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STATUTORY INSTRUMENTS

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**1998 No. 1012**

**The Merchant Shipping (Fire Protection:  
Large Ships) Regulations 1998**

**PART IV**

**FIRE PREVENTION AND FIRE APPLIANCES**

**TANKERS OF CLASS VII(T) OF 500 TONS OR OVER**

**General requirements**

**29.** Regulations 16 and 17(1), regulations 20 to 24(1) inclusive and regulation 26 shall apply to every tanker of Class VII(T) of 500 tons or over as they apply to ships of Class VII of 500 tons or over.

**Cargo tank protection**

*Inert gas systems*

**30.**—(1) Every tanker of Class VII(T) of 20,000 tons or over constructed or adapted and used to carry crude oil and petroleum products having a closed flashpoint not exceeding 60°C, and Reid vapour pressure below atmospheric pressure, and other liquids having a similar fire hazard, shall be provided with an inert gas system complying with the standard requirements contained in Schedule 9 in Merchant Shipping Notice MSN 1666.

(2) A tanker referred to in paragraph (1) need not be provided with the standard requirements for an inert gas system if—

- (a) being a chemical tanker carrying as cargo any substance mentioned in paragraph (1), it is provided with an inert gas system complying with the alternative requirements for chemical tankers contained in Schedule 10 in Merchant Shipping Notice MSN 1666;
- (b) being a chemical tanker constructed before 1st July 1986 and carrying crude oil or petroleum products, it is provided with an inert gas system complying with the alternative requirements for chemical tankers applicable to it contained in Schedule 10 in Merchant Shipping Notice MSN 1666;
- (c) being a gas carrier carrying as cargo a substance mentioned in paragraph (1), it is provided with cargo tank inerting arrangements equivalent to those specified in sub-paragraph (a) or (b);
- (d) being a chemical tanker or gas carrier constructed before 1st July 1986, it is carrying a flammable cargo other than crude oil or petroleum products; or
- (e) being a chemical tanker or gas carrier constructed on or after 1st July 1986 and carrying a flammable cargo other than crude oil or petroleum products, it complies with the following requirements, that is to say—

- (i) that the capacity of each tank used for carriage of that cargo does not exceed 3,000 cubic metres;
- (ii) that the capacity of each nozzle of a tank washing machine does not exceed 17.5 cubic metres per hour; and
- (iii) that the total combined throughput from all such machines in use in a cargo tank at any time does not exceed 110 cubic metres per hour.

In sub-paragraphs (d) and (e), the references to a flammable cargo other than crude oil or petroleum products includes (without prejudice to the generality of those references) references to any of the cargoes listed in Chapters 17 and 18 of the International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk.

- (a) (3) (a) Every inert gas system provided in accordance with this regulation shall be designed, constructed and tested to the satisfaction of the Secretary of State. It shall be designed and operated so as to render and keep the atmosphere of the cargo tanks including the slop tanks non-flammable at all times, except where such tanks are to be gas free.
- (b) In the event that the inert gas system is unable to meet the operational requirement set out above and it has been assessed that it is impractical to effect a repair, then cargo discharge, deballasting and necessary tank cleaning may only be resumed when the emergency procedures laid down in the Guidelines for Inert Gas Systems are complied with.
- (c) Where inert gas is being supplied by a system referred to in this regulation, and the oxygen content of the inert gas in the inert gas supply main exceeds 8 per cent by volume, it shall be the duty of the master to ensure that:
  - (i) immediate action is taken to improve the gas quality;
  - (ii) 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;
  - (iii) the deck isolation valve (not being the water-seal device) is closed; and
  - (iv) sub-standard gas is vented to the atmosphere.
- (a) (4) (a) Every tanker of Class VII(T) of less than 20,000 tonnes deadweight operating with a tank cleaning procedure using crude oil washing, shall be fitted with an inert gas system complying with the standard requirements contained in Schedule 9 in Merchant Shipping Notice MSN 1666.
- (b) Every tanker of Class VII(T) operating with a tank cleaning procedure using crude oil washing shall be provided with fixed tank washing machines only.

(5) Every tanker of Class VII(T) fitted with a fixed inert gas system shall be provided with a closed ullage system.

(6) 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 Systems.

(7) Tankers constructed before 25th May 1980 of less than 40,000 tons deadweight carrying oil other than crude oil or other liquids having a similar fire hazard which are not fitted with tank washing machines having an individual throughput greater than 60 cubic metres shall not be required to be fitted with an inert gas system.

*Deck foam systems*

(8) Every Category A tanker of Class VII(T) of 100,000 tons deadweight or over and every Category A combination carrier of Class VII(T) of 50,000 tons deadweight or over shall be provided with a fixed deck foam system complying with Schedule 7 in Merchant Shipping Notice MSN 1666.

(9) Every tanker referred to in paragraph (1), constructed before 25th May 1980—

- (a) for which the building contract was placed after 1st June 1979; or
- (b) in the absence of a building contract, constructed after 1st January 1980; or
- (c) which was delivered after 1st June 1982; or
- (d) which undergoes an alteration or modification of a major character—
  - (i) for which a contract was placed after 1st June 1979; or
  - (ii) in the absence of a contract, the construction work of which was begun after 1st January 1980; or
  - (iii) which was completed after 1st June 1982;

shall be fitted with a fixed deck foam system complying with Schedule 7 in Merchant Shipping Notice MSN 1666.

(10) Every tanker of Class VII(T) of 2,000 tons or over not fitted with an inert gas system complying with the standard requirements contained in Schedule 9 in Merchant Shipping Notice MSN 1666 shall be provided with a fixed foam fire-extinguishing installation complying with paragraph (11) or with a fixed smothering gas or steam installation complying with Schedule 4 in Merchant Shipping Notice M 1666, providing protection for all cargo spaces.

(11) Every fixed foam fire-extinguishing installation fitted to meet the requirements of paragraph (10) shall be capable of distributing on the decks over such tanks through fixed discharge outlets in not more than 15 minutes a quantity of foam sufficient to cover to a depth of at least 50 millimetres the whole of the tank deck area. Such an installation shall be capable of generating foam suitable for extinguishing oil fires and shall include means for the effective distribution of the foam through a permanent system of piping and control valves or cocks to discharge outlets. There shall be sufficient mobile foam sprayers capable of being connected to the installation whereby foam can be directed into any tank. For the purpose of this paragraph “tank deck area” means an area equivalent to the extreme length of the cargo tanks multiplied by the breadth of the ship.

(12) Every tanker of Class VII(T) of 2,000 tons or over not fitted with a fixed deck foam system complying with Schedule 7 in Merchant Shipping Notice MSN 1666, or a fixed foam fire-extinguishing installation complying with paragraph (11) shall be provided with a mobile foam fire-fighting unit having a capacity of at least 100 litres of foam concentrate or alternatively two portable foam-applicators each having not less than 50 litres of foam concentrate readily available. Such units or appliances, when connected to the appropriate deck fire hydrants, shall be capable by a simple and a rapid means of operation of discharging foam on to the area of the cargo piping manifold.

(13) Every tanker of Class VII(T) of under 2,000 tons not provided with any of the deck foam arrangements of foam appliances referred to in paragraph (12) shall be provided with at least one mobile foam appliance whereby foam is immediately available, by a simple and a rapid means of operation, for discharge in the area of the cargo piping manifolds.

*Requirements for ships constructed between 25th May 1980 and 1st September 1984*

(14) Every tanker of Class VII(T) of 2,000 tons or over shall be provided with a fixed deck foam system complying with the requirements of Schedule 7 in Merchant Shipping Notice MSN 1666 except that this requirement shall not apply to chemical tankers.

(15) Every tanker of Class VII(T) of under 2,000 tons shall be provided with at least one mobile foam appliance whereby foam is immediately available, by a simple and a rapid means of operation, for discharge in the area of the cargo manifold.

*Requirements for ships constructed on or after 1st September 1984*

(16) Every tanker of Class VII(T) of 500 tons or over shall be provided with a fixed deck foam system complying with the requirements of Schedule 7 in Merchant Shipping Notice MSN 1666, except that this requirement shall not apply to chemical tankers or gas carriers. For these vessels alternative arrangements shall be provided to the satisfaction of the Secretary of State.

(17) Where a liquid cargo (other than one referred to in paragraph (1)) presenting a particular fire hazard is to be carried a means or system of fire-extinguishing appropriate for dealing with this hazard shall be provided to the satisfaction of the Secretary of State.

*Equivalence*

- (a) (18) (a) Other fixed fire-extinguishing systems may be provided if they are deemed to be equivalent in the manner set out in paragraph (b) or, as the case may be, (c) of this paragraph.
- (b) A system provided in place of the inert gas system referred to in this regulation shall be deemed to be equivalent to that system if it is—
  - (i) capable of preventing dangerous accumulation of explosive mixtures in intact cargo tanks during normal service throughout the ballast voyage and necessary in-tank operations; and
  - (ii) so designed as to minimise the risk of ignition from the generation of static electricity by the system itself.
- (c) An installation provided in place of the fixed deck foam system referred to in this regulation shall be deemed to be equivalent to that system if it is—
  - (i) capable of extinguishing spill fires and precludes ignition of spilled oil not yet ignited; and
  - (ii) capable of combating fires in ruptured tanks.

**Cargo tank purging and/or gas freeing**

*Requirements for ships constructed on or after 1st September 1984*

**31.**—(1) In every tanker of Class VII(T) of 500 tons or over arrangements for purging and gas freeing shall be such as to minimise the hazards due to the dispersal of flammable vapours in the atmosphere and to flammable mixtures in a cargo tank.

- (2) When the ship is provided with an inert gas system the cargo tanks shall first be purged—
  - (a) in accordance with the provisions of the Guidelines for Inert Gas Systems; or
  - (b) if the ship does not need to be provided with an inert gas system complying with the requirements of regulation 30(1) but is a ship mentioned in regulation 30(2)(a), (b) or (c) in accordance with the provisions of paragraph 12 of Part IV of the Guidelines on Inert Gas Systems or,

until the concentration of hydrocarbon vapours in the cargo tanks has been reduced to less than 2 per cent by volume. Thereafter, gas-freeing may take place at the cargo tank deck level.

(3) When the ship is not provided with an inert gas system, the operation shall be such that the flammable vapour is discharged—

- (a) through the vent outlets as specified in regulation 23 of the Merchant Shipping (Cargo Ship Construction) Regulations 1997(1); or
- (b) if the ship is one constructed on or after 1st February 1992, through outlets at least 2 metres above the cargo tank deck level with a vertical efflux velocity of at least 30 metres per second during the gas-freeing operation; or
- (c) through outlets at least 2 metres above the cargo tank deck level with a vertical efflux velocity of at least 20 metres per second and through devices (other than flame screens) complying with Schedule 1 in the Merchant Shipping Notice MSN 1671 so as to prevent the passage of flame into the cargo tanks,

until the flammable vapour concentration in the outlet has been reduced to 30 per cent of the lower flammable limit. Thereafter, gas-freeing may be continued at the cargo tank deck level.

### **Cargo pump rooms**

#### *Fixed fire-extinguishing arrangements in cargo pump rooms*

**32.**—(1) In every category A tanker of Class VII(T) of 500 tons or over and in every Category A combination carrier of Class VII(T) of 500 tons or over, each cargo pump room shall be provided with a fixed fire-extinguishing system operated from a readily accessible position outside the pump room. The system shall use water or other medium approved by the Secretary of State.

#### *Requirements for ships constructed on or after 25th May 1980*

(2) Except as otherwise provided in paragraph (3), in every tanker of Class VII(T) of 500 tons or over, each cargo pump room and each pump room having a similar hazard shall be provided with at least one of the fixed fire-extinguishing systems required by regulation 20(1) and which shall be operated from a readily accessible position outside the pump room, provided that where the fixed extinguishing system is a gas system—

- (a) every alarm referred to in Schedule 4 in Merchant Shipping Notice MSN 1666 shall be safe for use in a flammable cargo vapour/air mixture;
- (b) a notice shall be exhibited at the controls stating that due to the electrostatic ignition hazard, the system is to be used only for fire-extinguishing and not for inerting purposes; and
- (c) where the extinguishing medium used in the cargo pump room system is also used in systems serving other spaces, the quantity of medium provided or its delivery rate need not be more than the maximum required for the largest space.

(3) In chemical tankers where the fixed fire-extinguishing system referred to in paragraph (1) is a gas system, the concentration shall be as specified in the Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk.

### **Fire main isolating valves**

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(1) [S.I. 1997/1509](#).

*Requirements for ships constructed on or after 1st September 1984*

**33.** In every tanker of Class VII(T) of 500 tons or over isolation valves shall be fitted in the fire main at poop front in a protected position and on the tank deck at intervals of not more than 40 metres to preserve the integrity of the fire main system in case of fire or explosion.

**Firemen's outfits**

**34.** In every ship of Class VII(T) of 500 tons or over there shall be provided not less than four firemen's outfits complying with the requirements of regulation 46. In addition one such outfit carried in any such ship shall include a breathing apparatus of the air-hose type and the remainder shall include breathing apparatus of the self-contained type: provided that where the air hose of an air-hose type breathing apparatus is required, in order to comply with paragraph 1 of Schedule 5 in Merchant Shipping Notice MSN 1665 to exceed 36 metres in length a self-contained breathing apparatus shall be provided either in addition to or as a substitute for that air-hose breathing apparatus.