

## **Part E - Operational Requirements**

### **Regulation 16 – Operations**

#### **1. Purpose**

The purpose of this regulation is to provide information and instructions for proper ship and cargo handling operations in relation to fire safety. For this purpose, the following functional requirements shall be met:

- 1.1 fire safety operational booklets shall be provided on board; and
- 1.2 flammable vapour releases from cargo tank venting shall be controlled.

#### **2. Fire safety operational booklets**

- 2.1 The required fire safety operational booklet shall contain the necessary information and instructions for the safe operation of the ship and cargo handling operations in relation to fire safety. The booklet shall include information concerning the crew's responsibilities for the general fire safety of the ship while loading and discharging cargo and while underway. Necessary fire safety precautions for handling general cargoes shall be explained. For ships carrying dangerous goods and flammable bulk cargoes, the fire safety operational booklet shall also provide reference to the pertinent fire-fighting and emergency cargo handling instructions contained in the Code of Safe Practice for Solid Bulk Cargoes, the International Bulk Chemical Code, the International Gas Carrier Code and the International Maritime Dangerous Goods Code, as appropriate.
- 2.2 The fire safety operational booklet shall be provided in each crew mess room and recreation room or in each crew cabin.
- 2.3 The fire safety operational booklet shall be written in the working language of the ship.
- 2.4 The fire safety operational booklet may be combined with the training manuals required in regulation 15.2.3.

#### **3. Additional requirements for tankers**

##### **3.1 General**

The fire safety operational booklet referred to in paragraph 2 shall include provisions for preventing fire spread to the cargo area due to ignition of flammable vapours and include procedures of cargo tank gas-purging and/or gas-freeing, taking into account the provisions in paragraph 3.2.

##### **3.2 Procedures for cargo tank purging and/or gas-freeing**

- 3.2.1 When the ship is provided with an inert gas system, the cargo tanks shall first be purged in accordance with the provisions of regulation 4.5.6 until the concentration of hydrocarbon vapours in the cargo tanks has been reduced to less than 2% by volume. Thereafter, gas-freeing may take place at the cargo tank deck level.
- 3.2.2 When the ship is not provided with an inert gas system, the operation shall be such that the flammable vapour is discharged initially through:

- 3.2.2.1 the vent outlets as specified in regulation 4.5.3.4;
- 3.2.2.2 outlets at least 2 m above the cargo tank deck level with a vertical efflux velocity of at least 30 m/s maintained during the gas-freeing operation; or
- 3.2.2.3 outlets at least 2 m above the cargo tank deck level with a vertical efflux velocity of at least 20 m/s and which are protected by suitable devices to prevent the passage of flame.
- 3.2.3 The above outlets shall be located not less than 10 m, measured horizontally, from the nearest air intakes and openings to enclosed spaces containing a source of ignition and from deck machinery, which may include anchor windlass and chain locker openings, and equipment which may constitute an ignition hazard.
- 3.2.4 When the flammable vapour concentration at the outlet has been reduced to 30% of the lower flammable limit, gas-freeing may be continued at cargo tank deck level.

## **MCA Guidance**

### **G1 Inert gas systems**

G1.1 Where inert gas is being supplied by a system required by this Regulation, and the oxygen content of the inert gas in the inert gas supply main exceeds 8% by volume, it shall be the duty of the master to ensure that:

G1.1.1 immediate action is taken to improve the gas quality;

G1.1.2 if the quality of the gas does not improve, all operations in those tanks to which the inert gas is being supplied are suspended so as to avoid air being drawn into those tanks;

G1.1.3 the deck isolation valve (not being the water-seal device) is closed; and

G1.1.4 sub-standard gas is vented to the atmosphere.

G1.2 Combination carriers shall not carry solid cargoes unless all cargo tanks are empty of crude oil and other petroleum products having a closed flash point not exceeding 60°C and other liquids having a similar fire hazard and are gas freed, or unless the arrangements provided in each case are in accordance with the relevant operational requirements contained in the Guidelines for inert gas system.