



FINDINGS OF CONCERN

Sector Delaware Bay

March 31, 2023
Philadelphia, PA

Findings of Concern 011-23

PORTABLE CO2 FIRE EXTINGUISHER GROUNDING SAFETY

Purpose. The U.S. Coast Guard issues findings of concern to disseminate information related to unsafe conditions that were identified as causal factors in a casualty and could contribute to future incidents. Findings of concern are intended to educate the public, state, or local agencies about the conditions discovered so they may address the findings with an appropriate voluntary action or highlight existing applicable company policies or state/local regulations.

The Incident. A recent casualty resulting in a mariner being hospitalized for electrical shock identified a significant hazard associated with the buildup and discharge of a static charge when a CO2 extinguisher was used to combat a fire. Although electrostatic shocks received from portable CO2 extinguishers are generally not deadly, they can interrupt firefighting efforts and may result in injury.

Contributing Factors and Analysis. Electrical matting is required around switchboards in accordance with 46 Code of Federal Regulations 111.30-15. However, this can make it difficult to effectively ground a CO2 extinguisher prior to attacking a Class “C” fire in a space containing an electrical switchboard. When a mariner responds to a fire, it is an extremely stressful event and basic training and safety steps such as proper extinguisher grounding may be missed or forgotten. In particular, this can occur if the drill/training environment does not accurately simulate the conditions found on board the vessel. It is important for vessel owners and operators to take into account the unique layout and installation of equipment on their vessels which may make extinguisher grounding difficult.

Findings of Concern. Coast Guard investigators have identified the following measures to mitigate the risks associated with the contributing factors identified above:

- Vessel owners and operators should plan for combating fires in spaces with electrical safety matting:
 - For switchboards with electrical matting, designate areas to properly ground fire extinguishers and conduct drills with firefighting crew.
 - For decks made of electrical matting materials or that are Fiberglass Reinforced Plastics (FRP) vessels, install conductive panels, designate spaces to properly ground fire extinguishers and conduct drills with firefighting crew.

Closing. These findings of concern are provided for informational purpose only and do not relieve any domestic or international safety, operational, or material requirements. For any questions or comments please contact the USCG Sector Delaware Bay Investigations Division by phone at (215) 271-4853 or email at PhillyIO@uscg.mil.