

1974 No. 2185

MERCHANT SHIPPING

SAFETY

**The Merchant Shipping (Fire Appliances) (Amendment)
Rules 1974**

Made - - - - 20th December 1974

Laid before Parliament 30th December 1974

Coming into Operation 1st February 1975

The Secretary of State in exercise of powers conferred by section 427 of the Merchant Shipping Act 1894(a), as substituted by section 2 of the Merchant Shipping (Safety Convention) Act 1949(b) and as amended by section 9 of the Merchant Shipping Act 1964(c) and now vested in him (d) and of all other powers enabling him in that behalf, hereby makes the following Rules—

1. These Rules shall come into operation on 1st February 1975 and may be cited as the Merchant Shipping (Fire Appliances) (Amendment) Rules 1974.

2. The Merchant Shipping (Fire Appliances) Rules 1965(e) shall be amended in accordance with the following provisions of these Rules.

3. In Rule 1(2) (Interpretation) there shall be inserted, in the appropriate places alphabetically, the following definitions:—

“Category A tanker” and “Category A combination carrier” means a tanker, or as the case may be, a combination carrier, registered in the United Kingdom and constructed or adapted to carry crude oil and petroleum products having a closed flashpoint not exceeding 60°C the Reid vapour pressure of which is below that of atmospheric pressure, and other liquids having a similar fire hazard, and the keel of which:

- (i) is laid, or which is at a similar stage of construction, on or after 1st February 1975, or
- (ii) is laid, or is at a similar stage of construction before 1st February 1975 but is completed after 31st December 1978;

“Combination carrier” means a tanker designed to carry oil or solid cargoes in bulk;

“Deadweight” means the difference in metric tons between the displacement of a ship at summer load waterline and the lightweight of the ship;

(a) 1894 c. 60.

(c) 1964 c. 47.

(e) S.I. 1965/1106 (1965 II, p. 3012).

(b) 1949 c. 43.

(d) See S.I. 1965/145 (1965 I, p. 438).

“Lightweight” means the displacement of a ship in metric tons without cargo, oil fuel, lubricating oil, ballast and fresh water in tanks, stores and crew and their effects;

“Metric tons” means tons of 1,000 kilogrammes;

“Reid vapour pressure” means the vapour pressure of a liquid as determined by laboratory testing in a standard manner in the Reid apparatus;

“Water lock” means an arrangement or device, using water, to prevent the back flow of gases or vapours from cargo tanks.

4. In Rule 32 after “2,000 tons or over” there shall be inserted “(other than a Category A tanker of 100,000 tons deadweight or over or a Category A combination carrier of 50,000 tons deadweight or over)”.

5. After Rule 32 there shall be inserted the following Rules:—

“Fixed inert gas and fire extinguishing arrangements in cargo spaces in Category A tankers and Category A combination carriers

32A.—(1) This Rule applies to Category A tankers of Class VII of 100,000 tons deadweight or over and to Category A combination carriers of Class VII of 50,000 tons deadweight or over.

(2) In every tanker and combination carrier to which this Rule applies an inert gas system complying with the requirements of Rule 60A of these Rules and a fixed deck foam system complying with the requirements of Rule 61A of these Rules shall be provided:

Provided that other combinations of fixed fire extinguishing installations may be provided in place of those required by the foregoing provisions of this Rule if each installation forming part of the combination is equivalent to the said systems in the manner set out in paragraphs (3) and (4) below.

(3) An installation provided in place of the inert gas system referred to in paragraph (2) above shall be deemed to be equivalent to that system for the purposes of these Rules if it is—

- (a) capable of preventing dangerous accumulations of explosive mixtures in intact cargo tanks during normal service throughout the ballast voyage and necessary in-tank operations; and
- (b) so designed as to minimise the risk of ignition from the generation of static electricity by the system itself.

(4) An installation provided in place of the fixed deck foam system referred to in paragraph (2) above shall be deemed to be equivalent to that system for the purposes of these Rules if it is—

- (a) capable of extinguishing spill fires and precludes ignition of spilled oil not yet ignited; and
- (b) capable of combatting fires in ruptured tanks.

(5) Where any such ships are constructed or adapted for the carriage of cargoes which introduce additional fire hazards, additional safety measures shall be provided.

Fixed fire extinguishing arrangements in cargo pump rooms in Category A tankers and in Category A combination carriers

32B. In every Category A tanker of Class VII of 500 tons or over and in every Category A combination carrier of Class VII 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 suitable medium”.

6. For Rule 40 there shall be substituted the following Rule—

“**40.**—(1) Rules 30 and 31 and Rules 33 to 37 inclusive of these Rules shall apply to ships of Class VIII of 1,000 tons or over as they apply to ships of Class VII of 1,000 tons or over;

(2) Rule 32 of these Rules shall apply to tankers of Class VIII of 2,000 tons or over (other than Category A tankers of 100,000 tons deadweight or over and Category A combination carriers of 50,000 tons deadweight or over) as it applies to tankers of Class VII of 2,000 tons or over.

(3) Rule 32A of these Rules shall apply to Category A tankers of Class VIII of 100,000 tons deadweight or over and to Category A combination carriers of Class VIII of 50,000 tons deadweight or over as it applies to Category A tankers of Class VII of 100,000 tons deadweight or over and to Category A combination carriers of Class VII of 50,000 tons deadweight or over.

(4) Rule 32B of these Rules shall apply to Category A tankers and Category A combination carriers of Class VIII of 1,000 tons or over respectively, as it applies to Category A tankers and Category A combination carriers of Class VII of 500 tons or over respectively”.

7. After Rule 41 there shall be added the following Rule:

“**41A.** Rule 32B of these Rules shall apply to Category A tankers and Category A combination carriers of Class VIII of 500 tons or over but under 1,000 tons respectively, as it applies to Category A tankers and Category A combination carriers of Class VII of 500 tons or over but under 1,000 tons respectively”.

8. In Rule 55(4) the following sub-paragraph shall be inserted after sub-paragraph (c)—

“(cc) In Category A tankers and in Category A combination carriers of 500 tons or over respectively, all nozzles provided in accordance with these Rules shall be of dual purpose type incorporating a shut-off facility”.

9. After Rule 60, the following Rule shall be inserted:

“Inert Gas System

60A. Every fixed inert gas system fitted in accordance with Rule 32A(2) of these Rules shall comply with the following:

(a) the inert gas system shall be capable of providing to the cargo tanks on demand a gas or mixture of gases, so deficient in oxygen that the atmosphere within a tank may be rendered inert, that is to say, incapable of propagating flame;

- (b) the inert gas system shall eliminate the need for fresh air to enter a tank during normal operations, except when preparing a tank for entry by personnel;
- (c) empty tanks shall be capable of being purged with inert gas to reduce the hydrocarbon content of a tank after discharge of cargo;
- (d) the atmosphere in the cargo tanks shall be capable of being maintained inert during washing of the tanks;
- (e) during cargo discharge, the system shall be such as to ensure that the volume of gas referred to in paragraph (g) below is available. At other times sufficient gas to ensure compliance with paragraph (h) below shall be continuously available;
- (f) suitable means for purging the tanks with fresh air as well as with inert gas shall be provided;
- (g) the inert gas system shall have a capacity of at least 125 per cent of the maximum rated capacity of the cargo pumps;
- (h) under normal running conditions, when tanks are being filled or have been filled with inert gas, a positive pressure shall be capable of being maintained at the tank;
- (i) exhaust gas outlets for purging shall be suitably located in the open air. The arrangement and positioning of such outlets in the cargo tanks deck from which gas emission can occur shall be such as to minimize the possibility of gas being admitted to enclosed spaces containing a source of ignition, or collecting in the vicinity of deck machinery and equipment which may constitute an ignition hazard. In every case, the height of the outlet above the deck and the discharge velocity of the gas shall be considered in conjunction with the distance of any outlet from any deckhouse opening or source of ignition;
- (j) a scrubber shall be provided which will effectively cool the gas and remove solids and sulphur combustion products;
- (k) at least two fans (blowers) shall be provided which together shall be capable of delivering at least the amount of gas stipulated in paragraph (g) above;
- (l) the oxygen content in the inert gas supply shall not normally exceed 5 per cent by volume;
- (m) means shall be provided to prevent the return of hydrocarbon gases or vapours from the tanks to the machinery spaces and uptakes and prevent the development of excessive pressure or vacuum. In addition, an effective water lock shall be installed at the scrubber. Branch piping for inert gas shall be fitted with stop valves or equivalent means of control at every tank. The system shall be so designed as to minimize the risk of ignition from the generation of static electricity;
- (n) instrumentation shall be fitted for continuously indicating and permanently recording, at all times when inert gas is being supplied, the pressure and oxygen content of the gas in the inert gas supply main on the discharge side of the fan. Such instrumentation shall be placed in the cargo control room if fitted and in any case shall be easily accessible to the officer in charge of cargo operations. Portable instruments suitable for measuring oxygen and hydrocarbon gases or vapour and the necessary tank fittings shall additionally be provided for monitoring the tank contents;

- (o) means for indicating the temperature and pressure of the inert gas main shall be provided;
- (p) alarms shall be provided to indicate at least:
 - (i) high oxygen content of gas in the inert gas main;
 - (ii) low gas pressure in the inert gas main;
 - (iii) low pressure in the supply to the deck water seal;
 - (iv) high temperature of gas in the inert gas main; and
 - (v) low water pressure to the scrubber
 and automatic shut-downs of the system shall be arranged on pre-determined limits being reached in respect of (iii), (iv) and (v) of this paragraph;
- (q) an instruction manual covering operational, safety and occupational health requirements shall be provided.”.

10. In Rule 61(2) after the word “tanker” there shall be inserted “(other than an installation fitted in compliance with the requirements of Rule 32A)”.

11. After Rule 61, the following Rule shall be inserted:

“*Deck foam system*

61A. Every fixed deck foam system fitted in accordance with Rule 32A(2) of these Rules shall comply with the following:

- (a) the arrangements for providing foam shall be capable of delivering foam to the entire cargo tank area as well as into any cargo tank, the deck of which has been ruptured;
- (b) the deck foam system shall be capable of simple and rapid operation. The main control station for the system shall be suitably located outside the cargo tank area, adjacent to the accommodation spaces and readily accessible and operable in the event of fire in the areas protected;
- (c) the rate of supply of foam solution shall be not less than the greater of the following:
 - (i) 0.6 litre per minute per square metre of the cargo deck area, where cargo deck area means the maximum breadth of the ship times the total longitudinal extent of the cargo tank spaces, or
 - (ii) 6 litres per minute per square metre of the horizontal sectional area of the single tank having the largest such area.

Sufficient foam concentrate shall be supplied to ensure at least 20 minutes of foam generation when using solution rates stipulated in sub-paragraph (i) or (ii) of this paragraph, whichever is the greater. The foam expansion ratio (being the ratio of the volume of foam produced to the volume of the mixture of water and foam making concentrate supplied) shall not exceed 12 to 1; provided that where systems essentially produce low expansion foam but at an expansion ratio slightly in excess of 12 to 1, the quantity of foam solution available shall be calculated as for 12 to 1 expansion ratio systems;

- (d) foam from the fixed foam system shall be supplied by means of monitors and foam applicators. Each monitor shall be capable of supplying at least 50 per cent of the required foam rate;

- (e) the number and position of monitors shall be such as to comply with paragraph (a) above. The capacity of any monitor in litres per minute of foam solution shall be at least three times the deck area in square metres protected by that monitor, such area being entirely forward of the monitor. The distance from the monitor to the farthest extremity of the protected area forward of that monitor shall not be more than 75 per cent of the monitor throw in still air conditions;
- (f) a monitor and hose connection for a foam applicator shall be situated both port and starboard at the poop front or accommodation spaces facing the cargo deck. Applicators shall be provided for flexibility of action during fire-fighting operations and to cover areas screened from the monitors;
- (g) valves shall be provided in both the foam main and the fire main immediately forward of every monitor position to isolate damaged sections of these mains;
- (h) operation of a deck foam system at its required output shall permit the simultaneous use of the minimum required number of jets of water at the required pressure from the fire main."

12. In Rule 67, at the end, the following paragraph shall be added:

"(3) The Secretary of State may, on such conditions as he thinks fit, exempt any ship, being a ship to which Rule 32A, or 32B applies, or a ship such as is mentioned in Rules 40(3), 40(4), 41A or 55(4)(cc), from any or all of the requirements of those Rules if he is satisfied that the requirement in question is either impracticable or unreasonable in the case of that ship".

S. Clinton Davis,
Parliamentary Under-Secretary of State
for Companies, Aviation and Shipping,
Department of Trade.

20th December 1974.

EXPLANATORY NOTE

(This Note is not part of the Rules.)

These Rules require specified tankers and combination carriers to be equipped with fixed inert gas and fire extinguishing systems complying with specified requirements.

The Rules also set out further requirements for fire hose nozzles carried on board such ships.

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