



## FLASH-FIRE IN THE FORWARD STOREROOM CAUSED BY BUNKER FUMES

**SC No. 4 of 2005**

**24-01-2005**

**Applicable to:** This circular should be brought to the attention of owners, operators, masters and chief engineers of all vessels.

1. A recent investigation into an incident of explosion and fire on board a chemical tanker revealed that the incident was caused by the ignition of flammable gas in the forward deck store. The gas had accumulated inside the store after the vessel completed bunkering fuel oil. The ignition source for the fire and explosion was suspected to be the sparking caused during the switching on of the windlass motor, located inside the forward deck store. This incident resulted in the death of one seaman.

2. The above tanker was constructed in such a way that its No. 1 Fuel oil centre tank at the forward part of the vessel extended up to the forward store. The fuel oil tank's hatch covers were situated inside the forward store. The tank's ullage/sighting ports were on this tank hatch cover.

3. The ullage/sighting ports were kept open during the bunkering operation to check the level of the fuel oil in the tank. This resulted in the gas from the bunker fuel venting through this opening and accumulating inside the forward store.

4. Generally, fuel oil is not known to be volatile and do not emit flammable gas at ambient temperatures. However, there could be traces of volatile petroleum product in the fuel oil that could be released from the fuel oil which could form a flammable mixture at ambient temperatures. Such gasses, being heavier than air would tend to accumulate in store rooms when the ventilation is inadequate.

5. Shipowners, managers, masters and chief engineers are advised to check the construction profile of their ships and if the fuel oil tanks are of the design similar to the one described above, the following precautions should be taken:

- (a) To ensure adequate ventilation of the forward store room during bunkering operation;
- (b) To check for presence of any flammable gases before entering the forward store or before switching on and electrical appliances housed inside the store room;
- (c) To change lighting and electrical junction boxes and other electrical systems inside the store room to intrinsically safe types and to regularly check them;
- (d) To use only intrinsically safe torchlights when in such spaces;
- (e) To display safety signs and labels, such as 'No Smoking' conspicuously; and
- (f) To educate all crew members on the precautions to be taken when working in such spaces.

6. Any queries regarding this circular should be addressed to Capt. Mohamed Harun Jaaffar (Tel: 6375 6256).

LEE SENG KONG  
DIRECTOR OF MARINE  
MARITIME AND PORT AUTHORITY OF SINGAPORE