

Only the Danish version is authentic

Notice D XXVI  
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Technical regulation on the  
construction and equipment, etc. of  
passenger ships on domestic voyages

## CHAPTER XXVI

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## CHAPTER XXVI

### Prevention of air pollution from ships

#### Introduction

*The provisions of this chapter have been drawn up on the basis of annex VI to the International Convention for the Prevention of Pollution from Ships – the 1973 MARPOL Convention – as adopted by the 1997 Protocol at the International Conference for the Parties to MARPOL 73/78 in September 1997.*

*The administration of the rules has been distributed so that the Danish Environmental Protection Agency is responsible for the rules on discharge, while the Danish Maritime Authority is responsible for the technical installations on board the ships, including the records and plans. This distribution of responsibility has been indicated in the list of content with either an “M” for the Danish Environmental Protection Agency or an “S” for the Danish Maritime Authority.*

*In connection with the implementation of the provisions of the MARPOL Convention in Denmark, orders have been issued by the Danish Ministry of the Environment in addition to the technical regulations of the Danish Maritime Authority, which shall be followed as well.*

*In the provisions, the IMO is referred to as the Organisation, MARPOL 73/78 is referred to as the Convention and the Danish Environmental Protection Agency and the Danish Maritime Authority, respectively, are referred to as the Administration.*

*The chapter is issued with similar wording in the regulations Notice B, D, E and F of the DMA, and may consequently be inserted in each of the mentioned regulations.*

#### Part I General

##### Regulation 1 Application

The provisions of this chapter shall apply to all ships, except where expressly provided otherwise in regulations 3, 5, 6, 13, 15, 18 and 19. *The regulations shall not apply to ships registered in Greenland.*

##### Regulation 2 – Definitions

For the purpose of this chapter:

- 1 “Ships constructed” means ships the keels of which are laid or which are at a similar stage of construction.
- 2 A “similar stage of construction” means the stage at which:
  - a) construction identifiable with a specific ship begins; and

- b) assembly of that ship has commenced comprising at least 50 tonnes or one per cent of the estimated mass of all structural material, whichever is less.
- 3 “The Protocol of 1997” means the Protocol of 1997 to amend the International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocol of 1978 relating thereto.
- 4 “NO<sub>x</sub> Technical Code” means the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines adopted by Conference resolution 2, as may be amended by the Organization, provided that such amendments are adopted and brought into force in accordance with the provisions of article 16 of the MARPOL Convention concerning amendment procedures applicable to an appendix to an Annex of the Convention.
- 5 “New installations”, in relation to regulation 12 of this Chapter, means the installation of systems, equipment, including new portable fire-extinguishing units, insulation, or other material on a ship after 19 May 2005, but excludes repair or recharge of previously installed systems, equipment, insulation, or other material, or recharge of portable fire-extinguishing units.
- 6 “Emission” means any release of substances subject to control by this Chapter from ships into the atmosphere or sea.
- 7 “SO<sub>x</sub> emission control area” means an area where the adoption of special mandatory measures for SO<sub>x</sub> emissions from ships is required to prevent, reduce and control air pollution from SO<sub>x</sub> and its attendant adverse impacts on land and sea areas. SO<sub>x</sub> emission control areas shall include those listed in regulation 14 of this Chapter.
- 8 “Ozone-depleting substances” means controlled substances defined in paragraph 4 of article 1 of the Montreal Protocol on Substances that Deplete the Ozone Layer, 1987, listed in Annexes A, B, C or E to the said Protocol in force at the time of application or interpretation of this Chapter.
- “Ozone-depleting substances” that may be found on board ship include, but are not limited to:
- |            |   |
|------------|---|
| Halon 1211 | Bromochlorodifluoromethane  |
| Halon 1301 | Bromotrifluoromethane   |
| Halon 2402 | 1,2-Dibromo-1,1,2,2-tetrafluoroethane (also known as Halon 114B2) |
| CFC-11     | Trichlorofluoromethane  |
| CFC-12     | Dichlorodifluoromethane   |
| CFC-113    | 1,1,2-Trichloro-1,2,2-trifluoroethane                             |
| CFC-114    | 1,2-Dichloro-1,1,2,2-tetrafluoroethane                            |
| CFC-115    | Chloropentafluoroethane   |
- 9 “Sludge oil” means sludge from the fuel or lubricating oil separators, waste lubricating oil from main or auxiliary machinery, or waste oil from bilge water separators, oil filtering equipment or drip trays.

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- 10 “Shipboard incineration” means the incineration of wastes or other matter on board a ship, if such wastes or other matter were generated during the normal operation of that ship.
- 11 “Shipboard incinerator” means a shipboard facility designed for the primary purpose of incineration.
- 12 “Continuous feeding” is defined as the process whereby waste is fed into a combustion chamber without human assistance while the incinerator is in normal operating conditions with the combustion chamber operative temperature between 850°C and 1200°C.
- 13 “Tanker” means an oil tanker as defined in regulation 1(4) of Notice from the Danish Maritime Authority B, chapter XXI, or a chemical tanker as defined in regulation 1(1) of Notice from the Danish Maritime Authority B, chapter XXII.
- 14 “Anniversary date” means the day and the month of each year which will correspond to the date of expiry of the International Air Pollution Prevention Certificate.

### **Regulation 3 – General exceptions**

Regulations of this chapter shall not apply to:

- a) any emission necessary for the purpose of securing the safety of a ship or saving life at sea; or
- b) any emission resulting from damage to a ship or its equipment:
- i) provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the emission for the purpose of preventing or minimizing the emission; and
  - ii) except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result.

### **S Regulation 4 – Equivalents**

- 1 The Administration may allow any fitting, material, appliance or apparatus to be fitted in a ship as an alternative to that required by this chapter if such fitting, material, appliance or apparatus is at least as effective as that required by this chapter.
- 2 The Administration which allows a fitting, material, appliance or apparatus as an alternative to that required by this chapter shall communicate to the Organization for circulation to the Parties to the present Convention particulars thereof, for their information and appropriate action, if any.

**Part II – Survey, certification and means of control**

**S Regulation 5 – Surveys**

- 1 Every ship of 400 gross tonnage and above and every fixed and floating drilling rig and other platforms shall be subject to the surveys specified below:
  - a) An initial survey before the ship is put into service or before the certificate required under regulation 6 is issued for the first time. This survey shall be such as to ensure that the equipment, systems, fittings, arrangements and material fully comply with the applicable requirements of this chapter;
  - b) A renewal survey at intervals specified by the Administration, but not exceeding five years, except where regulation 9(2), 9(5), 9(6) or 9(7) of this chapter is applicable. The renewal survey shall be such as to ensure that the equipment, systems, fittings, arrangements and material fully comply with applicable requirements of this chapter;
  - c) An intermediate survey within three months before or after the second anniversary date or within three months before or after the third anniversary date of the certificate which shall take the place of one of the annual surveys specified in paragraph (1)(d) of this regulation. The intermediate survey shall be such as to ensure that the equipment and arrangements fully comply with the applicable requirements of this chapter and are in good working order. Such intermediate surveys shall be endorsed on the certificate issued under regulation 6 or 7;
  - d) An annual survey within three months before or after each anniversary date of the certificate, including a general inspection of the equipment, systems, fittings, arrangements and material referred to in paragraph (1)(a) of this regulation to ensure that they have been maintained in accordance with paragraph (4) of this regulation and that they remain satisfactory for the service for which the ship is intended. Such annual surveys shall be endorsed on the certificate issued under regulation 6 or 7; and
  - e) An additional survey either general or partial, according to the circumstances, shall be made after a repair resulting from investigations prescribed in paragraph (4) of this regulation, or whenever any important repairs or renewals are made. The survey shall be such as to ensure that the necessary repairs or renewals have been effectively made, that the material and workmanship of such repairs or renewals are in all respects satisfactory and that the ship complies in all respects with the requirements of this chapter.
- 2 In the case of ships of less than 400 gross tonnage, the Administration may establish appropriate measures in order to ensure that the applicable provisions of this chapter are complied with.
- 3

- a) Surveys of ships as regards the enforcement of the provisions of this chapter shall be carried out by officers of the Administration. The Administration may, however, entrust the surveys either to surveyors nominated for the purpose or to organizations recognized by it. Such organizations shall comply with the guidelines adopted by the Organization.<sup>1)</sup>
- b) The survey of engines and equipment for compliance with regulation 13 shall be conducted in accordance with the NO<sub>x</sub> Technical Code.
- c) When a nominated surveyor or recognized organization determines that the condition of the equipment does not correspond substantially with the particulars of the certificate, they shall ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken, the certificate should be withdrawn by the Administration. If the ship is in a port of another Party, the appropriate authorities of the port State shall also be notified immediately. When an officer of the Administration, a nominated surveyor or recognized organization has notified the appropriate authorities of the port State, the Government of the port State concerned shall give such officer, surveyor or organization any necessary assistance to carry out their obligations under this regulation.
- d) In every case, the Administration concerned shall fully guarantee the completeness and efficiency of the survey and shall undertake to ensure the necessary arrangements to satisfy this obligation.

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- a) The equipment shall be maintained to conform with the provisions of this chapter and no changes shall be made in the equipment, systems, fittings, arrangements, or material covered by the survey, without the express approval of the Administration. The direct replacement of such equipment and fittings with equipment and fittings that conform with the provisions of this chapter is permitted.
- b) Whenever an accident occurs to a ship or a defect is discovered, which substantially affects the efficiency or completeness of its equipment covered by this chapter, the master or owner of the ship shall report at the earliest opportunity to the Administration, a nominated surveyor, or recognized organization responsible for issuing the relevant certificate.

**S Regulation 6 – Issue or endorsement of Certificate**

- 1 An International Air Pollution Prevention Certificate shall be issued, after an initial or renewal survey in accordance with the provisions of regulation 5, to:

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<sup>1)</sup> Refer to the Guidelines for the authorization of organizations acting on behalf of the Administration, adopted by the Organization by resolution A.739 (18), and the Specifications on the survey and certification functions of recognized organizations acting on behalf of the Administration, adopted by the Organization by resolution A.789(19).

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- a) any ship of 400 gross tonnage and above engaged in *domestic voyages* or to ports or offshore terminals under the jurisdiction of other Parties; and
  - b) platforms and drilling rigs engaged in *domestic voyages* or to waters under the sovereignty or jurisdiction of other Parties to the Protocol of 1997.
- 2 Ships constructed before 19 May 2005 shall be issued with an International Air Pollution Prevention Certificate in accordance with paragraph (1) of this regulation no later than the first scheduled dry-docking after 19 May 2005, but in no case later than 19 May 2008.
  - 3 Such certificate shall be issued or endorsed either by the Administration or by any person or organization duly authorized by it. In every case, the Administration assumes full responsibility for the certificate.

### **S Regulation 7 – Issue or endorsement of a Certificate by another Government**

- 1 The Government of a Party to the Protocol of 1997 may, at the request of the Administration, cause a ship to be surveyed and, if satisfied that the provisions of this chapter are complied with, shall issue or authorize the issuance of an International Air Pollution Prevention Certificate to the ship, and where appropriate, endorse or authorize the endorsement of that certificate on the ship, in accordance with this chapter.
- 2 A copy of the certificate and a copy of the survey report shall be transmitted as soon as possible to the requesting Administration.
- 3 A certificate so issued shall contain a statement to the effect that it has been issued at the request of the Administration and it shall have the same force and receive the same recognition as a certificate issued under regulation 6.
- 4 No International Air Pollution Prevention Certificate shall be issued to a ship which is entitled to fly the flag of a State which is not a Party to the Protocol of 1997.

### **S Regulation 8 – Form of Certificate**

The International Air Pollution Prevention Certificate shall be drawn up in a form corresponding to the model given in appendix I to this Chapter (*see Annex 1C to Notice B from the DMA*) and shall be at least in English, French or Spanish. If an official language of the issuing country is also used, this shall prevail in case of a dispute or discrepancy.

### **S Regulation 9 – Duration and validity of Certificate**

- 1 An International Air Pollution Prevention Certificate shall be issued for a period specified by the Administration, which shall not exceed five years.
- 2

- a) Notwithstanding the requirements of paragraph (1) of this regulation, when the renewal survey is completed within three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate.
  - b) When the renewal survey is completed after the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of expiry of the existing certificate.
  - c) When the renewal survey is completed more than three months before the expiry date of the existing certificate, the new certificate shall be valid from the date of completion of the renewal survey to a date not exceeding five years from the date of completion of the renewal survey.
- 3 If a certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum period specified in paragraph (1) of this regulation, provided that the surveys referred to in regulations 5(1)(c) and 5(1)(d) of this Chapter applicable when a certificate is issued for a period of five years are carried out as appropriate.
- 4 If a renewal survey has been completed and a new certificate cannot be issued or placed on board the ship before the expiry date of the existing certificate, the person or organization authorized by the Administration may endorse the existing certificate and such a certificate shall be accepted as valid for a further period which shall not exceed five months from the expiry date.
- 5 If a ship, at the time when a certificate expires, is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the certificate but this extension shall be granted only for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed, and then only in cases where it appears proper and reasonable to do so. No certificate shall be extended for a period longer than three months, and a ship to which an extension is granted shall not, on its arrival in the port in which it is to be surveyed, be entitled by virtue of such extension to leave that port without having a new certificate. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding five years from the date of expiry of the existing certificate before the extension was granted.
- 6 A certificate issued to a ship engaged on short voyages which has not been extended under the foregoing provisions of this regulation may be extended by the Administration for a period of grace of up to one month from the date of expiry stated on it. When the renewal survey is completed, the new certificate shall be valid to a date not exceeding five years from the date of expiry of the existing certificate before the extension was granted.
- 7 In special circumstances, as determined by the Administration, a new certificate need not be dated from the date of expiry of the existing certificate as required by paragraph (2)(b), (5) or (6) of this regulation. In these special circumstances, the new certificate

- shall be valid to a date not exceeding five years from the date of completion of the renewal survey.
- 8 If an annual or intermediate survey is completed before the period specified in regulation 5 of this Chapter, then:
- a) the anniversary date shown on the certificate shall be amended by endorsement to a date which shall not be more than three months later than the date on which the survey was completed;
  - b) the subsequent annual or intermediate survey required by regulation 5 of this Chapter shall be completed at the intervals prescribed by that regulation using the new anniversary date;
  - c) the expiry date may remain unchanged provided one or more annual or intermediate surveys, as appropriate, are carried out so that the maximum intervals between the surveys prescribed by regulation 5 of this Chapter are not exceeded.
- 9 A certificate issued under regulation 6 or 7 of this Chapter shall cease to be valid in any of the following cases:
- a) if the relevant surveys are not completed within the periods specified under regulation 5(1) of this Chapter;
  - b) if the certificate is not endorsed in accordance with regulation 5(1)(c) or 5(1)(d) of this Chapter;
  - c) upon transfer of the ship to the flag of another State. A new certificate shall only be issued when the Government issuing the new certificate is fully satisfied that the ship is in compliance with the requirements of regulation 5(4)(a) of this Chapter. In the case of a transfer between Parties, if requested within three months after the transfer has taken place, the Government of the Party whose flag the ship was formerly entitled to fly shall, as soon as possible, transmit to the Administration copies of the certificate carried by the ship before the transfer and, if available, copies of the relevant survey reports.

**S Regulation 10 – Port State control on operational requirements**

- 1 A ship, when in a port or an offshore terminal under the jurisdiction of another Party to the Protocol of 1997, is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Chapter, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of air pollution from ships.
- 2 In the circumstances given in paragraph (1) of this regulation, the Party shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this Chapter.
- 3 Procedures relating to the port State control prescribed in article 5 of the MARPOL Convention shall apply to this regulation.
- 4 Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational

requirements specifically provided for in the MARPOL Convention.

**S/M Regulation 11 – Detection of violations and enforcement**

- 1 Parties to the Convention shall co-operate in the detection of violations and the enforcement of the provisions of this Chapter, using all appropriate and practicable measures of detection and environmental monitoring, adequate procedures for reporting and accumulation of evidence.
- 2 A ship to which the present Chapter applies may, in any port or offshore terminal of a Party, be subject to inspection by officers appointed or authorized by that Party for the purpose of verifying whether the ship has emitted any of the substances covered by this Chapter in violation of the provision of this Chapter. If an inspection indicates a violation of this Chapter, a report shall be forwarded to the Administration for any appropriate action.
- 3 Any Party shall furnish to the Administration evidence, if any, that the ship has emitted any of the substances covered by this Chapter in violation of the provisions of this Chapter. If it is practicable to do so, the competent authority of the former Party shall notify the master of the ship of the alleged violation.
- 4 Upon receiving such evidence, the Administration so informed shall investigate the matter, and may request the other Party to furnish further or better evidence of the alleged contravention. If the Administration is satisfied that sufficient evidence is available to enable proceedings to be brought in respect of the alleged violation, it shall cause such proceedings to be taken in accordance with its law as soon as possible. The Administration shall promptly inform the Party which has reported the alleged violation, as well as the Organization, of the action taken.
- 5 A Party may also inspect a ship to which this Chapter applies when it enters the ports or offshore terminals under its jurisdiction, if a request for an investigation is received from any Party together with sufficient evidence that the ship has emitted any of the substances covered by the Chapter in any place in violation of this Chapter. The report of such investigation shall be sent to the Party requesting it and to the Administration so that the appropriate action may be taken under the Convention.
- 6 The international law concerning the prevention, reduction, and control of pollution of the marine environment from ships, including that law relating to enforcement and safeguards, in force at the time of application or interpretation of this Chapter, applies, *mutatis mutandis*, to the rules and standards set forth in this Chapter.

**Part III – Requirements for control of emissions from ships**

**M Regulation 12 – Ozone-depleting substances**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL. As*

*regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 10, Order no. 508 of 18 June 2005 on prevention of air pollution from ships and platforms and Order no. 243 of 19 April 2002 on certain ozone-depleting substances.*

- 1 Subject to the provisions of regulation 3, any deliberate emissions of ozone-depleting substances shall be prohibited. Deliberate emissions include emissions occurring in the course of maintaining, servicing, repairing or disposing of systems or equipment, except that deliberate emissions do not include minimal releases associated with the recapture or recycling of an ozone-depleting substance. Emissions arising from leaks of an ozone-depleting substance, whether or not the leaks are deliberate, may be regulated by Parties to the Protocol of 1997.
- 2 New installations which contain ozone-depleting substances shall be prohibited on all ships, except that new installations containing hydrochlorofluorocarbons (HCFCs) are permitted until 1 January 2020. *This exception shall not apply to ships registered in Denmark.*<sup>2)</sup>
- 3 The substances referred to in this regulation, and equipment containing such substances, shall be delivered to appropriate reception facilities when removed from ships.

**S Regulation 13 – Nitrogen oxides (NO<sub>x</sub>)**

- 1
  - a) This regulation shall apply to:
    - i) each diesel engine with a power output of more than 130 kW which is installed on a ship constructed on or after 1 January 2000; and
    - ii) each diesel engine with a power output of more than 130 kW which undergoes a major conversion on or after 1 January 2000.
  - b) This regulation shall not apply to:
    - i) emergency diesel engines, engines installed in lifeboats and any device or equipment intended to be used solely in case of emergency; and
    - ii) engines installed on ships solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly, provided that such engines are subject to an alternative NO<sub>x</sub> control measure established by the Administration.
  - c) Notwithstanding the provisions of subparagraph (a) of this paragraph, the Administration may allow exclusion from the application of this regulation to any diesel engine which is installed on a ship constructed, or on a ship which undergoes a major conversion, before 19 May 2005, provided that the ship is solely engaged in voyages to ports or offshore

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<sup>2)</sup> *HCFC is no longer allowed in EU flagged ships, cf. EC Regulation no. 2037/2000 on substances that deplete the ozone layer.*

terminals within the State the flag of which the ship is entitled to fly.

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- a) For the purpose of this regulation, major conversion means a modification of an engine where:
  - i) the engine is replaced by a new engine built on or after 1 January 2000, or
  - ii) any substantial modification, as defined in the NO<sub>x</sub> Technical Code, is made to the engine, or
  - iii) the maximum continuous rating of the engine is increased by more than 10%.
- b) The NO<sub>x</sub> emission resulting from modifications referred to in the sub-paragraph (a) of this paragraph shall be documented in accordance with the NO<sub>x</sub> Technical Code for approval by the Administration.

3

- a) Subject to the provision of regulation 3 of this Chapter, the operation of each diesel engine to which this regulation applies is prohibited, except when the emission of nitrogen oxides (calculated as the total weighted emission of NO<sub>2</sub>) from the engine is within the following limits:
  - i) 17.0 g/kW·h when n is less than 130 rpm
  - ii)  $45.0 \times n^{-0.2}$  g/kW·h when n is 130 or more but less than 2000 rpm
  - iii) 9.8 g/kW·h when n is 2000 rpm or more,  
where n = rated engine speed (crankshaft revolutions per minute).  
When using fuel composed of blends from hydrocarbons derived from petroleum refining, test procedure and measurement methods shall be in accordance with the NO<sub>x</sub> Technical Code, taking into consideration the test cycles and weighting factors outlined in appendix II to this Chapter.
- b) Notwithstanding the provisions of subparagraph (a) of this paragraph, the operation of a diesel engine is permitted when:
  - i) an exhaust gas cleaning system, approved by the Administration in accordance with the NO<sub>x</sub> Technical Code, is applied to the engine to reduce onboard NO<sub>x</sub> emissions at least to the limits specified in subparagraph (a), or
  - ii) any other equivalent method, approved by the Administration taking into account relevant guidelines to be developed by the Organization, is applied to reduce onboard NO<sub>x</sub> emissions at least to the limit specified in sub-paragraph (a) of this paragraph.

**S/M Regulation 14 – Sulphur oxides (SO<sub>x</sub>)**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL insofar as parts marked with an M are concerned. As regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 10, and Order no. 1663 of 14 December 2006 on the sulphur content of solid and liquid fuels.*

**General requirements**

- 1 (M) The sulphur content of any fuel oil used on board ships shall not exceed 4.5% m/m.
- 2 (M) The world-wide average sulphur content of residual fuel oil supplied for use on board ships shall be monitored taking into account guidelines to be developed by the Organization.<sup>3)</sup>

**Requirements within SO<sub>x</sub> emission control areas**

- 3 (M) For the purpose of this regulation, SO<sub>x</sub> emission control areas shall include:
  - a) the Baltic Sea area as defined in regulation 1.11.2 of chapter XXI;
  - b) the North Sea area as defined in regulation 5(1)(f) of chapter XXV; and
  - c) any other sea area, including port areas, designated by the Organization in accordance with criteria and procedures for designation of SO<sub>x</sub> emission control areas with respect to the prevention of air pollution from ships contained in appendix III to this chapter.
- 4 (M) While ships are within SO<sub>x</sub> emission control areas, at least one of the following conditions shall be fulfilled:
  - a) the sulphur content of fuel oil used on board ships in a SO<sub>x</sub> emission control area does not exceed 1.5% m/m;
  - b) an exhaust gas cleaning system, approved by the Administration taking into account guidelines to be developed by the Organization,<sup>4)</sup> is applied to reduce the total emission of sulphur oxides from ships, including both auxiliary and main propulsion engines, to 6.0 g SO<sub>x</sub>/kW·h or less calculated as the total weight of sulphur dioxide emission. Waste streams from the use of such equipment shall not be discharged into enclosed ports, harbours and estuaries unless it can be thoroughly documented by the ship that such waste streams have no adverse impact on the ecosystems of such enclosed ports, harbours and estuaries, based upon criteria communicated by the authorities of the port State to the Organization. The Organization shall circulate the criteria to all Parties to the Convention; or

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<sup>3)</sup> Refer to resolution MEPC.82(43), Guidelines for monitoring the world-wide average sulphur content of residual fuel oils supplied for use on board ships.

<sup>4)</sup> Refer to resolution MEPC.130(53), Guidelines for on-board exhaust gas-So<sub>x</sub> cleaning systems.

- c) any other technological method that is verifiable and enforceable to limit SO<sub>x</sub> emissions to a level equivalent to that described in sub-paragraph (b) is applied. These methods shall be approved by the Administration taking into account guidelines to be developed by the Organization.
- 5 (M) The sulphur content of fuel oil referred to in paragraph (1) and paragraph (4) of this regulation shall be documented by the supplier as required by regulation 18.
- 6 (S) Those ships using separate fuel oils to comply with paragraph (4)(a) of this regulation shall allow sufficient time for the fuel oil service system to be fully flushed of all fuels exceeding 1.5% m/m sulphur content prior to entry into a So<sub>x</sub> emission control area. The volume of low-sulphur fuel oils (less than or equal to 1.5% sulphur content) in each tank as well as the date, time, and position of the ship when any fuel changeover operation is completed, shall be recorded in such log-book as prescribed by the Administration.
- 7 (M) During the first 12 months after 19 May 2005 or after entry into force of an amendment to the Protocol designating a specific SO<sub>x</sub> emission control area under paragraph (3)(b) of this regulation, ships entering a SO<sub>x</sub> emission control area referred to in paragraph (3)(a) of this regulation or designated under paragraph (3)(b) of this regulation are exempted from the requirements in paragraphs (4) and (6) of this regulation and from the requirements of paragraph (5) of this regulation insofar as they relate to paragraph (4)(a) of this regulation.

**M Regulation 15 – Volatile organic compounds**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL. As regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 10.*

- 1 If the emissions of volatile organic compounds (VOCs) from tankers are to be regulated in ports or terminals under the jurisdiction of a Party to the Protocol of 1997, they shall be regulated in accordance with the provisions of this regulation.
- 2 A Party to the Protocol of 1997 which designates ports or terminals under its jurisdiction in which VOC emissions are to be regulated shall submit a notification to the Organization. This notification shall include information on the size of tankers to be controlled, on cargoes requiring vapour emission control systems, and the effective date of such control. The notification shall be submitted at least six months before the effective date.
- 3 The Government of each Party to the Protocol of 1997 which designates ports or terminals at which VOC emissions from tankers are to be regulated shall ensure that vapour emission control systems, approved by that Government taking into account the safety standards developed by the Organization,<sup>5)</sup> are provided

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<sup>5)</sup> Refer to MSC/Circ.585, Standards for vapour emission control systems.

- in ports and terminals designated, and are operated safely and in a manner so as to avoid undue delay to the ship.
- 4 The Organization shall circulate a list of the ports and terminals designated by the Parties to the Protocol of 1997 to other Parties to the Protocol of 1997 and Member States of the Organization for their information.
  - 5 All tankers which are subject to vapour emission control in accordance with the provisions of paragraph (2) of this regulation shall be provided with a vapour collection system approved by the Administration taking into account the safety standards developed by the Organization<sup>6)</sup>, and shall use such system during the loading of such cargoes. Terminals which have installed vapour emission control systems in accordance with this regulation may accept existing tankers which are not fitted with vapour collection systems for a period of three years after the effective date identified in paragraph (2).
  - 6 This regulation shall only apply to gas carriers when the type of loading and containment systems allow safe retention of non-methane VOCs on board, or their safe return ashore.

**S/M Regulation 16 – Shipboard incineration**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL insofar as parts marked with an M are concerned. As regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 10, and Order no. 508 of 18 June 2005 on prevention of air pollution from ships and platforms.*

- 1 (M) Except as provided in paragraph (5), shipboard incineration shall be allowed only in a shipboard incinerator.
- 2 (S)
  - a) Except as provided in sub-paragraph (b) of this paragraph, each incinerator installed on board a ship on or after 1 January 2000 shall meet the requirements contained in appendix IV to this Chapter. Each incinerator shall be approved by the Administration taking into account the standard specifications for shipboard incinerators developed by the Organization.<sup>7)</sup>
  - b) The Administration may allow exclusion from the application of sub-paragraph (a) of this paragraph to any incinerator which is installed on board a ship before 19 May 2005, provided that the ship is solely engaged in voyages within waters subject to the sovereignty or jurisdiction of the State the flag of which the ship is entitled to fly.
- 3 (M) Nothing in this regulation affects the prohibition in, or other requirements of, the Convention on the Prevention of Marine

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<sup>6)</sup> Refer to MSC/Circ.585, Standards for vapour emission control systems.

<sup>7)</sup> Refer to resolution MEPC.76(40), Standard specification for shipboard incinerators, and resolution MEPC.93(45), Amendments to the standard specification for shipboard incinerators.

Pollution by Dumping of Wastes and Other Matter, 1972, as amended, and the 1996 Protocol thereto.

- 4 (M) Shipboard incineration of the following substances shall be prohibited:
  - a) Annex I, II and III cargo residues of the MARPOL Convention and related contaminated packing materials;
  - b) polychlorinated biphenyls (PCBs);
  - c) garbage, as defined in Annex V of the MARPOL Convention, containing more than traces of heavy metals; and
  - d) refined petroleum products containing halogen compounds.
- 5 (M) Shipboard incineration of sewage sludge and sludge oil generated during the normal operation of a ship may also take place in the main or auxiliary power plant or boilers, but in those cases, shall not take place inside ports, harbours and estuaries.
- 6 (M) Shipboard incineration of polyvinyl chlorides (PVCs) shall be prohibited, except in shipboard incinerators for which IMO Type Approval Certificates have been issued.
- 7 (S) All ships with incinerators subject to this regulation shall possess a manufacturer's operating manual which shall specify how to operate the incinerator within the limits described in paragraph (2) of appendix IV to this Chapter.
- 8 (S) Personnel responsible for operation of any incinerator shall be trained and capable of implementing the guidance provided in the manufacturer's operating manual.
- 9 (S) Monitoring of combustion flue gas outlet temperature shall be required at all times and waste shall not be fed into a continuous-feed shipboard incinerator when the temperature is below the minimum allowed temperature of 850°C. For batch-loaded shipboard incinerators, the unit shall be designed so that the temperature in the combustion chamber shall reach 600°C within five minutes after start-up.
- 10 (S) Nothing in this regulation precludes the development, installation and operation of alternative design shipboard thermal waste treatment devices that meet or exceed the requirements of this regulation.

**(M) Regulation 17 – Reception facilities**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL. As regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 8, and Order no. 1632 of 13 December 2006 on reception facilities for garbage from ships, on ships' discharge of garbage and the garbage plans of ports.*

- 1 The Government of each Party to the Protocol of 1997 undertakes to ensure the provision of facilities adequate to meet the:

- a) needs of ships using its repair ports for the reception of ozone-depleting substances and equipment containing such substances when removed from ships;
  - b) needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an approved exhaust gas cleaning system when discharge into the marine environment of these residues is not permitted under regulation 14 of this Chapter;  
  
without causing undue delay to ships, and
  - c) needs in ship breaking facilities for the reception of ozone depleting substances and equipment containing such substances when removed from ships.
- 2 Each Party to the Protocol of 1997 shall notify the Organization for transmission to the Members of the Organization of all cases where the facilities provided under this regulation are unavailable or alleged to be inadequate.

**S/M Regulation 18 – Fuel oil quality**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL insofar as parts marked with an M are concerned. As regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 10, and Order no. 1663 of 14 December 2006 on the sulphur content of solid and liquid fuels.*

- 1 (M) Fuel oil for combustion purposes delivered to and used on board ships to which this Chapter applies shall meet the following requirements:
- a) except as provided in sub-paragraph (b):
    - i) the fuel oil shall be blends of hydrocarbons derived from petroleum refining. This shall not preclude the incorporation of small amounts of additives intended to improve some aspects of performance;
    - ii) the fuel oil shall be free from inorganic acid;
    - iii) the fuel oil shall not include any added substance or chemical waste which either:
      - (1) jeopardizes the safety of ships or adversely affects the performance of the machinery, or
      - (2) is harmful to personnel, or
      - (3) contributes overall to additional air pollution; and
  - b) fuel oil for combustion purposes derived by methods other than petroleum refining shall not:
    - i) exceed the sulphur content set forth in regulation 14 of this Chapter;
    - ii) cause an engine to exceed the NO<sub>x</sub> emission limits set forth in regulation 13(3)(a) of this Chapter;

- iii) contain inorganic acid; and
- iv)
  - (1) jeopardize the safety of ships or adversely affect the performance of the machinery, or
  - (2) be harmful to personnel, or
  - (3) contribute overall to additional air pollution.
- 2 (M) This regulation does not apply to coal in its solid form or nuclear fuels.
- 3 (M) For each ship subject to regulations 5 and 6 of this Chapter, details of fuel oil for combustion purposes delivered to and used on board shall be recorded by means of a bunker delivery note which shall contain at least the information specified in appendix V to this Chapter.
- 4 (S) The bunker delivery note shall be kept on board the ship in such a place as to be readily available for inspection at all reasonable times. It shall be retained for a period of three years after the fuel oil has been delivered on board.
- 5 (S)
  - a) The competent authority<sup>8)</sup> of the Government of a Party to the Protocol of 1997 may inspect the bunker delivery notes on board any ship to which this Chapter applies while the ship is in its port or offshore terminal, may make a copy of each delivery note, and may require the master or person in charge of the ship to certify that each copy is a true copy of such bunker delivery note. The competent authority may also verify the contents of each note through consultations with the port where the note was issued.
  - b) The inspection of the bunker delivery notes and the taking of certified copies by the competent authority under this paragraph shall be performed as expeditiously as possible without causing the ship to be unduly delayed.
- 6 (M) The bunker delivery note shall be accompanied by a representative sample of the fuel oil delivered, taking into account guidelines to be developed by the Organization<sup>9)</sup>. The sample is to be sealed and signed by the supplier's representative and the master or officer in charge of the bunker operation on completion of bunkering operations and retained under the ship's control until the fuel oil is substantially consumed, but in any case for a period of not less than 12 months from the time of delivery.
- 7 (M) Parties to the Protocol of 1997 undertake to ensure that appropriate authorities designated by them:
  - a) maintain a register of local suppliers of fuel oil;
  - b) require local suppliers to provide the bunker delivery note and sample as required by this regulation, certified by the fuel oil supplier that the fuel oil meets the requirements of regulations 14 and 18 of this Chapter;

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<sup>8)</sup> Refer to resolution A.787(19), Procedures for port State control, as amended by A.882(21).

<sup>9)</sup> Refer to resolution MEPC.96(47), 'Guidelines for the sampling of fuels'.

- c) require local suppliers to retain a copy of the bunker delivery note for at least three years for inspection and verification by the port State as necessary;
  - d) take action as appropriate against fuel oil suppliers that have been found to deliver fuel oil that does not comply with that stated on the bunker delivery note;
  - e) inform the Administration of any ship receiving fuel oil found to be non-compliant with the requirements of regulations 14 or 18 of this Chapter; and
  - f) inform the Organization for transmission to Parties to the Protocol of 1997 of all cases where fuel oil suppliers have failed to meet the requirements specified in regulations 14 or 18 of this Chapter.
- 8 (M) In connection with port State inspections carried out by Parties to the Protocol of 1997, the Parties further undertake to:
- a) inform the Party or non-Party under whose jurisdiction a bunker delivery note was issued of cases of delivery of non-compliant fuel oil, giving all relevant information; and
  - b) ensure that remedial action as appropriate is taken to bring non-compliant fuel oil discovered into compliance.

**M Regulation 19 – Requirements for platforms and drilling rigs**

*Attention is drawn to the fact that the following regulation is only the Danish Maritime Authority's translation of MARPOL. As regards Danish legislation, reference is made to Consolidated Act no. 925 of 28 September 2005 on protection of the marine environment, chapter 10, and Order no. 508 of 18 June 2005 on prevention of air pollution from ships and platforms.*

- 1 Subject to the provisions of paragraphs (2) and (3) of this regulation, fixed and floating platforms and drilling rigs shall comply with the requirements of this Chapter.
- 2 Emissions directly arising from the exploration, exploitation and associated offshore processing of sea-bed mineral resources are, consistent with article 2(3)(b)(ii) of the MARPOL Convention, exempt from the provisions of this Chapter. Such emissions include the following:
- a) emissions resulting from the incineration of substances that are solely and directly the result of exploration, exploitation and associated offshore processing of sea-bed mineral resources, including but not limited to the flaring of hydrocarbons and the burning of cuttings, muds, and/or stimulation fluids during well completion and testing operations, and flaring arising from upset conditions;
  - b) the release of gases and volatile compounds entrained in drilling fluids and cuttings;
  - c) emissions associated solely and directly with the treatment, handling, or storage of sea-bed minerals; and

- d) emissions from diesel engines that are solely dedicated to the exploration, exploitation and associated offshore processing of sea-bed mineral resources.
- 3 The requirements of regulation 18 of this Chapter shall not apply to the use of hydrocarbons which are produced and subsequently used on site as fuel, when approved by the Administration. Please refer to the above mentioned Order no. 508 of 18 June 2005.

### **Appendix 1**

#### **Form of IAPP Certificate (Regulation 8)**

*Reference is made to Appendix 1C of Notice B.*

**Appendix II**

**Test cycles and weighting factors (Regulation 13)**

The following test cycles and weighting factors should be applied for verification of compliance of marine diesel engines with the NO<sub>x</sub> limits in accordance with regulation 13 of this chapter using the test procedure and calculation method as specified in the NO<sub>x</sub> Technical Code.

1. For constant-speed marine engines for ship main propulsion, including diesel-electric drive, test cycle E2 should be applied.
2. For variable-pitch propeller sets test cycle E2 should be applied.
3. For propeller-law-operated main and propeller-law-operated auxiliary engines the test cycle E3 should be applied.
4. For constant-speed auxiliary engines test cycle D2 should be applied.
5. For variable-speed, variable-load auxiliary engines, not included above, test cycle C1 should be applied.

Test cycle for “constant-speed main propulsion application” (including diesel electric drive or variable-pitch propeller installations)

Test cycle type E2	Speed	100%	100%	100%	100%
	Power	100%	75%	50%	25%
	Weighting factor	0.2	0.5	0.15	0.15

Test cycle for “propeller-law-operated main and propeller-law-operated auxiliary engine” application

Test cycle type E3	Speed	100%	91%	80%	63%
	Power	100%	75%	50%	25%
	Weighting factor	0.2	0.5	0.15	0.15

Test cycle for “constant-speed auxiliary engine” application

Test cycle type D2	Speed	100%	100%	100%	100%	100%
	Power	100%	75%	50%	25%	10%
	Weighting factor	0.05	0.25	0.3	0.3	0.1

Test cycle for “variable-speed and -load auxiliary engine” application

Test cycle type C1	Speed	Rated				Intermediate			Idle
	Torque	100%	75%	50%	10%	100%	75%	50%	0%
	Weighting factor	0.15	0.15%	0.15%	0.1	0.1	0.1	0.1	0.15

Appendix III

Criteria and procedures for designation of SO<sub>x</sub> emission control areas

(Regulation 14)

*Reference is made to Appendix III of MARPOL, Annex VI.*

Appendix IV

Type approval and operating limits for shipboard incinerators (Regulation 16)

1. Shipboard incinerators described in regulation 16(2) shall possess an IMO type approval certificate for each incinerator. In order to obtain such certificate, the incinerator shall be designed and built to an approved standard as described in regulation 16(2). Each model shall be subject to a specified type approval test operation at the factory or an approved test facility, and under the responsibility of the Administration, using the following standard fuel/waste specification for the type approval test for determining whether the incinerator operates within the limits specified in paragraph (2) of this appendix:

Sludge oil consisting of:                    75% sludge oil from HFO;  
    5% waste lubricating oil; and  
    20% emulsified water

Solid waste consisting of:                    50% food waste  
    50% rubbish containing  
    approx. 30% paper,  
    approx. 40% card-board,  
    approx. 10% rags,  
    approx. 20% plastic  
    The mixture will have up to 50% moisture and 7% incombustible solids.

2. Incinerators described in regulation 16(2) shall operate within the following limits:

O<sub>2</sub> in combustion chamber:                6-12%  
CO in flue gas maximum                200 mg/MJ  
average:

Soot number maximum or                Bacharach 3 or Ringelman 1  
average:                                        (20% opacity)  
    (A higher soot number is acceptable only during very short periods such as starting up)

Unburned components in ash            Maximum 10% by weight  
residues:

Combustion chamber flue gas            850-1200°C  
outlet temperature range:

Appendix V

Information to be included in the bunker delivery note (Regulation 18(3))

Name and IMO number of receiving ship

Port

Date of commencement of delivery

Name, address, and telephone number of marine fuel oil supplier

Product name(s)

Quantity (metric tons)

Density<sup>10)</sup> at 15°C (kg/m<sup>3</sup>)

Sulphur content<sup>11)</sup> (% m/m)

A declaration signed and certified by the fuel oil supplier's representative that the fuel oil supplied is in conformity with regulation 14(1) or (4)(a) and regulation 18(1) of this chapter.

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<sup>10)</sup> Fuel oil should be tested in accordance with ISO 3675.

<sup>11)</sup> Fuel oil should be tested in accordance with ISO 8754.