

Subject

Summary of the Outcomes of MSC 106

# **ClassNK**

## ***Technical Information***

No. TEC-1287

Date 20 February 2023

To whom it may concern

The 106th session of the Maritime Safety Committee (MSC 106) was held from 2 to 11 November 2022. Since the minutes, resolutions and circulars of the meeting were recently released from the IMO, a summary of the decisions taken at MSC 106 is provided as below for your information.

1. Adopted mandatory requirements

Mandatory requirements were adopted at MSC 106 as follows:

- (1) Amendments to SOLAS Chapter II-2 for safety measures on use of fuel oil (See attachment 1) Amendments to SOLAS Chapter II-2 to require providing with a declaration signed and certified by the oil fuel supplier's representative, that the oil fuel to be supplied is in conformity with paragraph SOLAS II-2 Reg.4.2.1 etc., and require that a bunker delivery note shall contain the flashpoint information, were adopted.

Applied: on or after 1 January 2026.

- (2) The International Code of Safety for Ships Carrying Industrial Personnel (IP Code) (See attachment 2, 7)

Newly developed IP Code and new SOLAS Chapter XV to make the Code mandatory were adopted. The Code applies to cargo ships and high-speed cargo craft, of 500 gross tonnage and upwards which carry more than 12 industrial personnel.

Applied: on or after 1 July 2024.

- (3) Amendments to IGC Code (See attachment 3)

Amendments to add high manganese austenitic steel in Table 6.3 of IGC Code on plates, sections and forgings for cargo tanks, secondary barriers and process pressure vessels for design temperatures below -55°C and down to -165°C, were adopted.

Applied: on or after 1 January 2026.

(To be continued)

NOTES:

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(4) Amendments to IGF Code (See attachment 4)

Amendments to add high manganese austenitic steel in Table 7.3 of IGF Code on plates, sections and forgings for fuel tanks, secondary barriers and process pressure vessels for design temperatures below -55°C and down to -165°C, were adopted.

Applied: on or after 1 January 2026.

(5) Amendments to 2011 ESP Code (See attachment 5)

Amendments to 2011 ESP Code which mainly contain the following items were adopted.

1. The coating condition criteria of ballast tanks, excluding double-bottom tanks, of bulk carriers were strengthened from "POOR" to "less than GOOD", which are used for the tank examination at annual intervals.
2. For void spaces bounding cargo holds of double-side skin bulk carriers exceeding 20 years of age and of 150m in length and upwards, it is required that the spaces in question should be examined at annual intervals where a hard protective coating is found to be in POOR condition.
3. It was clarified that oil tankers carrying oil in independent tanks which did not form part of the ship's hull were outside the scope of the ESP Code.
4. Timing of tank pressure testing for oil tankers at renewal survey was clarified.

Applied: on or after 1 July 2024.

(6) Amendments to IBC Code (See attachment 6)

Amendments to IBC Code were adopted, in order to allow submersion of some hinged watertight doors considered for stability criteria at any stage of flooding, as well as the amendments to IGC Code which have been adopted at MSC 104.

Applied: on or after 1 July 2024.

2. Approved mandatory requirements

The following mandatory requirements were approved at this session, and are expected to be adopted at MSC 107 held in June 2023. These amendments are also expected to enter into force on 1 January 2026 in accordance with ad hoc midterm amendment cycle for SOLAS.

(1) Amendments to LSA Code (See attachment 8)

Amendments to LSA Code to add new ventilation requirements applied to totally enclosed lifeboats, in conjunction with the amendments to the *recommendation on testing of life-saving appliances* (resolution MSC.81(70)) which newly stipulates the relevant operation tests, were approved.

On the other hand, any compelling need for ventilation requirements for partially enclosed lifeboats and liferafts would be continuously considered at the next SSE Sub-Committee (SSE 9).

(To be continued)

- (2) Amendments to SOLAS Chapter II-2, etc. on the prohibition of perfluorooctane sulfonic acid (PFOS) (See attachment 9, 10, 11)  
Amendments to SOLAS Chapter II-2, and the 1994 and 2000 HSC Codes to prohibit the use of fire-fighting foams containing PFOS, were approved.  
On the other hand, the prohibition of other fire-fighting foam types in addition to PFOS, such as PFOA, would be considered at the next SSE Sub-Committee (SSE 9).
  - (3) Amendments to SOLAS Chapter V and format of SE Certificate (See attachment 9, 12, 13)  
Amendments to SOLAS Chapter V to require carriage of electronic inclinometers on container ships and bulk carriers of 3,000 gross tonnage and upwards were approved. Accordingly, format of SE Certificate was also amended to add new entry of "Container ship" in Particulars of ship.
3. Approved unified interpretations, etc.
- The following unified interpretations (UIs), guidelines, guidance and etc. were approved during MSC 106.
- (1) Unified interpretation of SOLAS Chapter II-2 (See attachment 14)  
The following unified interpretations of SOLAS Chapter II-2 were approved;
    - Unified interpretation of 9.7.3.1.2 on fire insulation of ducts passing through "A" class divisions to clarify extent of the required fire insulation; and
    - Unified interpretation of 9.7.3.2 on clearance of the duct penetration of the "B" class bulkheads was approved to clarify that no clearance should be allowed between the duct and the division.
  - (2) Amendments to the *Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk* (MSC.1/Circ.1315) (See attachment 15)  
Amendments to the *Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk* (MSC.1/Circ.1315) were approved. The amendments specify the details of fire tests for dry chemical powder. In addition, the definition of dry powder is revised and the statement which is related to main components of dry powder in the definition is deleted. The amendments would be applied to the systems installed on or after 1 July 2023.

(To be continued)

- (3) Amendments to MSC.1/Circ.1374 on *Information on prohibiting the use of asbestos on board ships* (See attachment 16)

According to MSC.1/Circ.1374 on *Information on prohibiting the use of asbestos on board ships*, when asbestos containing material (ACM) is found to be installed on board ships in contravention of SOLAS Chapter II-1/3-5, it should be removed within three years. In order to make the provisions more practicable, amendments to MSC.1/Circ.1374 were approved to allow ACMs such as gaskets to be removed at an appropriate timing beyond three years at discretion of an Administration subject to the implementation of risk-based maintenance and monitoring.

4. Consideration of requirements for Maritime Autonomous Surface Ships (MASS)

Taking into account recent investigation of automation surrounding a ship, it has been discussed at MSC on conventional requirements of safety and environmental protection relating to MASS.

At the previous session, the road map for developing goal-based MASS Code was endorsed, in which non-mandatory MASS guidelines will be developed in 2024 and mandatory goal-based MASS Code will be developed targeting entry into force in 2028.

At this session, development of non-mandatory MASS guidelines mainly on goal and functional requirements has been initiated, based on the report by the intersessional correspondence group and the meeting outcome arranged by the related working group.

(To be continued)

For any questions about the above, please contact:

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Attachment:

1. RESOLUTION MSC.520(106)
2. RESOLUTION MSC.521(106)
3. RESOLUTION MSC.523(106)
4. RESOLUTION MSC.524(106)
5. RESOLUTION MSC.525(106)
6. RESOLUTION MSC.526(106)
7. RESOLUTION MSC.527(106)
8. DRAFT AMENDMENTS TO THE LSA CODE
9. DRAFT AMENDMENTS TO SOLAS CHAPTERS II-1, II-2, V AND XIV AND THE APPENDIX (CERTIFICATES)
10. DRAFT AMENDMENTS TO THE 1994 HSC CODE
11. DRAFT AMENDMENTS TO THE 2000 HSC CODE
12. DRAFT AMENDMENTS TO THE 1978 SOLAS PROTOCOL
13. DRAFT AMENDMENTS TO THE 1988 SOLAS PROTOCOL
14. MSC.1/Circ.1655
15. MSC.1/Circ.1315/Rev.1
16. MSC.1/Circ.1374/Rev.1

**ANNEX 2**

**RESOLUTION MSC.520(106)  
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE  
SAFETY OF LIFE AT SEA, 1974 (CHAPTER II-2)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I,

HAVING CONSIDERED, at its 106th session, amendments to the Convention proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified the Secretary-General of their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE  
SAFETY OF LIFE AT SEA, 1974**

**CHAPTER II-2  
CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

**Part A  
General**

**Regulation 1 – Application**

1 Paragraph 2.5 is replaced by the following:

"2.5 Ships constructed before 1 July 2012 shall also comply with regulation 10.10.1.2, as adopted by resolution MSC.338(91) and regulations 4.2.1.6 to 4.2.1.8, as amended by resolution MSC.520(106)."

**Regulation 3 – Definitions**

2 The following new paragraphs are added after existing paragraph 58, together with the associated footnotes:

"59 *Confirmed case (flashpoint)* is when a representative sample analysed in accordance with standards acceptable to the Organization\* by an accredited laboratory\*\* reports the flashpoint as measured to be below 60°C.

\* ISO 2719:2016- Determination of flash point – Pensky-Martens closed cup method, Procedure A (for Distillate Fuels) or Procedure B (for Residual Fuels).

\*\* The laboratory is to be accredited to ISO/IEC 17025:2017 or an equivalent standard for the performance of the given flash point test ISO 2719:2016.

60 *Representative sample* is a product specimen having its physical and chemical characteristics identical to the average characteristics of the total volume being sampled.

61 *Oil fuel* is defined in regulation 1 of Annex 1 of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto."

**Part B  
Prevention of fire and explosion**

**Regulation 4 - Probability of ignition**

3 At the end of paragraph 2.1.4, the word "and" is deleted and at the end of paragraph 2.1.5, "." is replaced by ";".

4 The following new sub-paragraphs are added after existing paragraph 2.1.5, together with the associated footnotes:

- "6 ships carrying oil fuel shall prior to bunkering be provided with a declaration signed and certified by the oil fuel supplier's representative, that the oil fuel to be supplied is in conformity with paragraph 2.1 of this regulation, and the test method used for determining the flashpoint. A bunker delivery note for the oil fuel delivered to the ship shall contain either the flashpoint specified in accordance with standards acceptable to the Organization,\* or a statement that the flashpoint has been measured at or above 70°C;\*\*

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\* ISO 2719:2016, Determination of flash point – Pensky-Martens closed cup method, Procedure A (for Distillate Fuels) or Procedure B (for Residual Fuels).

\*\* This information may be included in the bunker delivery note according to MARPOL Annex VI/18.

- .7 Contracting Governments undertake to ensure that appropriate authorities designated by them inform the Organization, for transmission to Contracting Governments and Member States thereof, of all confirmed cases (flashpoint) where oil fuel suppliers have failed to meet the requirements specified in paragraph 2.1 of this regulation; and
- .8 Contracting Governments undertake to ensure that appropriate authorities designated by them take action, as appropriate, against oil fuel suppliers that have been found to deliver oil fuel that does not comply with paragraph 2.1 of this regulation."

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**ANNEX 3**

**RESOLUTION MSC.521(106)  
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE  
SAFETY OF LIFE AT SEA, 1974 (CHAPTER XV)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO article VIII(b) of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"), concerning the amendment procedure applicable to the annex to the Convention, other than to the provisions of chapter I,

HAVING CONSIDERED, at its 106th session, amendments to the Convention proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the Convention the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2024, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified the Secretary-General of their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2024 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE  
SAFETY OF LIFE AT SEA, 1974**

**CHAPTER XV  
SAFETY MEASURES FOR SHIPS CARRYING INDUSTRIAL PERSONNEL**

The following new chapter XV (Safety measures for ships carrying industrial personnel) is added after existing chapter XIV (Safety measures for ships operating in polar waters):

**"CHAPTER XV  
Safety measures for ships carrying industrial personnel**

**Regulation 1 - Definitions**

For the purpose of this chapter:

1 *Industrial personnel (IP)* means all persons transported or accommodated on board for the purpose of offshore industrial activities performed on board other ships and/or offshore facilities.

2 *IP Code* means the International Code of Safety for Ships Carrying Industrial personnel, as adopted by the Maritime Safety Committee by resolution MSC.527(106), as may be amended, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I.

3 *Offshore industrial activities* mean the construction, maintenance, decommissioning, operation or servicing of offshore facilities related, but not limited to, exploration and exploitation of resources by the renewable or hydrocarbon energy sectors, aquaculture, ocean mining or similar activities.

4 *HSC Code* means the International Code of Safety for High-Speed Craft, 2000, adopted by the Maritime Safety Committee by resolution MSC.97(73), as may be amended, provided that such amendments are adopted, brought into force and take effect in accordance with the provisions of article VIII of the present Convention concerning the amendment procedures applicable to the annex other than chapter I.

**Regulation 2 - General**

1 Wherever in the IP Code a reference is made to passenger ship requirements, the corresponding cargo ship requirements are deemed to be complied with.

2 For the purpose of this chapter, industrial personnel shall not be treated or considered as passengers.

3 Wherever in this chapter, or in the IP Code, the number of industrial personnel appears as a parameter, it shall be the aggregate number of industrial personnel, special personnel<sup>1</sup> and passengers carried on board, where the number of passengers shall not exceed 12.

4 Notwithstanding the provisions of regulation 2.1 above, for high-speed craft to which chapter X applies and notwithstanding the provisions of chapters 2 to 12 and 18 of the HSC Code, a ship certified in accordance with the requirements of this chapter and the IP Code shall be deemed to have complied with the requirements of chapters 2 to 12 and 18 of the HSC Code.

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<sup>1</sup> Refer to the Code of Safety for Special Purpose Ships, 2008.

### **Regulation 3**

#### *Application*

1 Unless expressly provided otherwise, this chapter applies to cargo ships and high-speed cargo craft, of 500 gross tonnage and upwards, constructed on or after 1 July 2024 which carry more than 12 industrial personnel.

2 Cargo ships constructed before 1 July 2024, authorized by the Administration to carry more than 12 industrial personnel in accordance with the recommendations developed by the Organization, shall comply with regulations III/1, III/2 (except for paragraph 2.1.7), IV/7 and IV/8 of the IP Code by the first intermediate or renewal survey, whichever occurs first, after 1 July 2024.

3 High-speed cargo craft constructed before 1 July 2024, authorized by the Administration to carry more than 12 industrial personnel in accordance with the recommendations developed by the Organization,<sup>2</sup> shall comply with regulations III/1, III/2 (except for paragraph 2.1.7), V/7 and V/8 of the IP Code by the third periodical or first renewal survey, whichever occurs first, after 1 July 2024.

4 Cargo ships and high-speed cargo craft, irrespective of date of construction, which prior to the 1 July 2024 have not been authorized by the Administration to carry more than 12 industrial personnel based on the recommendations developed by the Organization,<sup>2</sup> shall comply and be certified in accordance with this chapter and the IP Code prior to the carriage of more than 12 industrial personnel on board.

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<sup>2</sup> Refer to the *Interim recommendations on the safe carriage of more than 12 industrial personnel on board vessels engaged on international voyages* (resolution MSC.418(97)).

5 For the purpose of this chapter, the expression *constructed* refers to the description given in regulations:

- .1 II-2/1.1.2.1, as complemented by regulation II-2/1.1.3 for cargo ships; and
- .2 X/1.4, as complemented by regulation X/1.5 for high-speed cargo craft.

### **Regulation 4 - Application of other chapters**

1 The regulations for cargo ships contained in the other chapters of the present Convention apply to ships described in regulation 3.1 above, except as modified by this chapter.

2 Notwithstanding the provisions of regulation 4.1 above, for high-speed craft to which the HSC Code applies, the regulations for cargo craft in that Code apply except as modified by this chapter.

### **Regulation 5 - Requirements**

- 1 Ships and high-speed craft to which this chapter applies shall:
  - .1 be certified as a cargo ship or high-speed cargo craft in accordance with either chapter I or chapter VIII or chapter X, as applicable;
  - .2 meet the requirements of the IP Code; and
  - .3 in addition to the requirements of regulations I/8, I/9 and I/10 or of sections 1.5 to 1.9 of the HSC Code, as applicable, be surveyed and certified, as provided for in the IP Code.
  
- 2 Ships and high-speed craft to which this chapter applies, holding a certificate issued pursuant to the provisions of regulation 5.1 above, shall be subject to the control established in regulation I/19 or XI-1/4, and in 1.10 of the HSC Code, as applicable. For this purpose, such certificates shall be treated as a certificate issued under regulation I/12 or I/13."

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**ANNEX 5**

**RESOLUTION MSC.523(106)  
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND  
EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (IGC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.5(48), by which it adopted the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk ("the IGC Code"), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

NOTING ALSO article VIII(b) and regulation VII/11.1 of the Convention concerning the procedure for amending the IGC Code,

HAVING CONSIDERED, at its 106th session, amendments to the IGC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IGC Code the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (IGC CODE)**

**CHAPTER 6  
MATERIALS OF CONSTRUCTION AND QUALITY CONTROL**

**6.4 Requirements for metallic materials**

**6.4.1 General requirements for metallic materials**

Table 6.3 is replaced in its entirety by the following:

**"Table 6.3**

<b>PLATES, SECTIONS AND FORGINGS <sup>See note 1</sup> FOR CARGO TANKS, SECONDARY BARRIERS AND PROCESS PRESSURE VESSELS FOR DESIGN TEMPERATURES BELOW -55°C AND DOWN TO -165°C <sup>See note 2</sup> Maximum thickness 25 mm <sup>See notes 3 and 4</sup></b>		
Minimum design temperature (°C)	Chemical composition See note 5 and heat treatment	Impact test temperature (°C)
-60	1.5% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP <sup>See note 6</sup>	-65
-65	2.25% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP <sup>See notes 6 and 7</sup>	-70
-90	3.5% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP. <sup>See notes 6 and 7</sup>	-95
-105	5% nickel steel – normalized or normalized and tempered or quenched and tempered <sup>See notes 6, 7 and 8</sup>	-110
-165	9% nickel steel – double normalized and tempered or quenched and tempered <sup>See note 6</sup>	-196
-165	Austenitic steels, such as types 304, 304L, 316, 316L, 321 and 347 solution treated <sup>See note 9</sup>	-196
-165	High manganese austenitic steel – hot rolling and controlled cooling <sup>See notes 10 and 11</sup>	-196
-165	Aluminium alloys, such as type 5083 annealed	Not required
-165	Austenitic Fe-Ni alloy (36% nickel). Heat treatment as agreed	Not required
<b>TENSILE AND TOUGHNESS (IMPACT) TEST REQUIREMENTS</b>		
<b>Sampling frequency</b>		
◆ Plates	Each "piece" to be tested	
◆ Sections and forgings	Each "batch" to be tested	
<b>Toughness (Charpy V-notch test)</b>		
◆ Plates	Transverse test pieces. Minimum average energy value (KV) 27J	
◆ Sections and forgings	Longitudinal test pieces. Minimum average energy (KV) 41J	

**Notes**

- 1 The impact test required for forgings used in critical applications shall be subject to special consideration by the Administration.
- 2 The requirements for design temperatures below -165°C shall be specially agreed with the Administration.
- 3 For materials 1.5% Ni, 2.25% Ni, 3.5% Ni and 5% Ni, with thicknesses greater than 25 mm, the impact tests shall be conducted as follows:

Material thickness (mm)	Test temperature (°C)
25 < t ≤ 30	10°C below design temperature
30 < t ≤ 35	15°C below design temperature
35 < t ≤ 40	20°C below design temperature

The energy value shall be in accordance with the table for the applicable type of test specimen. For material thickness of more than 40 mm, the Charpy V-notch values shall be specially considered.

- 4 For 9% Ni steels, austenitic stainless steels, high manganese austenitic steels and aluminium alloys, thickness greater than 25 mm may be used.
- 5 The chemical composition limits shall be in accordance with recognized standards.
- 6 TMCP nickel steels will be subject to acceptance by the Administration.
- 7 A lower minimum design temperature for quenched and tempered steels may be specially agreed with the Administration.
- 8 A specially heat-treated 5% nickel steel, for example triple heat-treated 5% nickel steel, may be used down to -165°C, provided that the impact tests are carried out at -196°C.
- 9 The impact test may be omitted, subject to agreement with the Administration.
- 10 The use of the material shall be subject to the required conditions specified by the Administration based on the Guidelines developed by the Organization.\*
- 11 The impact test may not be omitted for high manganese austenitic steel."

\* Refer to the *Revised guidelines on the application of high manganese austenitic steel for cryogenic service* (MSC.1/Circ.1599/Rev.2).

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**ANNEX 6**

**RESOLUTION MSC.524(106)  
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR SHIPS USING GASES OR OTHER LOW-FLASHPOINT FUELS (IGF CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.391(95), by which it adopted the International Code of Safety for Ships using Gases or other Low-flashpoint Fuels (IGF Code), which has become mandatory under chapters II-1 and II-2 of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

NOTING ALSO article VIII(b) and regulation II-1/2.29 of the Convention concerning the procedure for amending the IGF Code,

HAVING CONSIDERED, at its 106th session, amendments to the IGF Code proposed and circulated in accordance with article VIII(b)(i) of the Convention:

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IGF Code the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2025, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2026 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE OF SAFETY  
FOR SHIPS USING GASES OR OTHER LOW-FLASHPOINT FUELS (IGF CODE)**

**PART A-1  
SPECIFIC REQUIREMENTS FOR SHIPS USING NATURAL GAS AS FUEL**

**7 – Material and general pipe design**

**7.4 Regulations for materials**

**7.4.1 Metallic materials**

Table 7.3 is replaced in its entirety, by the following:

**"Table 7.3**

<b>PLATES, SECTIONS AND FORGINGS <sup>see note 1</sup> FOR FUEL TANKS, SECONDARY BARRIERS AND PROCESS PRESSURE VESSELS FOR DESIGN TEMPERATURES BELOW MINUS 55°C AND DOWN TO MINUS 165°C <sup>see note 2</sup></b> <b>Maximum thickness 25 mm <sup>see notes 3 and 4</sup></b>		
<b>Minimum design temp. (°C)</b>	<b>Chemical composition <sup>see note 5</sup> and heat treatment</b>	<b>Impact test temp. (°C)</b>
-60	1.5% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP <sup>see note 6</sup>	-65
-65	2.25% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP <sup>see notes 6 and 7</sup>	-70
-90	3.5% nickel steel – normalized or normalized and tempered or quenched and tempered or TMCP <sup>see notes 6 and 7</sup>	-95
-105	5% nickel steel – normalized or normalized and tempered or quenched and tempered <sup>see notes 6, 7 and 8</sup>	-110
-165	9% nickel steel – double normalized and tempered or quenched and tempered <sup>see note 6</sup>	-196
-165	Austenitic steels, such as types 304, 304L, 316, 316L, 321 and 347 solution treated <sup>see note 9</sup>	-196
-165	High manganese austenitic steel – hot rolling and controlled cooling <sup>see notes 10 and 11</sup>	-196
-165	Aluminium alloys, such as type 5083 annealed	Not required
-165	Austenitic Fe-Ni alloy (36% nickel). Heat treatment as agreed	Not required
<b>TENSILE AND TOUGHNESS (IMPACT) TEST REGULATIONS</b>		
<b>Sampling frequency</b>		
◆ Plates	Each "piece" to be tested	
◆ Sections and forgings	Each "batch" to be tested	
<b>Toughness (Charpy V-notch test)</b>		
◆ Plates	Transverse test pieces. Minimum average energy value (KV) 27J	
◆ Sections and forgings	Longitudinal test pieces. Minimum average energy (KV) 41J	

**Notes**

1. The impact test required for forgings used in critical applications shall be subject to special consideration by the Administration.
2. The regulations for design temperatures below -165°C shall be specially agreed with the Administration.
3. For materials 1.5% Ni, 2.25% Ni, 3.5% Ni and 5% Ni, with thicknesses greater than 25 mm, the impact tests shall be conducted as follows:

Material thickness (mm)	Test temperature (°C)
25 < t ≤ 30	10°C below design temperature
30 < t ≤ 35	15°C below design temperature
35 < t ≤ 40	20°C below design temperature

The energy value shall be in accordance with the table for the applicable type of test specimen. For material thickness of more than 40 mm, the Charpy V-notch values shall be specially considered.

4. For 9% Ni steels, austenitic stainless steels, high manganese austenitic steels and aluminium alloys, thickness greater than 25 mm may be used.
5. The chemical composition limits shall be in accordance with recognized standards.
6. Thermo-mechanical controlled processing (TMCP) nickel steels will be subject to acceptance by the Administration.
7. A lower minimum design temperature for quenched and tempered steels may be specially agreed with the Administration.
8. A specially heat-treated 5% nickel steel, for example triple heat-treated 5% nickel steel, may be used down to -165°C, provided that the impact tests are carried out at -196°C.
9. The impact test may be omitted subject to agreement with the Administration.
10. The use of the material shall be subject to the required conditions specified by the Administration based on the Guidelines developed by the Organization.\*
11. The impact test may not be omitted for high manganese austenitic steel."

\* Refer to the *Revised guidelines on the application of high manganese austenitic steel for cryogenic service* (MSC.1/Circ.1599/Rev.2).

\*\*\*

**ANNEX 7**

**RESOLUTION MSC.525(106)  
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CODE ON THE ENHANCED PROGRAMME  
OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS, 2011  
(2011 ESP CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution A.1049(27), by which the Assembly adopted the International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, 2011 ("the 2011 ESP Code"), which has become mandatory under chapter XI-1 of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

NOTING ALSO article VIII(b) and regulation XI-1/2 of the Convention concerning the procedure for amending the 2011 ESP Code,

HAVING CONSIDERED, at its 106th session, amendments to the 2011 ESP Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention:

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the 2011 ESP Code the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2024, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2024 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE ON THE ENHANCED PROGRAMME  
OF INSPECTIONS DURING SURVEYS OF BULK CARRIERS AND OIL TANKERS, 2011  
(2011 ESP CODE)**

**ANNEX A**

**CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING THE SURVEYS  
OF BULK CARRIERS**

**Part A**

**Code on the enhanced programme of inspections during surveys of bulk carriers  
having single-side skin construction**

**2 Renewal survey**

**2.3 *Space protection***

1 Paragraph 2.3.1 is replaced by the following:

"2.3.1 Where provided, the condition of the corrosion prevention system of ballast tanks shall be examined. For ballast tanks, excluding double-bottom tanks, where a hard protective coating is found to be in less than GOOD condition as defined in 1.2.11, and it is not renewed, or where a soft or semi-hard coating has been applied, or where a hard protective coating has not been applied from the time of construction, the tanks in question shall be examined at annual intervals. Thickness measurements shall be carried out as deemed necessary by the surveyor. When such breakdown of hard protective coating is found in water ballast double-bottom tanks and it is not renewed, where a soft or semi-hard coating has been applied or where a hard protective coating has not been applied from the time of construction, the tanks in question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurement shall be carried out."

**4 Intermediate survey**

**4.2 *Single-side skin bulk carriers 5 to 10 years of age***

2 Paragraphs 4.2.1.2 and 4.2.1.3 are replaced by the following:

"4.2.1.2 Where a hard coating is found to be in less than GOOD condition, corrosion or other defects are found in water ballast tanks, or where hard protective coating was not applied from the time of construction, the examination shall be extended to other ballast tanks of the same type.

4.2.1.3 In ballast tanks other than double-bottom tanks, where a hard protective coating is found to be in less than GOOD condition and it is not renewed, or where a soft or semi-hard coating has been applied, or where a hard protective coating was not applied from the time of construction, the tanks in question shall be examined and thickness measurements carried out as considered necessary at annual intervals. When such breakdown of hard protective coating is found in ballast double-bottom tanks, where a soft or semi-hard coating has been applied, or where a hard protective coating has not been applied, the tanks in question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurements shall be carried out."

## ANNEX 7

### CONDITION EVALUATION REPORT (EXECUTIVE HULL SUMMARY REPORT)

#### *Contents of condition evaluation report (executive hull summary report)*

3 Part 8 (Memoranda) is replaced by the following:

- "Part 8 – Memoranda
- Acceptable defects
  - Any points of attention for future surveys, e.g. for suspect areas
  - Examination of ballast tanks at annual surveys due to coating breakdown"

#### *Tank/hold corrosion prevention system*

4 The existing text of the paragraph after note no. 3 is replaced by the following:

"For ballast tanks, if coating condition less than GOOD is given, tanks shall be examined at annual surveys. This shall be noted in part 8 of the Contents of condition evaluation report (executive hull summary report)."

## ANNEX 9

### GUIDELINES FOR TECHNICAL ASSESSMENT IN CONJUNCTION WITH THE PLANNING OF ENHANCED SURVEYS FOR SINGLE-SIDE SKIN BULK CARRIERS – RENEWAL SURVEY HULL

#### *References*

5 The existing reference no. 3 (IACS) is replaced by the following:

- "3 IACS Recommendation 76, Guidelines for Surveys, Assessment and Repair of Hull Structure – Bulk Carriers, 2007".

#### **Part B**

#### **Code on the enhanced programme of inspections during surveys of bulk carriers having double-side skin construction**

**2 Renewal survey**

**2.3 Space protection**

6 Paragraph 2.3.1 is replaced by the following:

"2.3.1 Where provided, the condition of the corrosion prevention system of ballast tanks shall be examined. For ballast tanks, excluding double-bottom tanks, where a hard protective coating is found to be in less than GOOD condition as defined in 1.2.11, and it is not renewed, or where a soft or semi-hard coating has been applied, or where a hard protective coating has not been applied from the time of construction, the tanks in question shall be examined at annual intervals. Thickness measurements shall be carried out as deemed necessary by the surveyor. When such breakdown of hard protective coating is found in water ballast double-bottom tanks and it is not renewed, where a soft or semi-hard coating has been applied or where a hard protective coating has not been applied from the time of construction, the tanks in

question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurement shall be carried out."

- 7 A new paragraph 2.3.4 is added after existing paragraph 2.3.3, as follows:

"2.3.4 For double-side skin void spaces bounding cargo holds for bulk carriers exceeding 20 years of age and of 150 m in length and upwards, where provided, the condition of the corrosion prevention system of void spaces shall be examined. Where a hard protective coating is found to be in POOR condition as defined in 1.2.11, and it is not renewed, or where a soft or semi-hard coating has been applied, or where a hard protective coating has not been applied from the time of construction, the void spaces in question shall be examined at annual intervals. Thickness measurements shall be carried out as deemed necessary by the surveyor."

### 3 Annual survey

- 8 A new paragraph 3.7 is added after existing paragraph 3.6.2, as follows:

#### **3.7 Examination of double-side skin void spaces for bulk carriers exceeding 20 years of age and of 150 m in length and upwards**

Examination of double-side skin void spaces, for bulk carriers exceeding 20 years of age and of 150 m in length and upwards, shall be carried out when required as a consequence of the results of the renewal survey and intermediate survey. When considered necessary by the Administration, or when extensive corrosion exists, thickness measurements shall be carried out. If the results of these thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements shall be increased in accordance with annex 10. These extended thickness measurements shall be carried out before the survey is credited as completed. Suspect areas identified at previous surveys shall be examined. Areas of substantial corrosion identified at previous surveys shall have thickness measurements taken. For bulk carriers built under the IACS Common Structural Rules, the annual thickness gauging may be omitted where a protective coating has been applied in accordance with the coating manufacturer's requirements and is maintained in good condition."

### 4 Intermediate survey

#### **4.2 Double-side skin bulk carriers 5 to 10 years of age**

##### **4.2.1 Ballast tanks**

- 9 Paragraphs 4.2.1.2 and 4.2.1.3 are replaced by the following:

"4.2.1.2 Where a hard coating is found to be in less than GOOD condition, corrosion or other defects are found in water ballast tanks or where hard protective coating was not applied from the time of construction, the examination shall be extended to other ballast tanks of the same type.

4.2.1.3 In ballast tanks other than double-bottom tanks, where a hard protective coating is found to be in less than GOOD condition and it is not renewed, or where a soft or semi-hard coating has been applied, or where a hard protective coating was not applied from the time of construction, the tanks in question shall be examined and thickness measurements carried out as considered necessary at annual intervals. When such breakdown of hard protective coating is found in ballast double-bottom

tanks, where a soft or semi-hard coating has been applied, or where a hard protective coating has not been applied, the tanks in question may be examined at annual intervals. When considered necessary by the surveyor, or where extensive corrosion exists, thickness measurements shall be carried out."

ANNEX 7

**CONDITION EVALUATION REPORT (EXECUTIVE HULL SUMMARY REPORT)**

***Contents of condition evaluation report (executive hull summary report)***

10 Parts 5 (Tank/hold corrosion prevention system) and 8 (Memoranda) are replaced by the following:

- "Part 5 – Tank/hold/double-side skin void space corrosion prevention system"
  - Separate form indicating:
  - location of coating
  - condition of coating (if applicable)
  
- Part 8 – Memoranda
  - Acceptable defects
  - Any points of attention for future surveys, e.g. for suspect areas
  - Examination of ballast tanks and double-side skin void spaces at annual surveys due to coating breakdown"

***Tank/hold corrosion prevention system***

11 The chapeau of "Tank/hold corrosion prevention system", including the table and the text underneath, is replaced by the following:

**"Tank/hold/double-side skin void space corrosion prevention system**

Tank/hold/void Nos. <sup>1</sup>	Tank/hold/void corrosion prevention system <sup>2</sup>	Coating condition <sup>3</sup>	Remarks

*Notes:*

- 1 All ballast tanks, cargo holds and double-side skin void spaces shall be listed.
- 2 C = Coating  
NP = No protection
- 3 Coating condition according to the following standard:
  - GOOD condition with only minor spot rusting.
  - FAIR condition with local breakdown of coating at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for POOR condition.

**POOR** condition with general breakdown of coating over 20% or more of areas or hard scale at 10% or more of areas under consideration.

For ballast tanks, if coating condition less than GOOD is given, tanks shall be examined at annual surveys. This shall be noted in part 8 of the Contents of condition evaluation report (executive hull summary report).

For double-side skin void spaces on bulk carriers exceeding 20 years of age and of 150 m in length and upwards, if coating condition POOR is given, those void spaces shall be examined at annual surveys. This shall be noted in part 8 of the Contents of condition evaluation report (executive hull summary report)."

## ANNEX 9

### **GUIDELINES FOR TECHNICAL ASSESSMENT IN CONJUNCTION WITH PLANNING FOR ENHANCED SURVEYS OF DOUBLE-SIDE SKIN BULK CARRIERS – RENEWAL SURVEY HULL**

#### **References**

- 12 The existing references are replaced by the following:
- "1 IACS, Recommendation 76: Guidelines for Surveys, Assessment and Repair of Hull Structure – Bulk Carriers, 2007
  - 2 TSCF, Guidelines for the Inspection and Maintenance of Double Hull Tanker Structures, 1995
  - 3 TSCF, Guidelines Manual for Tanker Structures, 1997"

## ANNEX B

### **CODE ON THE ENHANCED PROGRAMME OF INSPECTIONS DURING SURVEYS OF OIL CARRIERS**

#### **Part A**

#### **Code on the enhanced programme of inspections during surveys of double-hull oil tankers**

#### **1 General**

#### **1.2 Definitions**

- 13 Paragraph 1.2.1 is replaced by the following:

"1.2.1 *Double-hull oil tanker* is a ship which is constructed primarily for the carriage of oil in bulk, has cargo tanks forming an integral part of the ship's hull and is protected by a double-hull which extends for the entire length of the cargo area, consisting of double sides and double-bottom spaces for the carriage of water ballast or void spaces."

**2 Renewal survey**

**2.6 Extent of tank pressure testing**

14 Paragraph 2.6.1 is replaced by the following:

"2.6.1 The minimum requirements for ballast tank pressure testing at the renewal survey are given in 2.6.3 and in annex 3.

The minimum requirements for cargo tank testing at the renewal survey are given in 2.6.4 and annex 3.

Cargo tank testing carried out by the ship's crew under the direction of the master may be accepted by the surveyor, provided the following conditions are complied with:

- .1 a tank testing procedure, specifying fill heights, tanks being filled and bulkheads being tested, has been submitted by the owner and reviewed by the Administration prior to the testing being carried out;
- .2 the tank testing is carried out prior to the overall survey or close-up survey;
- .3 the tank testing is carried out within the special survey window and not more than three months prior to the date on which the overall or close-up survey is completed;
- .4 the tank testing has been satisfactorily carried out and there is no record of leakage, distortion or substantial corrosion that would affect the structural integrity of the tank;
- .5 the satisfactory results of the testing are recorded in the vessel's logbook; and
- .6 the internal and external condition of the tanks and associated structure are found satisfactory by the surveyor at the time of the overall and close-up survey."

ANNEX 10

**CONDITION EVALUATION REPORT (EXECUTIVE HULL SUMMARY REPORT)**

***Contents of condition evaluation report (executive hull summary report)***

15 Part 9 (Memoranda) is replaced by the following:

- "Part 9 – Memoranda
- Acceptable defects
  - Any points of attention for future surveys, e.g. for suspect areas
  - Examination of ballast tanks at annual surveys due to coating breakdown"

### ***Tank corrosion prevention system***

- 16 The existing text of the paragraph after note 3 is replaced by the following:  
"For ballast tanks, if coating condition less than GOOD is given, tanks shall be examined at annual surveys. This shall be noted in part 9 of the Contents of condition evaluation report (executive hull summary report)."

## ANNEX 12

### **GUIDELINES FOR TECHNICAL ASSESSMENT IN CONJUNCTION WITH THE PLANNING OF ENHANCED SURVEYS FOR OIL TANKERS**

#### ***References***

- 17 The existing references are replaced by the following:
- "1 IACS, Recommendation 96: Double Hull Oil Tankers – Guidelines for Surveys, Assessment and Repair of Hull Structures, 2019.
  - 2 TSCF, Guidelines for the Inspection and Maintenance of Double Hull Tanker Structures, 1995.
  - 3 TSCF, Guidelines Manual for Tanker Structures, 1997."

## **Part B**

### **Code on the enhanced programme of inspections during surveys of oil tankers other than double-hull oil tankers**

#### **1 General**

##### **1.2 Definitions**

- 18 Paragraph 1.2.1 is replaced by the following:

"1.2.1 *Oil tanker* is a ship which is constructed primarily to carry oil in bulk in cargo tanks forming an integral part of the ship's hull, including ship types such as combination carriers (ore/oil ships, etc.) but excluding ships carrying oil in independent tanks which are not part of the ship's hull, such as asphalt carriers."

#### **2 Renewal Survey**

##### **2.6 Extent of tank pressure testing**

- 19 Paragraph 2.6.1 is replaced by the following:

"2.6.1 The minimum requirements for ballast tank pressure testing at the renewal survey are given in 2.6.3 and in annex 3.

The minimum requirements for cargo tank testing at the renewal survey are given in 2.6.4 and annex 3.

Cargo tank testing carried out by the ship's crew under the direction of the master may be accepted by the surveyor, provided the following conditions are complied with:

- .1 a tank testing procedure, specifying fill heights, tanks being filled and bulkheads being tested, has been submitted by the owner and reviewed by the Administration prior to the testing being carried out;
- .2 the tank testing is carried out prior to the overall survey or close-up survey;
- .3 the tank testing is carried out within the special survey window and not more than three months prior to the date on which the overall or close-up survey is completed;
- .4 the tank testing has been satisfactorily carried out and there is no record of leakage, distortion or substantial corrosion that would affect the structural integrity of the tank;
- .5 the satisfactory results of the testing are recorded in the vessel's logbook; and
- .6 the internal and external condition of the tanks and associated structure are found satisfactory by the surveyor at the time of the overall and close-up survey."

#### ANNEX 9

### **CONDITION EVALUATION REPORT (EXECUTIVE HULL SUMMARY REPORT)**

#### ***Contents of condition evaluation report (executive hull summary report)***

20 Part 9 (Memoranda) is replaced by the following:

- "Part 9 – Memoranda
- Acceptable defects
  - Any points of attention for future surveys, e.g. for suspect areas
  - Examination of ballast tanks at annual surveys due to coating breakdown"

#### ***Tank corrosion prevention system***

21 The existing text of the paragraph after note no. 3 is replaced by the following:

"For ballast tanks, if coating condition less than GOOD is given, tanks shall be examined at annual surveys. This shall be noted in part 9 of the Contents of condition evaluation report (executive hull summary report)."

\*\*\*

**ANNEX 8**

**RESOLUTION MSC.526(106)  
(adopted on 10 November 2022)**

**AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND  
EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK  
(IBC CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution MSC.4(48), by which it adopted the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk ("the IBC Code"), which has become mandatory under chapter VII of the International Convention for the Safety of Life at Sea, 1974 ("the Convention"),

RECALLING FURTHER article VIII(b) and regulation VII/8.1 of the Convention concerning the procedure for amending the IBC Code,

NOTING that the Marine Environment Protection Committee, at its seventy-eighth session, adopted amendments to the IBC Code concerning watertight doors by resolution MEPC.345(78), for concurrent adoption by the Maritime Safety Committee,

HAVING CONSIDERED, at its 106th session, amendments to the IBC Code proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IBC Code the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2024, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2024 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention;

5 ALSO REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND  
EQUIPMENT OF SHIPS CARRYING DANGEROUS CHEMICALS IN BULK  
(IBC CODE)**

**CHAPTER 2  
SHIP SURVIVAL CAPABILITY AND LOCATION OF CARGO TANKS**

**2.9 Survival requirements**

Paragraph 2.9.2.1 is replaced by the following:

- ".1 the waterline, taking into account sinkage, heel and trim, shall be below the lower edge of any opening through which progressive flooding or downflooding may take place. Such openings shall include air pipes and openings which are closed by means of weathertight doors or hatch covers and may exclude those openings closed by means of watertight manhole covers and watertight flush scuttles, small watertight cargo tank hatch covers which maintain the high integrity of the deck, remotely operated sliding watertight doors, hinged watertight access doors with open/closed indication locally and at the navigation bridge, of the quick-acting or single-action type that are normally closed at sea, hinged watertight doors that are permanently closed at sea, and sidescuttles of the non-opening type;"

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**ANNEX 9**

**RESOLUTION MSC.527(106)  
(adopted on 10 November 2022)**

**INTERNATIONAL CODE OF SAFETY FOR SHIPS  
CARRYING INDUSTRIAL PERSONNEL (IP CODE)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the function of the Committee,

RECOGNIZING the need for a mandatory code for the safe carriage of industrial personnel on ships and for ensuring their safety during personnel transfer operations to and from other ships and/or offshore facilities,

NOTING resolution MSC.521(106), by which it adopted chapter XV of the International Convention for the Safety of Life at Sea, 1974 ("the Convention") to make the provisions of the International Code of Safety for Ships Carrying Industrial Personnel (IP Code) mandatory under the Convention,

HAVING CONSIDERED, at its 106th session, the IP Code,

- 1 ADOPTS the IP Code, the text of which is set out in the annex to the present resolution;
- 2 INVITES Contracting Governments to the Convention to note that the IP Code will take effect on 1 July 2024 upon entry into force of chapter XV of the Convention;
- 3 ALSO INVITES Contracting Governments to consider the voluntary application of the IP Code, as far as practicable, to ships of less than 500 gross tonnage and to ships not operating on international voyages;
- 4 REQUESTS the Secretary-General of the Organization to transmit certified copies of the present resolution and the text of the IP Code, contained in the annex, to all Contracting Governments to the Convention;
- 5 ALSO REQUESTS the Secretary-General of the Organization to transmit copies of the present resolution and the text of the IP Code contained in the annex to all Members of the Organization which are not Contracting Governments to the Convention.

ANNEX

**INTERNATIONAL CODE OF SAFETY FOR SHIPS  
CARRYING INDUSTRIAL PERSONNEL (IP CODE)**

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**Appendix**

**Model Industrial Personnel Safety Certificate  
Record of Equipment for the Industrial Personnel Safety Certificate (Form IP)**

## Preamble

1 As the maritime offshore and energy sectors are expanding, new offshore industrial activities have emerged. This in turn has created a growing demand to provide for the safe carriage of industrial personnel to and from other ships and/or offshore facilities.

2 It is recognized that the safety standards in the existing IMO instruments do not fully cover specific risks of maritime operations within the offshore sectors, such as personnel transfer operations.

3 Furthermore, it is recognized that, at the time of developing this Code, industrial personnel are a special category of persons yet to be defined in regulation I/2 of the International Convention for the Safety of Life at Sea (SOLAS), 1974.

4 However, the difficulties caused by the lack of a clear definition for industrial personnel and the lack of an international safety standard for the carriage of industrial personnel on board in the existing IMO instruments are also recognized.

5 The International Code of Safety for Ships Carrying Industrial Personnel (IP Code) has been developed to supplement existing IMO instruments in order to meet the demand from the offshore and energy sectors and overcome these difficulties. The Code, in addition to the cargo ship requirements in SOLAS regulations, provides an international standard of safety for ships carrying industrial personnel which will facilitate safe carriage and safe personnel transfer by addressing additional risks connected to such operations.

6 The Code has been developed for ships operating on international voyages as defined in SOLAS regulation I/2(d). However, it is recognized that the transport of a large number of industrial personnel will take place either within the confines of a particular coastal State or between a base port and an offshore installation outside territorial waters. To facilitate international movement and safe operations of ships carrying industrial personnel, Administrations are encouraged to apply this Code also to ships operating only on such voyages.

7 The Code applies to ships of 500 gross tonnage and upwards. However, it is recognized that ships below 500 gross tonnage may also carry an aggregated number of passengers, special personnel and industrial personnel in excess of 12. In such cases the Administration may apply the goals and functional requirements of the Code as far as practicable. If such ships are in compliance with the IP Code, Administrations may consider issuing an Industrial Personnel Safety Certificate for a ship carrying more than 12 industrial personnel, as long as all relaxations are indicated in this certificate.

## **PART I GENERAL**

### **1 Goal**

The goal of this Code is to provide for the safe carriage of industrial personnel on ships and their safety during personnel transfer operations by addressing any risks present not adequately mitigated by the applicable safety standards in the International Convention for the Safety of Life at Sea (SOLAS), 1974.

### **2 Definitions**

2.1 *Carriage* means transportation, accommodation or both.

2.2 *Essential systems* mean systems referred to in SOLAS regulation II-2/21.4.

2.3 *HSC Code* means the International Code of Safety for High-Speed Craft, 2000, as adopted by the Maritime Safety Committee of the Organization by resolution MSC.97(73), as amended.

2.4 *Industrial personnel (IP)* means all persons transported or accommodated on board for the purpose of offshore industrial activities performed on board other ships and/or offshore facilities.

2.5 *IP area* is every area or space where IP are normally intended to stay during voyage or are allowed to access.

2.6 *Offshore industrial activities* mean the construction, maintenance, decommissioning, operation or servicing of offshore facilities related, but not limited, to exploration and exploitation of resources by the renewable or hydrocarbon energy sectors, aquaculture, ocean mining or similar activities.

2.7 *Personnel transfer* means the full sequence of the operation of transferring personnel and their equipment at sea to or from a ship to which this Code applies and from or to another ship or an offshore facility.

2.8 *SOLAS* means the International Convention for the Safety of Life at Sea, 1974, as amended.

### **3 Certificate and survey**

3.1 Every ship to which this Code applies shall have on board a valid Industrial Personnel Safety Certificate.

3.2 The Industrial Personnel Safety Certificate shall be issued after an initial or renewal survey to a ship which complies with the requirements of this Code.

3.3 The certificate referred to in this regulation shall be issued either by the Administration or by an organization recognized by it in accordance with SOLAS regulation XI-1/1. In any case, the Administration assumes full responsibility for the certificate.

3.4 The Industrial Personnel Safety Certificate shall be drawn up in a form corresponding to the model given in the appendix to this Code. If the language is not English, French or Spanish, the text shall include translation into one of these languages.

3.5 The Industrial Personnel Safety Certificate validity, survey dates and endorsements shall be harmonized with the relevant SOLAS certificates in accordance with the provisions of SOLAS regulation I/14 or X/3.2, as appropriate. The certificate shall include a supplement recording equipment required by the present Code.

3.6 The Industrial Personnel Safety Certificate and the Record of Equipment shall be issued in addition to the relevant certificates required in SOLAS regulation XV/5.1.1.

## **PART II GOALS AND FUNCTIONAL REQUIREMENTS**

### **1 Industrial personnel**

#### **1.1 Goal**

The goal of this chapter is to provide:

- .1 for safe operations during the carriage of industrial personnel; and
- .2 that industrial personnel are medically fit and familiar with the hazards associated with the operational environment including the risks associated with personnel transfer operations.

#### **1.2 Functional requirements**

In order to achieve the goal set out in paragraph 1.1 above, the following functional requirements are embodied in the regulations in part III:

Means shall be provided to ensure that industrial personnel:

- .1 are medically fit;
- .2 are able to communicate with the ship's crew;
- .3 have received appropriate safety training;
- .4 have received onboard ship-specific safety familiarization; and
- .5 have received onboard familiarization with the ship's transfer arrangements and equipment.

### **2 Safe transfer of personnel**

#### **2.1 Goal**

The goal of this chapter is to provide for the safety of all persons involved in personnel transfer, including safe and suitable means of transfer and the capability of safely carrying out the operations connected to personnel transfer.

#### **2.2 Functional requirements**

In order to achieve the goal set out in paragraph 2.1 above, the following functional requirements are embodied in the regulations in part III:

2.2.1 Means shall be provided to avoid injuries during personnel transfer.

2.2.2 Arrangements for personnel transfer shall be:

- .1 designed, constructed and maintained to withstand the loads they are subjected to;
- .2 designed and engineered to fail to a safe condition in the event of a loss or reduction in their associated functionality; and
- .3 capable of safely returning persons in transfer to a safe location after loss of power.

2.2.3 Means for position keeping shall be provided and arranged in a manner that prevents accidents during transfer of personnel and is suitable for the mode of operation and interactions with other ships or offshore facilities.

2.2.4 Means shall be provided to ensure that the information on the number of industrial personnel on board and their identity is kept updated to assist in ensuring that the actual number of persons on board is known at all times.

### **3 Subdivision and stability**

#### **3.1 Goal**

The goal of this chapter is to provide for adequate stability of the ship, in both the intact and damaged conditions, taking into consideration the total number of persons on board.

#### **3.2 Functional requirement**

In order to achieve the goal set out in paragraph 3.1 above, the ship shall be designed with weathertight and watertight boundaries providing for an adequate stability standard, in both the intact and damaged conditions, taking into account the total number of persons on board. This functional requirement is embodied in the regulations in parts IV and V.

### **4 Machinery installations**

#### **4.1 Goal**

The goal of this chapter is to provide for machinery installations capable of delivering the required functionality to ensure safe navigation and safe carriage of persons on board both during normal operation and in any emergency situation, taking into account the total number of persons on board.

#### **4.2 Functional requirements**

In order to achieve the goal set out in paragraph 4.1 above, the following functional requirements are embodied in the regulations in parts IV and V:

- .1 where the capacity needed to ensure the required functionality of any machinery system is dependent on the number of persons on board (e.g. bilge pumping systems), necessary additional capacity shall be provided;
- .2 steering gear systems shall be capable of maintaining steerage after any incident affecting machinery installations; and

- .3 essential systems shall have the necessary redundancy or isolation, or a combination thereof, in order to ensure the capability of safely accommodating persons on board after any incident affecting machinery installations, taking into account the number of persons on board.

## **5 Electrical installations**

### **5.1 Goal**

The goal of this chapter is to provide for:

- .1 emergency sources of power capable of delivering the required functionality of essential systems in emergency situations, taking into account the total number of persons on board; and
- .2 protection of all persons on board from electrical hazards.

### **5.2 Functional requirements**

In order to achieve the goal set out in paragraph 5.1 above, the following functional requirements are embodied in the regulations in parts IV and V:

- .1 emergency power supply to essential systems shall have the necessary redundancy or isolation, or a combination thereof, to ensure the capability of safely accommodating persons on board after damage, taking into account the number of persons on board and the time for orderly evacuation; and
- .2 precautions against shock, fire and other hazards of electrical origin shall be provided.

## **6 Periodically unattended machinery spaces**

### **6.1 Goal**

The goal of this chapter is to ensure that, if and when a machinery space is periodically unattended, this does not impair the safety of the ship or the persons on board.

### **6.2 Functional requirements**

In order to achieve the goal set out in paragraph 6.1 above, the following functional requirements are embodied in the regulations in parts IV and V:

- .1 periodically unattended machinery spaces shall provide safe operations, taking into account the number of persons on board; and
- .2 a periodically unattended machinery space shall be equipped with additional controls, monitoring and alarm systems to provide safe operation, taking into account the number of persons on board, in order to achieve a safety equivalent to that of a normally attended machinery space.

## **7 Fire safety**

### **7.1 Goal**

The goal of this chapter is to fulfil the fire safety objectives of SOLAS or the basic fire safety principles of the HSC Code, taking into account the number of persons on board.

### **7.2 Functional requirement**

In order to achieve the goal set out in paragraph 7.1 above, the means to fulfil the fire safety functional requirements of SOLAS or the basic fire safety principles of the HSC Code, taking into account the number of persons on board, are embodied in the regulations in parts IV and V.

## **8 Life-saving appliances and arrangements**

### **8.1 Goal**

The goal of this chapter is to provide for appropriate and sufficient means to ensure safe abandonment of the ship and recovery of persons.

### **8.2 Functional requirements**

In order to achieve the goal set out in paragraph 8.1 above, the following functional requirements are embodied in the regulations in parts IV and V:

- .1 the capacity of the survival craft shall be sufficient to accommodate all persons on board;
- .2 appropriate and sufficient personal life-saving appliances shall be available for all persons on board;
- .3 sufficient space for assembling and mustering must be ensured;
- .4 onboard communication and alarm systems shall be provided to ensure emergency communication to all persons on board; and
- .5 means shall be provided to ensure the safe recovery of persons.

## **9 Dangerous goods**

### **9.1 Goal**

The goal of this chapter is to provide for the safe carriage of industrial personnel while transporting and handling dangerous goods on ships certified in accordance with this Code, taking into consideration the total number of persons on board.

### **9.2 Functional requirement**

In order to achieve the goal set out in paragraph 9.1 above, any hazard caused by the transportation and handling of dangerous goods shall be taken into account and the risk to all persons on board shall be minimized, having regard to the nature of the dangerous goods. This functional requirement is embodied in the regulations in parts IV and V.

## PART III REGULATIONS

### **Regulation 1 - *Industrial personnel***

1.1 In order to meet the functional requirements set out in paragraph II/1.2.1, all industrial personnel shall be at least 16 years of age and documentary evidence shall be made available to the master that they are physically and medically fit to fulfil all the requirements in this regulation, based on a standard acceptable to the Administration.

1.2 In order to meet the functional requirements set out in paragraph II/1.2.2, all industrial personnel shall demonstrate adequate knowledge of the working language on board in order to be able to communicate effectively and understand any instructions given by the ship's crew.

1.3 In order to meet the functional requirements set out in paragraph II/1.2.3, all industrial personnel shall, prior to boarding the ship, receive training or instruction with respect to:<sup>1</sup>

- .1 personal survival that includes:
  - .1 knowledge of emergency situations that may occur on board a ship;
  - .2 the use of personal life-saving equipment;
  - .3 safely entering the water from a height, and survival in the water; and
  - .4 boarding a survival craft from the ship and water while wearing a lifejacket;
- .2 fire safety that includes knowledge of the types of fire hazards on board ships and precautionary measures to be taken to prevent a fire; and
- .3 personal safety and social responsibilities that include:
  - .1 understanding the authority of the master or their representative on board;
  - .2 complying with instructions provided by the shipboard personnel; and
  - .3 understanding safety information symbols, signs and alarm signals found on board ships.

1.4 No industrial personnel shall be carried on board the ship unless the master has been provided with documentation confirming that such personnel have received the training or instructions required by this regulation.

1.5 In order to meet the functional requirement set out in paragraph II/1.2.4, all industrial personnel shall, prior to leaving port or immediately after boarding, receive onboard ship-specific safety familiarization that includes:

- .1 the layout of the ship;
- .2 the location of personal life-saving appliances, muster and embarkation stations, emergency escape routes and first aid stations;

- .3 the safety information, symbols, signs and alarms on board; and
- .4 action to be taken in the event of an alarm sounding or the declaration of an emergency.

1.6 In order to meet the functional requirement set out in paragraph II/1.2.5, all industrial personnel shall, prior to being transferred, receive familiarization in the ship's procedures, arrangements and any additional safety measures or equipment for the transfer of personnel to other ships and/or offshore facilities.

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<sup>1</sup> Personnel meeting the training requirements in paragraph 5.5 of the *Recommendations for the training and certification of personnel on mobile offshore units* (resolution A.1079(28)) or industrial training standards, such as those of the Global Wind Organization (GWO), Offshore Petroleum Industry Training Organization (OPITO) or Basic Offshore Safety Induction and Emergency Training (OPITO-accredited), may be considered as meeting the requirements of this section.

## **Regulation 2 - Safe transfer**

- 2.1 In order to meet the functional requirement in paragraph II/2.2.1, the following applies:
- .1 Personnel transfer appliances and arrangements shall be kept clean, properly maintained and regularly inspected to ensure that they are safe to use.
  - .2 The rigging and use of the personnel transfer arrangements shall be supervised by a responsible officer and operated by properly trained personnel. Safety procedures shall be established and followed by personnel engaged in rigging and operating any mechanical equipment.
  - .3 Means of communication shall be provided between the supervising responsible officer and the navigation bridge.
  - .4 All personnel transfer arrangements shall be permanently marked to enable identification of each appliance for the purposes of survey, inspection and record-keeping. A record of use and maintenance shall be kept on board the ship.
  - .5 Prior to commencing personnel transfer operations, the personnel transfer arrangements shall be checked to ensure they are functioning properly.
  - .6 Means shall be provided to ensure safe and unobstructed passage for industrial personnel between the personnel transfer arrangements and where they are being transported or accommodated on board.
  - .7 Lighting capable of being supplied by the emergency source of power shall be provided to illuminate the personnel transfer arrangements, the water below the transfer arrangements and the passage specified in sub-paragraph .6 above.
  - .8 The deck area for personnel transfer shall be designated and free from obstructions.

- .9 A job safety analysis shall be carried out when planning, and before executing, personnel transfer at sea. The analysis shall take into account environmental conditions, as well as operational and equipment limitations.
- .10 When planning personnel transfer, the guidance developed by the Organization<sup>2</sup> or other relevant guidance<sup>3</sup> acceptable to the Administration should be taken into account.

2.2 In order to meet the functional requirement in paragraph II/2.2.2, personnel transfer arrangements shall be designed, constructed, tested and installed in accordance with standards<sup>4</sup> acceptable to the Administration or requirements of a classification society which is recognized by the Administration in accordance with the provisions of SOLAS regulation XI-1/1.

2.3 In addition, the following applies:

- .1 The design of the personnel transfer arrangements shall be suitable for the arrangement on the ship.
- .2 An analysis shall be performed in order to evaluate failures in IP transfer arrangements and all its associated systems which might impair the availability of the transfer arrangements and/or endanger the safety of the persons involved.

The analysis<sup>5</sup> shall:

- .1 consider the effects of failure in all the equipment and systems due to single failure, fire in any space or flooding of any watertight compartment that could affect the availability of the transfer arrangements; and
- .2 provide solutions to ensure the availability of the IP transfer arrangements and the safety of all persons involved upon such failures identified in .1.
- .3 Where a single failure results in failure of more than one component in a system (common cause failure), all the resulting failures shall be considered together. Where the occurrence of a failure leads directly to further failures, all those failures shall be considered together.

2.4 In order to meet the functional requirement in paragraph II/2.2.3, the manoeuvrability of the ship together with the expected need for the ship to keep position over time shall be evaluated, to ensure the correct use of position-keeping equipment.

2.5 In order to meet the functional requirement in paragraph II/2.2.4, procedures shall be in place to ensure correct information on the number and identity of personnel on board at all times.

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<sup>2</sup> Refer to the *Guidance on safety when transferring persons at sea* (MSC-MEPC.7/Circ.10).

<sup>3</sup> Such as the latest revision of IMCA M202 Guidance on the transfer of personnel to/from offshore vessels and structures.

<sup>4</sup> Refer to relevant sections of EN 13852-1:2013.

<sup>5</sup> Appropriate analysis may be QFA or FMEA and their associated reports.

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**PART IV**  
**ADDITIONAL REGULATIONS FOR SHIPS CERTIFIED IN ACCORDANCE**  
**WITH SOLAS CHAPTER I**

**Regulation 1 - General**

1.1 Unless expressly provided otherwise in this part, ships carrying industrial personnel shall meet the SOLAS requirements for cargo ships and the applicable regulations in this part.

1.2 Ships complying with paragraph 1.1 in addition to the applicable regulations in this part are considered to meet the goals and functional requirements in paragraphs II/3 to II/9.

**Regulation 2 - Subdivision and stability**

2.1 In order to meet the functional requirement set out in paragraph II/3.2.1, the following applies:

- .1 Where the ship is certified to carry more than 240 persons on board, it shall meet the requirements of SOLAS regulation II-1/5 as though the ship is a passenger ship and the industrial personnel are counted as passengers. However, SOLAS regulation II-1/5.5 is not applicable.
- .2 Subdivision and damage stability shall be in accordance with SOLAS chapter II-1, where the ship is considered a passenger ship and industrial personnel are counted as passengers, with the value  $R$  as follows:
  - .1 where the ship is certified to carry more than 240 persons, the value  $R$  is assigned as  $R$ ;
  - .2 where the ship is certified to carry not more than 60 persons, the value  $R$  is assigned as  $0.8R$ ; or
  - .3 for more than 60 persons, but not more than 240 persons, the value  $R$  shall be determined by linear interpolation between the values given in sub-paragraphs .1 and .2 above.

$$R = 1 - \frac{5,000}{L_s + 2.5N + 15,225}$$

Where:

$$N = N_1 + 2N_2$$

$N_1$  = number of persons for whom lifeboats are provided

$N_2$  = number of persons (including officers and crew) the ship is permitted to carry in excess of  $N_1$

- .3 Where the conditions of service are such that compliance with paragraph 2.1.2 above on the basis of  $N=N_1+2N_2$  is impracticable and where the Administration considers that a suitably reduced degree of hazard exists, a lesser value of  $N$  may be taken but in no case less than  $N=N_1+N_2$ .

- .4 For ships to which paragraph 2.1.2.1 above applies, the requirements of SOLAS regulations II-1/8 and II-1/8-1 and of SOLAS chapter II-1 parts B-2, B-3 and B-4 shall be applied as though the ship is a passenger ship and the industrial personnel are passengers. However, SOLAS regulations II-1/14 and II-1/18 are not applicable.
- .5 For ships to which paragraphs 2.1.2.2 and 2.1.2.3 above apply, except as provided in paragraph 2.1.6 below, the provisions of SOLAS chapter II-1, parts B-2, B-3 and B-4 shall apply as though the ship is a cargo ship and the industrial personnel are crew. However, the requirements of SOLAS regulations II-1/8 and II-1/8-1 need not be applied and SOLAS regulations II-1/14 and II-1/18 are not applicable.
- .6 All ships certified in accordance with this Code shall comply with SOLAS regulations II-1/9, II-1/13, II-1/19, II-1/20 and II-1/21 as though the ship is a passenger ship.

### **Regulation 3 - *Machinery installations***

3.1 In order to meet the functional requirement set out in paragraph II/4.2.1, the ship shall comply with SOLAS regulation II-1/35-1 as though the ship is a passenger ship.

3.2 In order to meet the functional requirement set out in paragraph II/4.2.2, where the ship is certified to carry more than 240 persons on board, it shall comply with the requirements of SOLAS regulation II-1/29 as though the ship is a passenger ship.

### **Regulation 4 - *Electrical installations***

4.1 In order to meet the functional requirement set out in paragraph II/5.2.1, the following applies:

- .1 for installations in ships of more than 50 m in length carrying not more than 60 persons on board, the requirements in SOLAS regulation II-1/42.2.6.1 shall apply in addition to the requirements in SOLAS regulation II-1/43; and
- .2 for installations in ships carrying more than 60 persons on board, SOLAS regulation II-1/42 shall apply.

4.2 In order to meet the functional requirement set out in paragraph II/5.2.2 for installations on ships carrying more than 60 persons on board, SOLAS regulation II-1/45.12 shall apply.

### **Regulation 5 - *Periodically unattended machinery spaces***

In order to meet the functional requirements set out in paragraph II/6.2, ships carrying more than 240 persons on board shall be considered as passenger ships in relation to SOLAS chapter II-1, part E.

## **Regulation 6 - *Fire safety***

In order to meet the functional requirements set out in paragraphs II/7.2 and 4.2.3, the following applies:

- .1 where the ship is certified to carry more than 240 persons on board, the requirements of SOLAS chapter II-2 for passenger ships carrying more than 36 passengers shall apply; and
- .2 where the ship is certified to carry more than 60, but not more than 240 persons on board, the requirements of SOLAS chapter II-2 for passenger ships carrying not more than 36 passengers apply, except that SOLAS regulations II-2/21 and 22 need not apply.

## **Regulation 7 - *Life-saving appliances and arrangements***

In order to meet the functional requirements set out in paragraph II/8.2:

- .1 for ships carrying more than 60 persons on board, the requirements of SOLAS chapter III for passenger ships engaged on international voyages, which are not short international voyages, shall apply;
- .2 regardless of the number of the persons on board, SOLAS regulations III/2 and III/19.2.3 are not applicable;
- .3 where the term "passenger" is used in SOLAS chapter III, it shall be read to mean industrial personnel as prescribed in SOLAS regulation XV/2.3; and
- .4 notwithstanding sub-paragraph .3 above, the required number of infant or child lifejackets shall be calculated solely based on the number of passengers on board.

## **Regulation 8 - *Dangerous goods***

### **8.1 General**

Industrial personnel may only bring dangerous goods on board for the purpose of their role off the ship and with the prior consent of the master of the ship. These dangerous goods shall be considered as cargo and shall be transported in accordance with part A of SOLAS chapter VII.

### **8.2 Carriage of dangerous goods in packaged form**

In order to meet the functional requirements in paragraph II/9.2:

- .1 for ships certified to carry more than 240 persons on board, SOLAS regulation II-2/19.3.6.2 for passenger ships carrying more than 36 passengers shall apply; and
- .2 for the purpose of the requirements of the IMDG Code, ships certified to carry more than 240 persons on board shall be considered as passenger ships and those certified to carry 240 or fewer persons on board shall be considered as cargo ships.

### **8.3 Carriage of dangerous goods in solid form in bulk**

In order to meet the functional requirements in paragraph II/9.2:

- .1 for ships certified to carry more than 240 persons on board, SOLAS regulation II-2/19.3.6.2 for passenger ships carrying more than 36 passengers shall apply; and
- .2 for the purpose of the requirements of the IMSBC Code, industrial personnel shall be considered as personnel in the context of personnel protection.

### **8.4 Carriage of dangerous liquid chemicals, liquefied gases and oil**

8.4.1 In order to meet the functional requirements in paragraph II/9.2, when simultaneously carrying dangerous liquid chemicals and/or liquefied gases as cargo in bulk and industrial personnel, the ship shall either be certified in accordance with the requirements of parts B or C of SOLAS chapter VII or meet and be certified in accordance with a standard not inferior to that developed by the Organization.<sup>6</sup> In addition:

- .1 carriage of toxic products, low-flashpoint products or acids shall not be allowed when the total number of persons on board exceeds 60;
- .2 for the purpose of carrying industrial personnel, the areas and spaces on ships where industrial personnel are not permitted to enter shall be clearly marked;
- .3 the arrangements for personnel transfer shall be located outside the cargo area;
- .4 the access to the arrangements for personnel transfer shall, as far as practicable, be located outside the cargo area; and
- .5 embarkation or personnel transfer and loading or unloading of cargo shall not take place simultaneously.

8.4.2 In order to meet the functional requirements in paragraph II/9.2, when simultaneously carrying oil as cargo, as defined in Annex I of MARPOL, and industrial personnel, the additional requirements in paragraph 8.4.1 above shall apply.

8.4.3 For the purpose of this requirement:

- .1 "low-flashpoint products" mean:
  - .1 noxious liquid substances with a flashpoint not exceeding 60°C;
  - .2 oil with a flashpoint not exceeding 60°C; and
  - .3 liquefied gases which require flammable vapour detection in accordance with chapter 19 of the IGC Code;
- .2 "toxic products" mean:
  - .1 dangerous chemicals to which special requirement 15.12 of the IBC Code applies; and

- .2 liquefied gases which require toxic vapour detection in accordance with chapter 19 of the IGC Code; and
- .3 "acids" mean dangerous chemicals to which special requirement 15.11 of the IBC Code applies.

8.4.4 In order to meet the functional requirements in paragraph II/9.2 when carrying liquefied gases in bulk, for the purpose of the requirements of the IGC Code, industrial personnel shall be considered as personnel in the context of training and personnel protection.

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<sup>6</sup> Refer to the *Code for the Transport and Handling of Hazardous and Noxious Liquid Substances in Bulk on Offshore Support Vessels (OSV Chemical Code)* (resolution A.1122(30)).

## **PART V ADDITIONAL REGULATIONS FOR CRAFT CERTIFIED IN ACCORDANCE WITH SOLAS CHAPTER X**

### **Regulation 1 - *General***

- 1.1 High-speed cargo craft certified in accordance with SOLAS chapter X shall not carry more than 60 persons on board.
- 1.2 Unless expressly provided otherwise in this part, high-speed craft carrying not more than 60 persons on board shall meet the requirements for cargo craft in the HSC Code and the applicable regulations in this part.
- 1.3 Craft complying with paragraph 1.2 above in addition to the applicable regulations in this part are considered to meet the goals and functional requirements in paragraphs II/3 to II/9.
- 1.4 The carriage of IP on high-speed craft is not considered as transit voyage, as specified in 1.9.1.1 of the HSC Code, and a permit to operate is required.
- 1.5 Where the term "passenger" is used in applicable requirements in the HSC Code, it shall be read to mean "persons on board other than crew".

### **Regulation 2 - *Subdivision and stability***

In order to meet the functional requirements set out in paragraph II/3.2, the following applies:

- .1 Chapter 2, part B, except 2.13.2 and 2.14, of the HSC Code shall apply in lieu of chapter 2, part C of the HSC Code.
- .2 When applying the provisions of chapter 2 of the HSC Code, the expression "passenger" shall be read as "persons on board other than crew". In addition, the mass of each such person shall be assumed to be 90 kg instead of 75 kg.

### **Regulation 3 - *Machinery installations***

In order to meet the functional requirements set out in paragraph II/4.2, provisions in chapter 10, part B of the HSC Code shall apply as applicable to category A passenger craft in lieu of chapter 10, part C of the HSC Code.

#### **Regulation 4 - *Electrical installations***

In order to meet the functional requirements set out in paragraph II/5.2, 12.7.10 of the HSC Code shall apply.

#### **Regulation 5 - *Periodically unattended machinery spaces***

*[no provisions]*

#### **Regulation 6 - *Fire safety***

*[no provisions]*

#### **Regulation 7 - *Life-saving appliances and arrangements***

In order to meet the functional requirements set out in paragraph II/8.2:

- .1 4.2.3 of the HSC Code shall apply;
- .2 8.4.3 of the HSC Code shall apply – the expression "passenger spaces" shall be read as "IP area"; and
- .3 the required number of infant or child lifejackets shall be calculated solely based on the number of passengers on board.

#### **Regulation 8 - *Dangerous goods***

8.1 Industrial personnel may only bring dangerous goods on board for the purpose of their role off the craft and with the prior consent of the master of the craft. These dangerous goods shall be considered as cargo and shall be transported in accordance with chapter 7, part D of the HSC Code.

8.2 In order to meet the functional requirements set out in paragraph II/9.2:

- .1 for the purpose of carrying IP, the areas and spaces on craft where IP are not permitted to enter shall be clearly marked;
- .2 the arrangement for personnel transfer shall be located outside the cargo area;
- .3 the access to the arrangements for personnel transfer shall, as far as practicable, be located outside the cargo area; and
- .4 embarkation or personnel transfer and loading or unloading of cargo shall not take place simultaneously.

**APPENDIX**

**FORM OF SAFETY CERTIFICATE FOR SHIPS CARRYING INDUSTRIAL PERSONNEL**

**INDUSTRIAL PERSONNEL SAFETY CERTIFICATE**

This Certificate shall be supplemented by a Record of Equipment for the  
Industrial Personnel Safety Certificate (Form IP)

(Official seal)

(State)

Issued under the provisions of the

International Convention for the Safety of Life at Sea, 1974, as amended

under the authority of the Government of

*(name of the State)*

by \_\_\_\_\_  
*(person or organization authorized)*

Particulars of ship<sup>7</sup>

Name of ship .....

Distinctive number or letters .....

Port of registry .....

Gross tonnage .....

IMO number<sup>8</sup> .....

Date [dd/mm/yyyy] on which keel was laid or ship was at a similar  
stage of construction or, where applicable, date on  
which work for a conversion or an alteration or  
modification of a major character was commenced .....

<sup>7</sup> Alternatively, the particulars of the ship may be placed horizontally in boxes.

<sup>8</sup> In accordance with the *IMO Ship Identification Number Scheme* adopted by the Organization by resolution A.1117(30).

THIS IS TO CERTIFY:

1  *check box, if applicable*

That the ship has been surveyed in accordance with the provisions of section I/3 of the International Code of Safety for Ships Carrying Industrial Personnel as a ship to which regulations XV/3.1 or 3.4 of the Convention apply.

- .1 That the survey showed that:
  - .1 the structure, equipment, fittings and materials of the ship and the condition thereof are in all respects satisfactory and that the ship complies with the relevant provisions of the Code; and
  - .2 if fitted, the personnel transfer appliances and arrangement and the condition thereof are in all respects satisfactory and comply with the provisions of regulation III/2 of the Code.

2  *check box, if applicable*

That the ship has been surveyed in accordance with the provisions of section I/3 of the International Code of Safety for Ships Carrying Industrial Personnel as a ship to which regulations XV/3.2 or XV/3.3 of the Convention apply.

- .1 That the survey showed that:
  - .1 the life-saving appliances and the equipment of the lifeboats, liferafts and rescue boats were provided in accordance with regulation IV/7 or V/7 of the Code, as applicable;
  - .2 the ship, if permitted to carry dangerous goods, complies with the relevant provisions of regulation IV/8 or V/8 of the Code, as applicable; and
  - .3 if fitted, the personnel transfer appliances and arrangement and the condition thereof are in all respects satisfactory and comply with the provisions of regulation III/2 (except for paragraph 2.1.7) of the Code.

3 This certificate is not valid for the carriage of toxic products, low-flashpoint products or acids when the total number of persons on board exceeds 60.

This certificate is valid until .....

Completion date of the survey on which this certificate is based (dd/mm/yyyy):  
.....

Issued at .....  
(Place of issue of certificate)

.....  
(Date of issue)

(Signature of authorized official  
issuing the certificate)

(Seal or stamp of the issuing authority, as appropriate)



**ENDORSEMENT TO EXTEND THE CERTIFICATE IF VALID FOR LESS THAN FIVE YEARS WHERE REGULATION I/14(C) OF THE CONVENTION OR 1.8.8 OF THE 2000 HSC CODE APPLIES**

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(c) of the Convention\* or 1.8.8 of the 2000 HSC Code,\* be accepted as valid until.....

Signed: .....  
(Signature of authorized official)

Place: .....

Date: .....  
(Seal or stamp of the authority, as appropriate)

**ENDORSEMENT WHERE THE RENEWAL SURVEY HAS BEEN COMPLETED AND REGULATION I/14(D) OF THE CONVENTION OR 1.8.9 OF THE 2000 HSC CODE APPLIES**

The ship complies with the relevant requirements of the Convention, and this certificate shall, in accordance with regulation I/14(d) of the Convention\* or 1.8.9 of the 2000 HSC Code,\* be accepted as valid until.....

Signed: .....  
(Signature of authorized official)

Place: .....

Date: .....  
(Seal or stamp of the authority, as appropriate)

**ENDORSEMENT TO EXTEND THE VALIDITY OF THE CERTIFICATE UNTIL REACHING THE PORT OF SURVEY OR FOR A PERIOD OF GRACE WHERE REGULATION I/14(E) OR I/14(F) OF THE CONVENTION OR 1.8.10 OF THE 2000 HSC CODE APPLIES**

This certificate shall, in accordance with regulation I/14(e)/I/14(f)\* of the Convention or 1.8.10 of the 2000 HSC Code,\* be accepted as valid until.....

Signed: .....  
(Signature of authorized official)

Place: .....

Date: .....  
(Seal or stamp of the authority, as appropriate)

\*Delete as appropriate.

**ENDORSEMENT FOR ADVANCEMENT OF ANNIVERSARY DATE WHERE  
REGULATION I/14(H) OF THE CONVENTION OR 1.8.12 OF THE 2000 HSC CODE  
APPLIES**

In accordance with regulation I/14(h) of the Convention\* or 1.8.12 of the 2000 HSC Code,\* the  
new anniversary date is .....

Signed: .....  
(Signature of authorized official)

Place: .....

Date: .....  
(Seal or stamp of the authority, as appropriate)

In accordance with regulation I/14(h) of the Convention\* or 1.8.12 of the 2000 HSC Code,\* the  
new anniversary date is .....

Signed: .....  
(Signature of authorized official)

Place: .....

Date: .....  
(Seal or stamp of the authority, as appropriate)

\*Delete as appropriate.

**Record of Equipment for the Industrial Personnel Safety Certificate  
(Form IP)**

This Record should be permanently attached to the  
Industrial Personnel Safety Certificate

**RECORD OF EQUIPMENT FOR COMPLIANCE WITH THE  
INTERNATIONAL CODE OF SAFETY FOR SHIPS CARRYING  
INDUSTRIAL PERSONNEL**

**1 Particulars of ship**

Name of ship .....

Distinctive number or letters .....

Total number of persons on board  
for which certified .....

**2 Details of life-saving appliances**

1	Total number of persons for which life-saving appliances are provided	.....	
		Port side	Starboard side
2	Total number of lifeboats	.....	.....
2.1	Total number of persons accommodated by them	.....	.....
2.2	Number of partially enclosed lifeboats (SOLAS regulation III/21 or III/31, or 8.10 of the HSC Code, as applicable, and LSA Code, section 4.5)	.....	.....
2.3	Number of self-righting partially enclosed lifeboats (SOLAS regulation III/21 or III/31, or 8.10 of the HSC Code, as applicable, and LSA Code, section 4.5)	.....	.....
2.4	Number of totally enclosed lifeboats (SOLAS regulation III/21 or III/31, or 8.10 of the HSC Code, as applicable, and LSA Code, sections 4.6)	.....	.....
2.5	Other lifeboats	.....	.....
2.5.1	Number	.....	.....
2.5.2	Type	.....	.....

3	Number of motor lifeboats (included in the total lifeboats shown above)	.....
3.1	Number of lifeboats fitted with searchlights	.....
4	Number of rescue boats	.....
4.1	Number of boats which are included in the total lifeboats shown above	.....
5	Liferafts	.....
5.1	Those for which approved launching appliances are required	.....
5.1.1	Number of liferafts	.....
5.1.2	Number of persons accommodated by them	.....
5.2	Those for which approved launching appliances are not required	.....
5.2.1	Number of liferafts	.....
5.2.2	Number of persons accommodated by them	.....
6	Number of marine evacuation systems (MES)	.....
6.1	Persons accommodated by them	.....
7	Buoyant apparatus	.....
7.1	Number of apparatuses	.....
7.2	Number of persons capable of being supported	.....
8	Number of lifebuoys	.....
9	Number of lifejackets (total)	.....
9.1	Number of adult lifejackets	.....
9.2	Number of child lifejackets	.....
9.3	Number of infant lifejackets	.....
10	Immersion suits	.....
10.1	Total number	.....
11	Number of thermal protective aids <sup>9</sup>	.....

THIS IS TO CERTIFY that this Record is correct in all respects.

Issued at .....  
(Place of issue of the Record)

.....  
(Date of issue)

(Signature of duly authorized official  
issuing the Record)

(Seal or stamp of the issuing authority, as appropriate)

<sup>9</sup> Excluding those required by the LSA Code, paragraphs 4.1.5.1.24, 4.4.8.31 and 5.1.2.2.13.

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## ANNEX 14

### DRAFT AMENDMENTS TO THE LSA CODE

#### CHAPTER IV Survival craft

#### 4.6 Totally enclosed lifeboats

1 The following new paragraphs 4.6.6 and 4.6.7 are inserted after existing paragraph 4.6.5:

##### "4.6.6 Ventilation means

4.6.6.1 A totally enclosed lifeboat shall be provided with means to achieve a ventilation rate of at least 5 m<sup>3</sup>/h per person for the number of persons which the lifeboat is permitted to accommodate and for a period of not less than 24 hours. The ventilation means shall be operable from inside the lifeboat and shall be arranged to ensure that the lifeboat is ventilated without stratification or formation of unventilated pockets.

4.6.6.2 Where the means of ventilation is powered, the source shall not be the radio batteries referred to by paragraph 4.4.6.11; and where dependent on the lifeboat engine, sufficient fuel shall be provided to comply with paragraph 4.4.6.8.

##### 4.6.7 Openings of the ventilation system and their means of closing

4.6.7.1 Each opening of the ventilation means required in paragraph 4.6.6 shall be provided with means of closing. The means of closing shall be operable by a person from inside the lifeboat. Means shall be provided to ensure that the openings can be kept closed before, i.e. while in the stowed position, and during the launching of the lifeboat.

4.6.7.2 Inlet and outlet openings of the ventilation means and their external fittings shall be located and designed in order to minimize the ingress of water through the openings, without using the means of closing required in paragraph 4.6.7.1 and taking into consideration the requirements provided in paragraph 4.6.3.2.

4.6.7.3 For a free-fall lifeboat complying with the requirements of section 4.7, the openings and their means of closing shall be designed to withstand the loads and to prevent ingress of water under the anticipated submerged condition of the lifeboat at the time of free-fall launching.

4.6.7.4 For a lifeboat with a self-contained air support system complying with the requirements of section 4.8, the openings and their means of closing shall be designed to maintain the pressure required by section 4.8.

4.6.7.5 For a fire-protected lifeboat complying with the requirements of section 4.9, the openings and their means of closing shall be designed to ensure that the capability of protecting persons in the lifeboat is not impaired, under the conditions specified in paragraph 4.9.1."

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**ANNEX 15\***

**DRAFT AMENDMENTS TO SOLAS CHAPTERS II-1, II-2, V AND XIV AND THE  
APPENDIX (CERTIFICATES)**

**CHAPTER II-1  
Construction – Structure, subdivision and stability,  
machinery and electrical installations**

**Part A  
General**

**Regulation 2**

*Definitions*

1 The following new paragraphs are added after existing paragraph 29:

"30 *Lifting appliance* means any load-handling ship's equipment:

- .1 used for cargo loading, transfer, or discharge;
- .2 used for raising and lowering hold hatch covers or moveable bulkheads;
- .3 used as engine-room cranes;
- .4 used as stores cranes;
- .5 used as hose handling cranes;
- .6 used for launch and recovery of tender boats and similar applications; and
- .7 used as personnel handling cranes.

31 *Anchor handling winch* means any winch for the purpose of deploying, recovering and repositioning anchors and mooring lines in subsea operations.

32 *Loose gear* means an article of ship's equipment by means of which a load can be attached to a lifting appliance or an anchor handling winch but which does not form an integral part of the appliance or load.

33 The expression *appliances installed on or after [date]*, as provided in regulation 3-13 means:

- .1 for ships the keel of which is laid or which is at a similar stage of construction on or after [date], appliances on board those ships; or
- .2 for ships other than those specified in .1, including those constructed before 1 January 2009, appliances, having a contractual delivery date to the ship on or after [date] or, in the

---

\* Modifications to existing text are shown in grey shading.

absence of a contractual delivery date to the ship, actually delivered to the ship on or after [date]."

### **Part A-1 Structure of ships**

2 The following new regulation is added after existing regulation II-1/3-12:

#### **"Regulation 3-13**

*Lifting appliances and anchor handling winches*

#### **1 Application**

1.1 Unless expressly provided otherwise, this regulation shall apply to lifting appliances and anchor handling winches, and loose gear utilized with the lifting appliances and the anchor handling winches.

1.2 Notwithstanding the above, this regulation does not apply to:

- .1 lifting appliances on ships certified as MODUs;<sup>1</sup>
- .2 lifting appliances used on offshore construction ships, such as pipe/cable laying/repair or offshore installation vessels, including ships for decommissioning work, which comply with standards acceptable to the Administration;
- .3 integrated mechanical equipment for opening and closing hold hatch covers; and
- .4 life-saving launching appliances complying with the LSA Code.

1.3 The Administration shall determine to what extent the provisions of regulations 3-13.2.1 and 3-13.2.4 do not apply to lifting appliances which have a safe working load below 1,000 kg.

#### **2 Design, construction and installation**

2.1 Lifting appliances installed on or after [date] shall be:

- .1 designed, constructed and installed in accordance with the requirements of a classification society which is recognized by the Administration in accordance with the provisions of regulation XI-1/1 or standards acceptable to the Administration which provide an equivalent level of safety; and
- .2 load tested and thoroughly examined after installation and before being taken into use for the first time and after repairs, modifications or alterations of major character.

2.2 Anchor handling winches installed on or after [date] shall be designed, constructed, installed and tested to the satisfaction of the Administration, based on the Guidelines developed by the Organization.<sup>2</sup>

2.3 Lifting appliances installed on or after [date] shall be permanently marked and provided with documentary evidence for the safe working load (SWL).

2.4 Lifting appliances installed before [date] shall be tested and thoroughly examined, based on the Guidelines developed by the Organization<sup>3</sup> and comply with regulation 3-13.2.3 no later than the date of the first renewal survey on or after [date].

2.5 Anchor handling winches installed before [date] shall be tested and thoroughly examined, based on the Guidelines developed by the Organization<sup>2</sup> no later than the date of the first renewal survey on or after [date].

### **3 Maintenance, operation, inspection and testing**

All lifting appliances and anchor handling winches, regardless of installation date, and all loose gear utilized with any lifting appliances and anchor handling winches, shall be operationally tested, thoroughly examined, inspected, operated and maintained, based on the Guidelines developed by the Organization.<sup>2,3</sup>

### **4 Inoperative lifting appliances and anchor handling winches**

Except as provided in regulations I/11(c), while all reasonable steps shall be taken to maintain lifting appliances, anchor handling winches and loose gear to which this regulation applies in working order, malfunctions of that equipment shall not be assumed as making the ship unseaworthy or as a reason for delaying the ship in ports, provided that action has been taken by the master to take the inoperative lifting appliance or anchor handling winch into account in planning and executing a safe voyage.<sup>2,3</sup>

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<sup>1</sup> Ships certified as MODUs are those subject to the MODU Code and which carry a MODU Code Certificate on board issued by the Administration or a recognized organization. The carriage of this certificate includes authorized electronic versions available on board.

<sup>2</sup> Refer to the *Guidelines for anchor handling winches* (MSC.1/Circ.[...]).

<sup>3</sup> Refer to the *Guidelines for lifting appliances* (MSC.1/Circ.[...])."

## **CHAPTER II-2**

### **Construction – Fire protection, fire detection and fire extinction**

#### **Part A General**

#### **Regulation 1**

##### *Application*

#### **2 Applicable requirements to existing ships**

3 The following new paragraph 2.10 is added after existing paragraph 2.9, with the associated footnote:

"2.10 Ships constructed before [1 January 2026] shall comply with regulation II- 2/10.11.2[, as adopted by resolution MSC...(…),] not later than the date of the first survey\* after 1 January 2026.

---

\* Refer to the *Unified interpretation of the term "first survey" referred to in SOLAS regulations* (MSC.1/Circ.1290)."

## **Part C** **Suppression of fire**

### **Regulation 10** *Fire fighting*

4 The following new section 11 is added after existing section 10:

#### **"11 Fire-extinguishing media restrictions**

The purpose of this regulation is to protect persons on board against exposure to dangerous substances used in firefighting, as well as to minimize the impact of fire-extinguishing media that are deemed detrimental to the environment.

##### **11.1 Application**

This regulation applies to ships constructed on or after [1 January 2026].

##### **11.2 General**

11.2.1 The prohibited substances in this regulation shall be delivered to appropriate shore-based reception facilities when removed from the ship.

11.2.2 Use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) shall be prohibited."

## **CHAPTER V** **Safety of navigation**

### **Regulation 2** *Definitions*

5 The following new paragraphs are added after the existing paragraph 7:

"8 *Bulk carrier* means a bulk carrier as defined in regulation XII/1.1.<sup>1</sup>

9 *Container ship* means a ship which is intended primarily to carry containers.<sup>2</sup>

---

<sup>1</sup> Refer to *Clarification of the term "bulk carrier" and guidance for application of regulations in SOLAS to ships which occasionally carry dry cargoes in bulk and are not determined as bulk carriers in accordance with regulation XII/1.1 and chapter II-1 (resolution MSC.277(85))*.

<sup>2</sup> The term "container" should be considered as having the same meaning as defined and applied in the International Convention for Safe Containers (CSC), 1972, as amended."

### **Regulation 18** *Approval, surveys and performance standards of navigational systems and equipment and voyage data recorder*

6 The following reference is added to the footnote corresponding to paragraph 2:

"*Performance standards for electronic inclinometers (resolution MSC.363(92))*"

## Regulation 19

*Carriage requirements for shipborne navigational systems and equipment*

7 The following new paragraph 2.12 is added after existing paragraph 2.11:

"2.12 Container ships and bulk carriers of 3,000 gross tonnage and upwards constructed on or after 1 January 2026 shall be fitted with an electronic inclinometer, or other means, to determine, display and record the ship's roll motion."

## CHAPTER XIV Safety measures for ships operating in polar waters

### Regulation 2

*Application*

8 Regulation 2 is amended as follows:

#### "Regulation 2

*Application*

1 Unless expressly provided otherwise, this chapter applies to the following ships operating in polar waters:

- .1 ships certified in accordance with chapter I;<sup>1</sup>
- .2 fishing vessels of 24 metres in length overall and above;
- .3 pleasure yachts of 300 gross tonnage and upwards not engaged in trade; and
- .4 cargo ships of 300 gross tonnage and upwards but below 500 gross tonnage.

2 Ships subject to regulation 2.1.1 constructed before 1 January 2017 shall meet the relevant requirements of the Polar Code by the first intermediate or renewal survey, whichever occurs first, after 1 January 2018.

3 Ships subject to regulations 2.1.2, 2.1.3 or 2.1.4 constructed before [date of entry into force] shall meet the relevant requirements of chapters 9-1 and 11-1 of the Polar Code by the [date of entry into force + one year].

34 In applying part I-A of the Polar Code, consideration should be given to the additional guidance in part I-B of the Polar Code.

5 This chapter shall not apply to ships owned or operated by a Contracting Government and used, for the time being, only in government non-commercial service. However, ships owned or operated by a Contracting Government and used, for the time being, only in government non-commercial service are encouraged to act in a manner consistent, so far as reasonable and practicable, with this chapter.

~~5-6~~ Nothing in this chapter shall prejudice the rights or obligations of States under international law.

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<sup>1</sup> Refer to the *Interim safety measures for ships not certified under the SOLAS Convention operating in polar waters* (resolution A.1137(31))."

### **Regulation 3**

*Requirements for ships to which this chapter applies*

9 Regulation 3 is amended as follows:

#### **"Regulation 3**

*Requirements for ships ~~to which this chapter applies~~ certified in accordance with chapter I*

1 Ships ~~to which this chapter applies~~ subject to regulation 2.1.1 above shall comply with the requirements of the safety-related provision of the introduction and with part I-A of the Polar Code and shall, in addition to the requirements of regulations I/7, I/8, I/9, and I/10, as applicable, be surveyed and certified, as provided for in that Code.

2 Ships ~~to which this chapter applies~~ subject to regulation 2.1.1 above holding a certificate issued pursuant to the provisions of paragraph 1 shall be subject to the control established in regulations I/19 and XI-1/4. For this purpose, such certificates shall be treated as a certificate issued under regulation I/12 or I/13."

10 A new regulation 3-1 is inserted as follows:

#### **"Regulation 3-1**

*Requirements for fishing vessels of 24 metres in length overall and above, pleasure yachts of 300 gross tonnage and upwards not engaged in trade and cargo ships of 300 gross tonnage and upwards but below 500 gross tonnage*

1 Ships subject to regulations 2.1.2, 2.1.3 or 2.1.4 on all voyages in the Antarctic area and voyages in Arctic waters beyond the outer limit of the territorial sea of the Contracting Government whose flag the ship is entitled to fly shall comply with the provisions of chapters 9-1 and 11-1 of part I-A of the Polar Code, taking into account the introduction and the safety-related provisions of paragraphs 1.2, 1.4 and 1.5 of chapter 1 of part I-A of the Polar Code.

2 Notwithstanding paragraph 1 above, the Administration shall determine to what extent the provisions of regulations 9-1.3.1 and 9-1.3.2 of chapter 9-1 of part I-A of the Polar Code do not apply to:

- .1 fishing vessels of 24 metres of length overall and above; and
- .2 ships of 300 gross tonnage and upwards but below 500 gross tonnage not engaged in international voyages."

**APPENDIX**  
**CERTIFICATES**

**Record of equipment for passenger ship safety (Form P)**

**2 Details of life-saving appliances**

11 In the table for "Details of life-saving appliances", entries 10 to 10.2 are replaced by the following:

10	Number of immersion suits
<del>10.1</del>	<del>Total number</del>
<del>10.2</del>	<del>Number of suits complying with the requirements for lifejackets</del>

**Form of Safety Equipment Certificate for Cargo Ships**

***Cargo Ship Safety Equipment Certificate***

**Particulars of ship**

12 The following new entry is added after "Gas carrier":

"Container ship"

***Record of Equipment for Cargo Ship Safety (Form E)***

**2 Details of life-saving appliances**

13 In the table for "Details of life-saving appliances", entries 9 to 9.2 are replaced by the following:

9	Number of immersion suits
<del>9.1</del>	<del>Total number</del>
<del>9.2</del>	<del>Number of suits complying with the requirements for lifejackets</del>

**3 *Details of navigational systems and equipment***

14 The following new entry is added after existing entry 15 (Bridge navigational watch alarm system (BNWAS)):

"16 Electronic inclinometer"

***Record of Equipment for Cargo Ship Safety (Form C)***

**2 Details of life-saving appliances**

15 In the table for "Details of life-saving appliances", entries 9 to 9.2 are replaced by the following:

9	Number of immersion suits
9.1	Total number
9.2	<del>Number of suits complying with the requirements for lifejackets</del>

**5 Details of navigational systems and equipment**

16 The following new entry is added after existing entry 15 (Bridge navigational watch alarm system (BNWAS)):

"16 Electronic inclinometer"

\*\*\*

**ANNEX 16\***

**DRAFT AMENDMENTS TO THE 1994 HSC CODE**

**CHAPTER 7  
Fire safety**

**Part A  
General**

**7.9 Miscellaneous**

1 The following new paragraph 7.9.4 is added after existing paragraph 7.9.3.4, with the associated footnote:

**"7.9.4 Fire-extinguishing media restrictions**

7.9.4.1 The following restrictions should apply for the use, storage or disposal of perfluorooctane sulfonic acid (PFOS):

- .1 on all craft, use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) should be prohibited no later than the date of the first survey\* after [1 January 2026]; and
- .2 the prohibited substances in this regulation should be delivered to appropriate shore-based reception facilities when removed from the craft.

---

\* Refer to the *Unified interpretation of the term "first survey" referred to in SOLAS regulations (MSC.1/Circ.1290).*"

---

\* Modifications to existing text are shown in grey shading.

ANNEX 1

**FORM OF SAFETY CERTIFICATE FOR HIGH-SPEED CRAFT**

**Record of Equipment for High-Speed Craft Safety Certificate**

2 In the table for "Details of life-saving appliances", entries 9 to 10.2 are replaced by the following:

9	Number of immersion suits	.....
<del>9.1</del>	<del>Total number</del>	<del>.....</del>
<del>9.2</del>	<del>Number of suits complying with the requirements for lifejackets"</del>	<del>.....</del>
10	Number of anti-exposure suits	.....
<del>10.1</del>	<del>Total number</del>	<del>.....</del>
<del>10.2</del>	<del>Number of suits complying with the requirements for lifejackets</del>	<del>.....</del>

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**ANNEX 17\***

**DRAFT AMENDMENTS TO THE 2000 HSC CODE**

**CHAPTER 7  
Fire safety**

**Part A  
General**

**7.9 Miscellaneous**

1 The following new paragraph 7.9.4 is added after existing paragraph 7.9.3.5 with the associated footnote:

**"7.9.4 Fire-extinguishing media restrictions**

7.9.4.1 The following restrictions shall apply for the use, storage or disposal of perfluorooctane sulfonic acid (PFOS):

.1 on craft constructed on or after [1 January 2026], use or storage of extinguishing media containing perfluorooctane sulfonic acid (PFOS) shall be prohibited;

.2 craft constructed before [1 January 2026] shall comply with .1 above no later than the date of the first survey\* after [1 January 2026]; and

.3 the prohibited substances in this regulation shall be delivered to appropriate shore-based reception facilities when removed from the craft.

---

\* Refer to the *Unified interpretation of the term "first survey" referred to in SOLAS regulations (MSC.1/Circ.1290).*"

---

\* Modifications to existing text are shown in grey shading.

ANNEX 1

**FORM OF HIGH-SPEED CRAFT AND RECORD OF EQUIPMENT**

**Record of Equipment for the High-Speed Craft Safety Certificate**

2 In the table for "Details of life-saving appliances", entries 9 to 10.2 are replaced by the following:

9	Number of immersion suits	.....
<del>9.1</del>	<del>Total number</del>	<del>.....</del>
<del>9.2</del>	<del>Number of suits complying with the requirements for lifejackets"</del>	<del>.....</del>
10	Number of anti-exposure suits	.....
<del>10.1</del>	<del>Total number</del>	<del>.....</del>
<del>10.2</del>	<del>Number of suits complying with the requirements for lifejackets</del>	<del>.....</del>

\*\*\*

**ANNEX 23**

**DRAFT AMENDMENTS TO THE 1978 SOLAS PROTOCOL**

**ANNEX**

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL  
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

**APPENDIX**

***FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS***

**Particulars of ship**

The following new entry is added after "Gas carrier": "Container ship"

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**ANNEX 24**

**DRAFT AMENDMENTS TO THE 1988 SOLAS PROTOCOL**

**ANNEX**

**MODIFICATIONS AND ADDITIONS TO THE ANNEX TO THE INTERNATIONAL  
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

**APPENDIX**

**FORM OF SAFETY EQUIPMENT CERTIFICATE FOR CARGO SHIPS**

**Particulars of ship**

- 1 The following new type of ship is added after "Gas carrier":  
"Container ship"

**FORM OF SAFETY CERTIFICATE FOR CARGO SHIPS**

**Particulars of ship**

- 2 The following new type of ship is added after "Gas carrier":  
"Container ship"

\*\*\*

---

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MSC.1/Circ.1655  
5 December 2022

## **UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2**

1 The Maritime Safety Committee, at its 106th session (2 to 11 November 2022), with a view to providing more specific guidance on SOLAS regulation II-2/9, approved unified interpretations of SOLAS chapter II-2, prepared by the Sub-Committee on Ship Systems and Equipment, at its eighth session (28 February to 4 March 2022), as set out in the annex.

2 Member States are invited to use the annexed unified interpretations as guidance when applying SOLAS regulation II-2/9, and to bring the unified interpretations to the attention of all parties concerned.

\*\*\*

**ANNEX**

**UNIFIED INTERPRETATIONS OF SOLAS CHAPTER II-2**

**CHAPTER II-2**

**CONSTRUCTION – FIRE PROTECTION, FIRE DETECTION AND FIRE EXTINCTION**

**Regulation II-2/9.7.3.1.2 – Containment of fire, details of fire dampers and duct penetrations**

The fire insulation required by regulation SOLAS II-2/9.7.3.1.2 should be provided only to the part of the duct and/or sleeve that is on the same side of the division being fire insulated, and be extended for a minimum of 450 mm along the duct and/or sleeve.

**Regulation II-2/9.7.3.2 – Containment of fire, details of fire dampers and duct penetrations**

When a duct passing through a division is to be in accordance with SOLAS regulations II-2/9.3.2 and II-2/9.7.3.2, no clearance should be allowed between the duct and the division.

---

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MSC.1/Circ.1315/Rev.1  
5 December 2022

**REVISED GUIDELINES FOR THE APPROVAL OF FIXED DRY CHEMICAL POWDER  
FIRE-EXTINGUISHING SYSTEMS FOR THE PROTECTION OF SHIPS CARRYING  
LIQUEFIED GASES IN BULK**

1 The Maritime Safety Committee, at its eighty-sixth session (27 May to 5 June 2009), having considered the proposal by the Sub-Committee on Fire Protection, at its fifty-third session, approved *Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk* (MSC.1/Circ.1315).

2 The Committee, at its 106th session (2 to 11 November 2022), approved the *Revised guidelines for the approval of fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk* (MSC.1/Circ.1315/Rev.1), prepared by the Sub-Committee on Ship Systems and Equipment, at its eighth session (28 February to 4 March 2022), as set out in the annex.

3 Member Governments are invited to apply the annexed Revised Guidelines for the approval of fixed dry chemical powder fire-extinguishing systems installed on or after 1 July 2023 for the protection of ships carrying liquefied gases in bulk, and bring them to the attention of ship designers, shipowners, equipment manufacturers, test laboratories and other parties concerned.

4 The expression "installed on or after 1 July 2023" means:

- .1 for ships for which the building contract is placed on or after 1 July 2023, or in the absence of the contract, constructed on or after 1 July 2023, any installation date on the ship; or
- .2 for ships other than those ships prescribed in paragraph .1 above, a contractual delivery date for the equipment or, in the absence of a contractual delivery date, the actual delivery date of the equipment to the ship on or after 1 July 2023.

5 This circular supersedes MSC.1/Circ.1315. Existing fixed dry chemical powder fire-extinguishing systems for the protection of ships carrying liquefied gases in bulk approved based on MSC.1/Circ.1315 and installed before 1 July 2023 should be permitted to remain in service as long as they are serviceable.

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## ANNEX

### REVISED GUIDELINES FOR THE APPROVAL OF FIXED DRY CHEMICAL POWDER FIRE-EXTINGUISHING SYSTEMS FOR THE PROTECTION OF SHIPS CARRYING LIQUEFIED GASES IN BULK

#### 1 Application

These Revised Guidelines apply to fixed dry chemical powder fire-extinguishing systems for the protection of on-deck cargo areas of ships carrying liquefied gases in bulk in accordance with SOLAS regulation II-2/1.6.2 and chapter 11 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code).

#### 2 Definitions

2.1 *Caking* is a chemical reaction between dry chemical powder and moisture that causes individual particles of the medium to bind together to form an aggregate mass.

2.2 *Dry chemical powder* is an extinguishing medium composed of finely divided solid chemical products consisting of one or more components, which may be combined with additives to improve its characteristics to prevent packing and caking (moisture absorption) and to ensure consistent flow characteristics.

2.3 *Dry chemical powder unit* is a complete system including dry chemical storage container(s), pressurizing gas storage container(s), controls, piping and hand hose lines.

2.4 *Gas point* is a defined point in the discharge of a dry chemical powder unit when the discharge of dry chemical powder ends, and is marked by a change in the nozzle stream to the discharge of primarily pressurizing gas.

2.5 *Hand hose line* is a hand-held dry chemical powder nozzle covering cargo areas not covered by a monitor, that is normally closed and opened by the individual operating the device at or just before the nozzle.

2.6 *Monitor* is a fixed dry chemical powder nozzle protecting cargo loading and discharge manifold areas.

2.7 *Packing* is a phenomenon that occurs when dry chemical powder stored in a container is subjected to vibration causing the smaller particles to move to the bottom of the container and the larger particles to travel to the top.

2.8 *Pressurizing medium* is the gas used to expel the dry chemical from the system, usually dry nitrogen.

#### 3 Principal requirements for the dry chemical powder and the system

3.1 The system should be capable of manual release. A manual release station should be located adjacent to each hand hose line and each monitor. A back-up release station should be provided at the fixed dry chemical powder unit. The operation of any manual release station should initiate the pressurization of the fixed dry chemical powder unit and begin the discharge of dry chemical powder to all connected hand hose lines and monitors.

3.2 The system and its components should be designed to withstand ambient temperature changes, vibration, humidity, shock, impact and corrosion normally encountered on the open deck of ships, and manufactured and tested to the satisfaction of the Administration, in accordance with the criteria given in the appendix.

3.3 Dry chemical storage should be designed to maintain the conditions on board in accordance with the manufacturer's recommendations.

3.4 Systems should be designed for the discharge characteristics and flow rates of a specific dry chemical powder medium (formulation and physical nature of composition). The specific type of dry chemical powder medium in the system should not be changed unless testing to verify performance is conducted by a laboratory to the satisfaction of the Administration. Different dry chemical powder media should not be mixed.

3.5 Dry chemical storage containers should be designed to pressure codes of practice acceptable to the Administration, for the maximum system pressure developed at 55°C.

3.6 Dry chemical powder should be tested as specified in the appendix.

3.7 A means for pressurizing the system using an inert gas, which is normally dry nitrogen, in high pressure cylinders should be provided. The inert gas should be industrial grade with a dew point of -50°C or lower. Pressure gauges should be provided for monitoring the contents of the cylinders. A pressure regulator should be installed to reduce the gas pressure to the required system operating pressure.

3.8 The quantity of expellant gas should be adequate for the system to discharge the entire charge of dry chemical powder within the time period specified in paragraph 1 of the appendix. If multiple gas cylinders are provided, they should be arranged with normally closed cylinder valves that are automatically opened by a pilot system when a release station is actuated. Each cylinder should have, in addition, the capability of manual operation.

3.9 System piping should be arranged to ensure that the required flow rates are achieved at each hand hose line and monitor. Flow through the piping should be based on flow calculation methods determined by the test laboratory for the specific dry chemical powder medium and equipment used.

3.10 Hand hose line nozzles, monitors and hose couplings should be constructed of brass or stainless steel. Piping, fittings and related components, except gaskets, should be designed to withstand 925°C.

3.11 Dry chemical storage container pick-up tubes and related internal structures should be shown to be resistant to corrosive effects of the dry chemical medium.

3.12 Dry chemical storage containers should have a fill opening of at least 100 mm to allow onboard recharging and suitable connections to allow the dry powder charge to be fully agitated with nitrogen, in accordance with the system manufacturer's maintenance instructions.

3.13 Operating instructions for the system should be placed at each operating station.

3.14 Recharging instructions should be provided on a permanent nameplate affixed to the fixed dry chemical powder unit. As a minimum, the instructions should indicate the required type of dry chemical powder, the manufacturer of the powder and the required charge. The required pressurizing medium pressure, number of cylinders and regulator valve setting should also be provided.

3.15 An approved design, installation, operation and maintenance manual should be provided to the shipowner for each type of fixed dry chemical powder unit.

#### **4 Onboard testing**

After installation, the pipes, valves, fittings and assembled systems should be subjected to a tightness test and functional testing of the remote and local release stations. Testing arrangements are to involve discharge using dry chemical powder from all monitors and hand hose lines on board, but a full discharge of the installed quantity of dry powder is not required. This testing can also be used to satisfy the requirement that the piping is free of obstructions, in lieu of blowing through with dry air all the distribution piping. However, after completion of this testing, the system, including all monitors and hand hose lines, are to be blown through with dry air; but only for the purpose of the system subsequently being clear from any residues of dry chemical powder.

## APPENDIX

### APPROVAL TESTS

Except for paragraph 5, a fully charged fixed dry chemical powder unit conditioned at  $21 \pm 3^{\circ}\text{C}$  for at least 24 h should be used.

#### Characteristics of the system

##### 1 Discharge duration test

A fixed dry chemical powder unit should have a discharge duration of at least 45 s with all attached hand hose lines and monitors operating. The hand hose lines should be fully deployed for this test. To conduct the test, the hose lines and monitors should be held in a horizontal position and their discharge valves fully opened. The duration of discharge should be measured from the time dry chemical powder begins flowing from all attached devices until the gas point is reached at the first nozzle.

##### 2 Maximum length of piping and fittings test

The discharge duration test should be conducted with the maximum length of discharge piping, elbows, tees and other fittings to be used on board, as recommended by the manufacturer. One nozzle should be located at the maximum height for which approval is requested.

##### 3 Discharge range test

Dry chemical powder monitors should have a minimum discharge range as follows:

Monitor flow rate	Minimum range
10 kg/s	10 m
25 kg/s	30 m
45 kg/s	40 m

For monitors with a discharge rate between the above listed values, the minimum range should be determined by interpolation. The test should be conducted with the monitor positioned, 1 metre above the floor. The monitor should be capable of achieving the minimum range for at least 40 s of the 45 s discharge.

##### 4 Flow rate test

The minimum flow rate of each type of hand hose line nozzle should be at least 3.5 kg/s and each type of monitor should be at least 10 kg/s. The minimum flow rate should be determined based on the average of three discharge tests. The tests should be conducted with the nozzle/monitor discharged for at least 30 s. The fixed dry chemical powder unit should be placed on a load cell or weighed before and after testing to determine the quantity of medium discharged during the test.

##### 5 Minimum temperature test

A fully charged fixed dry chemical powder unit conditioned at the minimum expected storage temperature for at least 24 h should be capable of discharging at least 85% of the dry chemical medium with all attached hand hose lines and monitors operating. The minimum expected storage temperature should be determined by the Administration.

## **6 Hand hose line hydrostatic test**

A full-length representative sample of a hand hose line should be subjected to a hydrostatic pressure equal to two times the maximum operating pressure that would be developed in the line by a fully charged unit with the nozzle discharge valve closed. The hose should be capable of withstanding this test pressure for a period of 1 min without rupturing.

## **7 Salt spray test**

7.1 Representative samples of valves, pressure regulators, gauges, releasing controls and related components that will be installed at locations exposed to the weather should be subjected to a salt spray within a fog chamber. Prior to exposure, any components with inlet or outlet orifices should be sealed.

7.2 The salt solution should be a 20% by mass sodium chloride solution in distilled water. The pH should be between 6.5 and 7.2 and the density between 1.126 g/mL and 1.157 g/mL when atomized at 35°C. Suitable means of controlling the atmosphere in the chamber should be provided. The specimens should be supported in their normal operating position and exposed to the salt spray (fog) in a chamber having a volume of at least 0.43 m<sup>3</sup> in which the exposure zone should be maintained at a temperature of 35 ± 2°C. The temperature should be recorded at least once per day, at least 7 h apart (except weekends and holidays when the chamber normally would not be opened). Salt solution should be supplied from a recirculating reservoir through air-aspirating nozzles, at a pressure between 0.7 bar (0.07 MPa) and 1.7 bar (0.17 MPa). Salt solution run-off from exposed samples should be collected and should not return to the reservoir for recirculation. The samples should be shielded from condensate dripping.

7.3 Fog should be collected from at least two points in the exposure zone to determine the rate of application and salt concentration. The fog should be such that for each 80 cm<sup>2</sup> of collection area, 1 mL to 2 mL of solution should be collected per hour over a 16 h period and the salt concentration should be 20 ± 1% by mass.

7.4 The samples should withstand exposure to the salt spray for a period of 30 days. After this period, the samples should be removed from the fog chamber and allowed to dry for 4 to 7 days at a temperature of 20°C to 25°C in an atmosphere having a relative humidity not greater than 70%.

7.5 Following the drying period, the samples should be examined for evidence of failure. Any operating components should be functionally tested to verify continued operability. Gauges should remain watertight for at least 2 h when immersed in 0.3 m of water.

## **Characteristics of the dry chemical powder**

### **8 Temperature test**

Dry chemical powders should be tested at a temperature of 55°C or higher.

### **9 Dry chemical powder tests**

Dry chemicals should be tested in accordance with ISO 7202:2018, as amended by paragraph 8 above.

## **10 Characteristics of the fire test**

The dry chemical powder should be demonstrated capable of extinguishing fires in liquefied gas cargoes. Representative equipment should be subjected to full-scale fire tests to the satisfaction of the Administration. Fire test using heptane should be carried out in accordance with ISO 7202 standards, item 13.3.

### **10.1 Characteristics of fires to be extinguished during the fire test**

10.1.1 The fire test should be conducted using heptane as outlined in section 8 of ISO 7165:2017 standards for a Class B fire, except as outlined in section 9 of the appendix to these Revised Guidelines.

10.1.2 The fire tests should be conducted in a controlled space/area with no restrictions on air supply with agreed standard test equipment. Wind speed should not exceed 3 m/s during the fire tests and oxygen concentration should not be lower than 20% throughout the fire test. The fire tests may be performed outside.

### **10.2 Establishment of acceptance criteria for extinguishment in the fire test**

10.2.1 Test requirements:

- .1 temperature: 0°C to +30°C;
- .2 powder application rate should be measured;
- .3 the design of the hand hose line (including the nozzle) should be determined by the manufacturer and recorded in the test report; the system installed on board should match the qualification tests and be in accordance with the minimum requirements of resolution MSC.370(93); and
- .4 10 second discharge time after extinguishment;

10.2.2 Test fire arrangement/apparatus:

- .1 design and capacity of the storage tank containing the powder should be specified; similar storage tank should be on board in accordance with these qualification tests;
- .2 operating pressure of the extinguishing system should be recorded;
- .3 size and length of the piping should be recorded; and
- .4 the design of the fixed monitor (including the nozzle) should be determined by the manufacturer and recorded in the test report; the system installed on board should match the qualification tests and be in accordance with the minimum requirements of resolution MSC.370(93).

10.2.3 The fire tray should be constructed in accordance with paragraph 8.4.3 of standard ISO 7165:2017. The dimensions of fire tray should be based on the class 144B test fire given in table 9 of standard ISO 7165:2017.

10.2.4 The following parameters should be measured and recorded:

- .1 heptane volume for the fire scenario;
- .2 the discharge pressures at the inlet of fixed monitor and at the hand hose, at the outlet of the dry chemical powder container and at the outlet of the pressurizing gas container;
- .3 the mass of the dry chemical powder before and after the fire test; and
- .4 the time for extinction should be recorded for each test. The average time over all the tests performed is the extinction time.

10.2.5 Acceptance criteria:

- .1 the fire should be extinguished;
- .2 for any given configuration, the test should be performed three times out of which two should be successful. The maximum used powder quantity necessary to extinguish the fire in the three tests is the quantity needed to extinguish the fire; and
- .3 tests should be performed in such a way that they do not rely on skills of the fire-fighter operating the equipment and, therefore, a fixed monitor or hose line should be used.

10.2.6 Operation of the fire-fighting system during the tests:

- .1 the fires should be extinguished within discharge time for the fire from the activation of the fixed dry chemical powder unit;
- .2 for the fire a re-ignition test should be carried out to demonstrate that not all the fuel has been consumed; and
- .3 the monitor or hose line should be discharged continuously. The operator may move but should attack the fire from one side of the pan only, which should be the side judged most difficult to extinguish the fire.

## **11 Approval of the fire-extinguishing system**

1 The Type Approval Certificate for fire-extinguishing system should include at least the following:

- .1 allowable storage temperature lower and higher range for the system;
- .2 name of the specific dry chemical powder tested and approved with the system;
- .3 allowable storage time;
- .4 approved manufacturer's product manual; and
- .5 checking/analyses intervals.

## **12 Dry chemical powder storage**

Notwithstanding paragraph 8 above, the dry chemical powder should be tested for the expected maximum temperature to which it will be exposed during its storage on board and labelled accordingly.

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2 December 2022

## **INFORMATION ON PROHIBITING THE USE OF ASBESTOS ON BOARD SHIPS**

- 1 The Maritime Safety Committee, at its eighty-eighth session (24 November to 3 December 2010), approved the Guidance on *information on prohibiting the use of asbestos on board ships* (MSC.1/Circ.1374) with the aim of raising awareness about the dangers involved among parties concerned.
- 2 The Maritime Safety Committee, at its 106th session (2 to 11 November 2022), having considered that asbestos-containing gaskets in good condition may be allowed if installed between 1 July 2002 and 1 January 2011, instead of removal, approved the revised Guidance, as set out in the annex.
- 3 Member Governments, in their capacity as flag, port or coastal States, as well as international organizations concerned, are invited to note the information provided herein and bring it to the attention of all parties concerned (including maritime Administrations, recognized organizations, port authorities, shipbuilders and ship repairers, and equipment suppliers), requesting them to make use of it as it may be deemed appropriate.
- 4 This circular supersedes MSC.1/Circ.1374.

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## ANNEX

### INFORMATION ON PROHIBITING THE USE OF ASBESTOS ON BOARD SHIPS

#### Introduction

1 Since 1 July 2002, the installation of materials that contain asbestos has, under SOLAS regulation II-1/3-5, been prohibited for all ships, except for some vanes, joints and insulation. From 1 January 2011, any installation of materials that contain asbestos will, under SOLAS regulation II-1/3-5, be prohibited, for all ships without exceptions.

2 Despite the clear and unambiguous prohibition of asbestos containing materials (ACMs), asbestos is still found on various locations on board ships. During inspections, asbestos has been found in such places as fire blankets, joints and insulation materials, types of sealants, friction material for brakes, wall and ceiling coverings, cords, remnants, electric fuses, etc. Moreover, ships that initially were free of asbestos appear to have asbestos on board as a result of repairs at shipyards and/or of purchasing spare parts at a later stage.

#### Purpose

3 The purpose of this circular is to:

- .1 raise awareness among maritime Administrations, recognized organizations, shipbuilders and ship repairers, equipment suppliers and all other parties concerned of the fact that asbestos is still being used on ships, notwithstanding its prohibition as stated in paragraph 1 above;
- .2 highlight that the principal means of addressing the issue of asbestos being found on board ships in contravention of the aforementioned provisions of SOLAS rests with shipyards and ship suppliers purchasing and installing asbestos free material;
- .3 underline the importance of proper training of surveyors and inspectors in detecting asbestos and ACMs on board ships;
- .4 prevent any further use of asbestos on board ships; and
- .5 stress the importance of maritime Administrations taking appropriate action in case ACMs are found on board ships, in contravention of the aforementioned provisions of the SOLAS Convention.

#### Applicability on seagoing ships

4 Ships built before 1 July 2002 are allowed to have ACMs on board. However, the ACMs are only allowed as long as they do not pose a risk to the crew's health. The crew should be aware of the dangers of asbestos and should know how to deal with asbestos in case disturbance of the ACMs cannot be avoided.\*

5 Since 1 July 2002, new installation of ACMs on board all ships has been allowed only in exceptional cases.

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\* Refer to MSC.1/Circ.1045 on *Guidelines for maintenance and monitoring of on-board materials containing asbestos*.

6 From 1 January 2011, new installation of ACMs on board all ships will, without exception, no longer be allowed.

### **Recognizing asbestos containing materials**

7 Asbestos is used for its specific characteristics such as fire resistance, thermal insulation, electrical insulation, strength, flexibility, etc. Therefore, asbestos is used in various locations throughout a ship. Inspectors should be aware of the large number of probable asbestos applications on board.

8 Asbestos is a fibrous material and can often be identified visually on that basis. However, most asbestos is used on board in materials where it cannot easily be identified visually.

9 It is recommended that, whenever an item or material is to be installed, it is ensured that the item or material has a statement of compliance, or similar, with the relevant SOLAS regulation. This may take the form of an "asbestos free declaration". Due diligence should be paid to such statements or declarations and it is recommended that random confirmations are carried out.

10 Although asbestos in most ACMs can only be ascertained by experts in specialized laboratories, it is possible to provide training to crew members, surveyors and inspectors in identifying materials that might be ACMs. As a result of such training, the crew and ship surveyors and inspectors can avoid health risks by having the suspected material sampled and analysed first. In case sampling and analysing by experts is not possible, the crew and ship surveyors and inspectors should treat the material as if it contains asbestos in order to avoid possible health risks.

### **Training of surveyors and inspectors**

11 Surveyors and inspectors that are charged with asbestos investigations on board ships should be trained in recognizing asbestos and ACMs. They should also be trained in taking samples and should be instructed when to call in experts to conduct the investigation.

12 Surveyors and inspectors should be aware of the dangers of exposure to asbestos and should, while performing their corresponding duties, take all necessary precautions.

### **Action to be taken in case of contraventions of the SOLAS Convention regulation II-1/3-5**

13 When asbestos is detected on board, in contravention of SOLAS regulation II-1/3-5, action should be taken to have it removed. The removal – assigned to professional asbestos removal companies – should take place within a time frame of three years from the date when the contravention is found and should be conducted in close consultation with and, where applicable, under the supervision of the flag State concerned. In such cases, a suitable exemption certificate should be issued by the flag State.

14 For asbestos-containing gaskets in good condition and installed between 1 July 2002 and 1 January 2011 in contravention of SOLAS regulation II 1/3 5, an Administration may, as an equivalent in accordance with SOLAS regulation I/5, instead of removal as per paragraph 13 above, allow for an onboard implemented risk-based maintenance and monitoring programme of onboard materials containing asbestos, in accordance with the *Guidelines for maintenance and monitoring of on-board materials containing asbestos* (MSC.1/Circ.1045). Such asbestos-containing gaskets should subsequently be removed when planned repairs or removal of the relevant system (containing these gaskets) is carried out.