



## **MARINE SAFETY ALERT**

### ***Inspections and Compliance Directorate***

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Washington, DC

Safety Alert 06-02

### **SMOKE SIGNAL / DANGER OF EXPLOSION**

The **Ikaros model Mk II Man-Overboard Smoke Signal** (15-minute) made by **Hansson Pyrotech AB** of Sweden, is approved around the world for use on ring lifebuoys deployed from a ship's bridge. In the United States, it holds Coast Guard approval no. 160.157/5/0.

The smoke signal is secured to the ring lifebuoy by a lanyard, and stowed on the bridge wing "upside down" in a special bracket. U.S. ships are required to have a separate floating electric waterlight secured to the ring lifebuoy, but many other countries accept a version of the Ikaros MkII signal that includes two small lights for this purpose. When the ring lifebuoy is released from the bridge, it pulls the smoke signal from its bracket. As the signal is pulled from the bracket, the igniter mechanism is pulled out from the top of the signal, which starts ignition. This ignition process produces gas and a large volume of orange-colored smoke. The pyrotechnic composition contains its own oxidizer, so once the ignition process is started, it can not be stopped.

Recently, a seaman on a foreign ship in a U.S. port was sent to check the ring lifebuoy and smoke signal on the bridge wing. In the process of doing this, he started to move the signal out of its bracket. Since movement of only 10 mm is necessary to start ignition of the signal, it began to produce gas and smoke. The seaman apparently tried to stop the production of smoke by forcing the igniter mechanism back into the signal. This caused pressure to build up rapidly inside the body of the signal, and it exploded. The seaman died of his injuries.

Hansson has developed and is producing a modified signal that includes a pressure relief mechanism. If pressure builds up inside the container due to the smoke orifice being blocked after the signal is ignited, two plugs will blow out and prevent the signal from exploding. This new signal is designated as the MkIII.

- The Coast Guard recommends replacement of MkII signals with MkIII signals.
- Whenever Hansson Man-Overboard signals (MkII or MkIII) or their mounting arrangements are being serviced, the transport safety pin should be inserted in the signal, which will prevent it from being accidentally ignited. The transport safety pin is used when smoke signals are shipped. The pin is removed when the signal is placed in service. Crew are advised to keep these pins for use during signal maintenance. Consideration should be given to stowing the pin in the vicinity of the signal and the bracket.
- If MkII signals are continued in use, a sign should be placed in a location where it can be readily seen in the vicinity of the stowage location of the signal, warning against trying to move the signal without the transport safety pin inserted. The warning placard should also include directions for handling the marker in the event of an accidental ignition (e.g. "DO NOT RETURN TO BRACKET, EXPLOSION WILL OCCUR"). Such warnings are located on the body of the signal, but they are in a position not normally visible to someone working on

the signal. The sign(s) should be in a language or languages that can be understood by the crew.

This alert was developed by the USCG Lifesaving and Fire Safety Standards Division. Content questions may be addressed to LCDR Brian Gilda - [gilda@comdt.uscg.mil](mailto:gilda@comdt.uscg.mil).

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