNEX 45

## STATEMENT BY THE DELEGATION OF THE REPUBLIC OF KOREA

IN CONNECTION WITH AGENDA ITEM ON  
“PIRACY AND ARMED ROBBERY AGAINST SHIPS”

Thank you Mr. Chairman.

The Assembly, at its 24th session, held in November 2005, unanimously adopted resolution A. 979(24) on “Piracy and armed robbery against ships in waters off the coast of Somalia.”

Also, the United Nation Security Council, held in March 2006, taking note of IMO resolution A.979(24), issued the statement which encouraged Member States whose naval vessels and military aircraft operating in the international waters and airspace adjacent to the coast of Somalia, to be vigilant to any incident of piracy therein and to take appropriate action against such an act, in line with the relevant internal law.

Despite such efforts, a Korean fishing vessel **Dongwon No.628** was attacked by pirates off the eastern coast of Somalia on 4 April 2006.

**Dongwon No.628** was legitimately issued a “Fishing License” from the Ministry of Fisheries and Marine Resources of the Transitional Federal Government of the Somali Republic on 12 March 2006, which permitted the vessel to catch tuna up to 500 tons in the area of Somali EEZ between 12 March and 10 May 2006.

**Dongwon No.628** entered that area on 13 March and had caught 70 tons of tuna until it was hijacked at 55 miles off the coast of the Somalia on 4 April 2006.

On receiving urgent calls for help from other Korean vessels in vicinity, the United States and Dutch naval vessels tried to intervene but gave up their chase when they saw the crews were being threatened with guns and the vessel entered Somali waters.

The vessel and 25 crew, consisting of eight Koreans, nine Indonesians, five Vietnamese and three Chinese, are still being held captive by the armed forces two miles off the coast of Somalia.

The Government of the Republic of Korea, in co-operation with the Governments of Somalia, littoral States and the States of crew nationality, made efforts to release the crew but has not yet succeeded.

Taking this opportunity, the Republic of Korea would like to express its thanks to those States for their continued co-operation and efforts. Also we would like to thank the United States and the Netherlands whose naval vessels made efforts to rescue the vessel and its crews, and monitored the development of the situation until the lives of the crew were being threatened.

The Republic of Korea would like to thank the Secretary-General for communicating with the Transitional Federal Government of the Somali Republic, and for seeking a rapid and successful resolution with the release of the crews.

The Republic of Korea also welcomes and congratulates the establishment of the maritime rescue centre in the Kenyan port of Mombasa earlier this month. We are sure this will provide a rapid response to acts of piracy and accidents at sea.

In line with these international efforts to prevent and suppress acts of piracy and armed robbery against ships, the Republic of Korea would like to emphasize the importance of regional co-operation and collaboration.

In this regard, the Republic of Korea, as a party to the Regional Co-operation Agreement on Combating Piracy and Armed Robbery against ships in Asia (RECCAP), is actively participating in anti-piracy activities such as joint exercises on anti-piracy with littoral States and the monitoring of such incidents through the MEH project in the Straits of Malacca.

Having a strong intention to eagerly participate in the international and regional efforts to strengthen the maritime security and to prevent the incidents of piracy and armed robbery in the waters of eastern Africa, the Republic of Korea would like to propose a seminar and workshop on the anti-piracy to be held in this region to promote regional co-operation aimed at enhancing maritime security and preventing unlawful acts against the safety of maritime navigation, including piracy and armed robbery at sea.

The Republic of Korea is pleased to announce its willingness to support full cost of the seminar and workshop.

Thank you, Mr. Chairman.

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**ANNEX 46****STATEMENT BY THE DELEGATION OF YEMEN****IN CONNECTION WITH “PIRACY AND ARMED ROBBERY AGAINST SHIPS FROM THE COUNTRIES OF THE RED SEA AND GULF OF ADEN REGION”**

Speech of Mr. Khaled E. Alwazir, Executive Chairman of Maritime Affairs Authority – Yemen at the MSC 81 Meeting, 2006, at IMO Headquarters, London

Good morning/Good evening,

First of all I would like to greet everybody as well as the Secretary-General of IMO, for his keen concern and efforts to seek solution to maritime piracy resulting from regrettable conditions in Somalia.

Mr. Chairman, distinguished delegates,

In reference to the document presented by the Secretariat on maritime security and piracy and armed robbery against ships off the coast of Somalia, and the document on measures to enhance maritime security – sub-regional co-operation over maritime security and combating armed robbery against ships between countries from the Red Sea and Gulf of Aden, I would like to add to something to what has been mentioned in those documents as to efforts exerted in this respect:

The Republic of Yemen, in close co-operation with regional countries that took part in the Sana’a and Muscat workshops, has been engaging in diplomatic consultations with the involved countries in order to set a date for signing the Memorandum of Understanding for the sub-regional agreement on maritime security and armed robbery on ships for the countries from the Red Sea Gulf of Aden that is not later than October, 2006. This MoU was presented as a proposal by Yemen during the Muscat Seminar. It was agreed on by majority following its revision and amendment. Two proposals, incorporated by the MoU, were presented by both Yemen and Egypt and approved during the Muscat Seminar, for the establishing of a regional centre to co-ordinate efforts to combat maritime piracy. The proposals were approved during the workshop.

Distinguished delegates,

We expect the MoU to be signed, under the auspices of IMO, in Sana’a hopefully by the end of this year.

We would like to advise you that efforts are made to level the heads of states of Yemen, Djibouti, Somalia and Sudan to co-ordinate efforts to prevent and combat piracy and armed robbery against ships off the coast of Somalia. The Sana’a Workshop resolutions were approved by the aforementioned heads of States, within the framework of Sana’a Grouping Summit held in December 2005. Recently, just two weeks ago, it was agreed to enhance those efforts and to establish a secretariat in Sana’a for these countries in order to co-ordinate efforts including efforts to fight maritime piracy.

The Republic of Yemen, along with all countries of the region, and in co-operation with the international community, believes that solving the problem is still possible at this stage, and that it may become worse, especially after the pirates have received some ransoms. Therefore, it is vital to maintain it before it is too late.

By the way of mentioning, we have received a report about an incident of a piracy against a yacht that took place 27 nm off Yemen coast. The pirates were caught by Yemeni Coast Guard and referred to law enforcement agencies, where Yemen enjoys a strict statute against piracy.

Thank you for your attention, hoping I could clarify some of the significant issues.

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