

## ANNEX 13

### DRAFT AMENDMENTS TO MARPOL ANNEX VI

#### REGULATIONS FOR THE PREVENTION OF AIR POLLUTION FROM SHIPS

##### **Regulation 1**

###### *Application*

- 1 The paragraph is replaced with the following:

"The provisions of this Annex shall apply to all ships, except where expressly provided otherwise."

##### **Regulation 2**

###### *Definitions*

- 2 New paragraphs 51, 52, 53, 54 and 55 are added as follows:

51 *Sulphur content of fuel oil* means the concentration of sulphur in a fuel oil, measured in % m/m as tested in accordance with a standard acceptable to the Organization.<sup>1</sup>

52 *Low-flashpoint fuel* means gaseous or liquid fuel oil having a flashpoint lower than otherwise permitted under paragraph 2.1.1 of SOLAS regulation II-2/4.

53 *MARPOL delivered sample* means the sample of fuel oil delivered in accordance with regulation 18.8.1 of MARPOL Annex VI.

54 *In-use sample* means the sample of fuel oil in use on a ship.

55 *On board sample* means the sample of fuel oil intended to be used or carried for use on board that ship."

##### **Regulation 14**

###### *Sulphur oxides (SO<sub>x</sub>) and particulate matter*

- 3 "In-use and on board fuel oil sampling and testing" and a new paragraph 8 and 9 are added at the end of regulation 14 as follows:

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<sup>1</sup> Refer to ISO 8754: 2003 Petroleum products – Determination of sulfur content – Energy-dispersive X-ray fluorescence spectrometry.

### **"In-use and on board fuel oil sampling and testing**

8 If the competent authority of a Party requires the in-use or on board fuel oil sample to be analysed, it shall be done in accordance with the verification procedure set forth in appendix VI to determine whether the fuel oil being used or carried for use on board meets the requirements in paragraph 1 or paragraph 4 of this regulation. The in-use fuel oil sample shall be drawn taking into account the guidelines developed by the Organization.<sup>2</sup> The on board fuel oil sample shall be drawn taking into account the guidelines to be developed by the Organization.<sup>3</sup>

9 The sample shall be sealed by the representative of the competent authority with a unique means of identification installed in the presence of the ship's representative. The ship shall be given the option of retaining a duplicate sample."

4 "In-use fuel oil sampling point" and new paragraphs 10, 11, 12 and 13 are added at the end of regulation 14 as follows:

### **"In-use fuel oil sampling point**

10 For each ship subject to regulations 5 and 6 of this Annex, sampling point(s) shall be fitted or designated for the purpose of taking representative samples of the fuel oil being used on board the ship taking into account guidelines developed by the Organization.<sup>2</sup>

11 For a ship constructed before entry into force of these requirements, the sampling point(s) referred to in paragraph 9 shall be fitted or designated no later than the first renewal survey that occurs 12 months or more after the entry into force of this regulation.

12 The requirements of paragraphs 10 and 11 above are not applicable to a fuel oil service system for a low-flashpoint fuel for combustion purposes for propulsion or operation on board the ship.

13 The competent authority of a Party shall, as appropriate, utilize the sampling point(s) which is fitted or designated for the purpose of taking representative sample(s) of the fuel oil being used on board in order to verify the fuel oil complies with this regulation. Taking fuel oil samples by the competent authority of the Party shall be performed as expeditiously as possible without causing the ship to be unduly delayed."

## **Regulation 18**

### *Fuel oil availability and quality*

5 Paragraph 8.2 is replaced with the following:

"8.2 If a Party requires the representative sample to be analysed, it shall be done in accordance with the verification procedure set forth in appendix VI to determine whether the fuel oil meets the requirements of this Annex."

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<sup>2</sup> Refer to the 2019 Guidelines for on board sampling for the verification of the sulphur content of the fuel oil used on board ships (MEPC.1/Circ.864/Rev.1).

<sup>3</sup> Refer to the Guidelines to be developed prior to entry into force of the provision.

**Regulation 20**

*Attained Energy Efficiency Design Index (attained EEDI)*

Regulation 20 of MARPOL Annex VI shall be amended by adding a new paragraph 3, as follows:

"3 For each ship subject to regulation 21, the Administration or any organization duly authorized by it shall report to the Organization the required and attained EEDI values and relevant information taking into account the Guidelines developed by the Organization<sup>4</sup> via electronic communication:

- .1 within seven months of completing the survey required under regulation 5.4 of this Annex; or
- .2 within seven months following [insert date of entry into force of amendment] for a ship delivered prior to [insert date of entry into force of amendment]."

**Regulation 21**

*Required EEDI*

Table 1 is amended as follows:

**"Table 1. Reduction factors (in percentage) for the EEDI relative to the EEDI reference line**

| Ship Type    | Size                                      | Phase 0                        | Phase 1                        | Phase 2                        | Phase 3                      | Phase 3                      |
|--------------|---|--------------------------------|--------------------------------|--------------------------------|------------------------------|------------------------------|
|              |   | 1 Jan 2013<br>–<br>31 Dec 2014 | 1 Jan 2015<br>–<br>31 Dec 2019 | 1 Jan 2020<br>–<br>31 Dec 2024 | 1 Jan 2022<br>and<br>onwards | 1 Jan 2025<br>and<br>onwards |
| Bulk carrier | 20,000 DWT and above                      | 0                              | 10                             | 20                             |                              | 30                           |
|              | 10,000 and above but less than 20,000 DWT | n/a                            | 0-10*                          | 0-20*                          |                              | 0-30*                        |
| Gas carrier  | 15,000 DWT and above                      | 0                              | 10                             | 20                             | 30                           |                              |
|              | 10,000 and above but less than 15,000 DWT | 0                              | 10                             | 20                             |                              | 30                           |
|              | 2,000 and above but less than 10,000 DWT  | n/a                            | 0-10*                          | 0-20*                          |                              | 0-30*                        |
| Tanker       | 20,000 DWT and above                      | 0                              | 10                             | 20                             |                              | 30                           |

<sup>4</sup> Refer to the 2018 *Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships* (resolution MEPC.308(73)), as amended by the Organization.

| Ship Type                             | Size  | Phase 0<br>1 Jan 2013<br>–<br>31 Dec 2014 | Phase 1<br>1 Jan 2015<br>–<br>31 Dec 2019 | Phase 2<br>1 Jan 2020<br>–<br>31 Dec 2024 | Phase 3<br>1 Jan 2022<br>and<br>onwards | Phase 3<br>1 Jan 2025<br>and<br>onwards |
|---------------------------------------|---|---|---|---|---|---|
|                                       | 4,000 and above but less than 20,000 DWT    | n/a                                       | 0-10*                                     | 0-20*                                     |   | 0-30*                                   |
| Containership                         | 200,000 DWT and above                       | 0   | 10  | 20  | 50                                      |   |
|                                       | 120,000 and above but less than 200,000 DWT | 0   | 10  | 20  | 45                                      |   |
|                                       | 80,000 and above but less than 120,000 DWT  | 0   | 10  | 20  | 40                                      |   |
|                                       | 40,000 and above but less than 80,000 DWT   | 0   | 10  | 20  | 35                                      |   |
|                                       | 15,000 and above but less than 40,000 DWT   | 0   | 10  | 20  | 30                                      |   |
|                                       | 10,000 and above but less than 15,000 DWT   | n/a                                       | 0-10*                                     | 0-20*                                     | 15-30*                                  |   |
| General Cargo ships                   | 15,000 DWT and above                        | 0   | 10  | 15  | 30                                      |   |
|                                       | 3,000 and above but less than 15,000 DWT    | n/a                                       | 0-10*                                     | 0-15*                                     | 0-30*                                   |   |
| Refrigerated cargo carrier            | 5,000 DWT and above                         | 0   | 10  | 15  |   | 30                                      |
|                                       | 3,000 and above but less than 5,000 DWT     | n/a                                       | 0-10*                                     | 0-15*                                     |   | 0-30*                                   |
| Combination carrier                   | 20,000 DWT and above                        | 0   | 10  | 20  |   | 30                                      |
|                                       | 4,000 and above but less than 20,000 DWT    | n/a                                       | 0-10*                                     | 0-20*                                     |   | 0-30*                                   |
| LNG carrier***                        | 10,000 DWT and above                        | n/a                                       | 10**                                      | 20  | 30                                      |   |
| Ro-ro cargo ship (vehicle carrier)*** | 10,000 DWT and above                        | n/a                                       | 5**                                       | 15  |   | 30                                      |

| Ship Type  | Size                                     | Phase 0<br>1 Jan 2013<br>–<br>31 Dec 2014 | Phase 1<br>1 Jan 2015<br>–<br>31 Dec 2019 | Phase 2<br>1 Jan 2020<br>–<br>31 Dec 2024 | Phase 3<br>1 Jan 2022<br>and<br>onwards | Phase 3<br>1 Jan 2025<br>and<br>onwards |
|--|--|---|---|---|---|---|
| Ro-ro cargo ship***  | 2,000 DWT and above                      | n/a                                       | 5**                                       | 20  |   | 30                                      |
|  | 1,000 and above but less than 2,000 DWT  | n/a                                       | 0-5*, **                                  | 0-20*                                     |   | 0-30*                                   |
| Ro-ro passenger ship***  | 1,000 DWT and above                      | n/a                                       | 5**                                       | 20  |   | 30                                      |
|  | 250 and above but less than 1,000 DWT    | n/a                                       | 0-5*, **                                  | 0-20*                                     |   | 0-30*                                   |
| Cruise passenger ship***<br>having non-conventional propulsion | 85,000 GT and above                      | n/a                                       | 5**                                       | 20  | 30                                      |   |
|  | 25,000 and above but less than 85,000 GT | n/a                                       | 0-5*, **                                  | 0-20*                                     | 0-30*                                   |   |

\* Reduction factor to be linearly interpolated between the two values dependent upon ship size. The lower value of the reduction factor is to be applied to the smaller ship size.  
 \*\* Phase 1 commences for those ships on 1 September 2015.  
 \*\*\* Reduction factor applies to those ships delivered on or after 1 September 2019, as defined in paragraph 43 of regulation 2.

**Note:** n/a means that no required EEDI applies."

2 In table 2 (Parameters for determination of reference values for the different ship types), row 2.25 for bulk carriers is replaced by the following:

| Ship type defined in regulation 2 | a      | b   | c     |
|-----------------------------------|--------|---|-------|
| 2.25 Bulk carrier                 | 961.79 | DWT of the ship where $DWT \leq 279,000$<br>279,000 where $DWT > 279,000$ | 0.477 |

**Appendix I  
Form of International Air Pollution Prevention (IAPP) Certificate (Regulation 8)**

**Supplement to the International Air Pollution Prevention Certificate (IAPP Certificate)**

6 New paragraphs 2.3.4 and 2.3.5 are added as follows:

"2.3.4 The ship is fitted with designated sampling point(s) in accordance with regulation 14.10 or 14.11....."

2.3.5 The requirement for fitting or designating sampling point(s) in accordance with regulation 14.10 or 14.11 is not applicable for a fuel oil service system for a low-flashpoint fuel for combustion purposes for propulsion or operation on board the ship.....□"

## Appendix VI

### Fuel verification procedure for MARPOL Annex VI fuel oil samples (regulation 18.8.2)

7 Appendix VI is replaced with the following:

#### "Verification procedures for a MARPOL Annex VI fuel oil sample (regulation 18.8.2 or regulation 14.8)

The following relevant verification procedure shall be used to determine whether the fuel oil delivered to, in-use or carried for use on board a ship has met the applicable sulphur limit of regulation 14 of this Annex.

This appendix refers to the following representative MARPOL Annex VI fuel oil samples:

Part 1 – sample of fuel oil delivered<sup>5</sup> in accordance with regulation 18.8.1, hereafter referred to as the 'MARPOL delivered sample' as defined in regulation 2.53.

Part 2 – sample of fuel oil in use<sup>6</sup>, intended to be used or carried for use on board in accordance with regulation 14.8, hereafter referred to as the 'in-use sample' as defined in regulation 2.54 and 'on board sample'<sup>7</sup> as defined in regulation 2.55.

#### Part 1 – MARPOL delivered fuel oil sample

##### 1 General Requirements

1.1 The representative fuel oil sample, which is required by regulation 18.8.1 (the MARPOL delivered sample) shall be used to verify the sulphur content of the fuel oil delivered to a ship.

1.2 A Party, through its competent authority, shall manage the verification procedure.

1.3 A laboratory undertaking the sulphur testing procedure given in this appendix shall have valid accreditation<sup>8</sup> in respect of the test method to be used.

##### 2 Verification Procedure Part 1

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<sup>5</sup> Samples taken in accordance with the 2009 Guidelines for the sampling of fuel oil for determination of compliance with the revised MARPOL Annex VI (resolution MEPC.182(59)).

<sup>6</sup> Samples taken in accordance with the 2019 Guidelines for on board sampling for the verification of the sulphur content of the fuel oil used on board ships (MEPC.1/Circ.864/Rev.1).

<sup>7</sup> Refer to the Guidelines to be developed by the Organization prior to entry into force of the provision.

<sup>8</sup> The laboratory is to be accredited to ISO/IEC 17025:2017 or an equivalent standard for the performance of the given sulphur content test ISO 8754:2003.

2.1 The MARPOL delivered sample shall be conveyed by the competent authority to the laboratory.

2.2 The laboratory shall:

- .1 record the details of the seal number and the sample label on the test record;
- .2 record the condition of the seal of the sample as received on the test record; and
- .3 reject any sample where the seal has been broken prior to receipt and record that rejection on the test record.

2.3 If the seal of the sample as received has not been broken, the laboratory shall proceed with the verification procedure and shall:

- .1 unseal the sample;
- .2 ensure that the sample is thoroughly homogenized;
- .3 draw two subsamples from the sample; and
- .4 reseal the sample and record the new reseal details on the test record.

2.4 The two subsamples shall be tested in succession, in accordance with the specified test method referred to in regulation 2.51 of this Annex. For the purposes of this Part 1 verification procedure, the results of the test analysis shall be referred to as '1A' and '1B':

- .1 results '1A' and '1B' shall be recorded on the test record in accordance with the requirements of the test method; and
- .2 if the results of '1A' and '1B' are within the repeatability (r)<sup>9</sup> of the test method, the results shall be considered valid; or
- .3 if the results '1A' and '1B' are not within the repeatability (r) of the test method, both results shall be rejected and two new subsamples shall be taken by the laboratory and tested. The sample bottle shall be resealed in accordance with paragraph 2.3.4 after the new subsamples have been taken.
- .4 in the case of two failures to achieve repeatability between '1A' and '1B', the cause of that failure shall be investigated by the laboratory and resolved before further testing of the sample is undertaken. On resolution of that repeatability issue, two new subsamples shall be taken in accordance with paragraph 2.3. The sample shall be resealed in accordance with paragraph 2.3.4 after the new subsamples have been taken.

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<sup>9</sup> Repeatability (r) calculation in accordance with ISO 4259:2017-2 and as defined in the test method used.

2.5 If the test results of '1A' and '1B' are valid, an average of these two results shall be calculated. The average value shall be referred to as 'X' and shall be recorded on the test record:

- .1 if the result 'X' is equal to or less than the applicable limit required by regulation 14, the fuel oil shall be considered to have met the requirement; or
- .2 if the result 'X' is greater than the applicable limit required by regulation 14, the fuel oil shall be considered to have not met the requirement.

**Table 1: Summary of Part 1 MARPOL delivered fuel oil sample procedure**

| On the basis of the test method referred to in regulation 2.51 of this Annex |                          |                         |
|--|--------------------------|-------------------------|
| Applicable limit % m/m: V  | Result 2.5.1: $X \leq V$ | Result 2.5.2: $X > V$   |
| 0.10   | Met the requirement      | Not met the requirement |
| 0.50   |                          |                         |
| Result 'X' reported to 2 decimal places                                      |                          |                         |

2.6 The final results obtained from this verification procedure shall be evaluated by the competent authority.

2.7 The laboratory shall provide a copy of the test record to the competent authority managing the verification procedure.

## **Part 2 – In-use and on board fuel oil samples**

### *3 General Requirements*

3.1 The in-use or on board fuel oil sample, as appropriate, shall be used to verify the sulphur content of the fuel oil as represented by that sample of fuel oil at the point of sampling.

3.2 A Party, through its competent authority, shall manage the verification procedure.

3.3 A laboratory undertaking the sulphur testing procedure given in this appendix shall have valid accreditation<sup>10</sup> in respect of the test method to be used.

### *4 Verification Procedure Part 2*

4.1 The in-use or on board fuel oil sample shall be conveyed by the competent authority to the laboratory.

4.2 The laboratory shall:

- .1 record the details of the seal number and the sample label on the test record;
- .2 record the condition of the seal of the sample as received on the test record; and

<sup>10</sup> The laboratory is to be accredited to ISO/IEC 17025:2017 or an equivalent standard for the performance of the given sulphur content test ISO 8754:2003.



- .3 reject any sample where the seal has been broken prior to receipt and record that rejection on the test record.

4.3 If the seal of the sample as received has not been broken, the laboratory shall proceed with the verification procedure and shall:

- .1 unseal the sample;
- .2 ensure that the sample is thoroughly homogenized;
- .3 draw two subsamples from the sample; and
- .4 reseal the sample and record the new reseal details on the test record.

4.4 The two subsamples shall be tested in succession, in accordance with the specified test method referred to in regulation 2.51 of this Annex. For the purposes of this Part 2 verification procedure, the results obtained shall be referred to as '2A' and '2B':

- .1 results '2A' and '2B' shall be recorded on the test record in accordance with requirements of the test method; and
- .2 if the results of '2A' and '2B' are within the repeatability ( $r$ )<sup>11</sup> of the test method, the results shall be considered valid; or
- .3 if the results of '2A' and '2B' are not within the repeatability ( $r$ ) of the test method, both results shall be rejected and two new subsamples shall be taken by the laboratory and tested. The sample bottle shall be resealed in accordance with paragraph 4.3.4 after the new subsamples have been taken.
- .4 in the case of two failures to achieve repeatability between '2A' and '2B', the cause of that failure shall be investigated by the laboratory and resolved before further testing of the sample is undertaken. On resolution of that repeatability issue, two new subsamples shall be taken in accordance with paragraph 4.3. The sample shall be resealed in accordance with paragraph 4.3.4 after the new subsamples have been taken.

4.5 If the test results of '2A' and '2B' are valid, an average of these two results shall be calculated. That average value shall be referred to as 'Z' and shall be recorded on the test record:

- .1 if 'Z' is equal to or less than the applicable limit required by regulation 14, the sulphur content of the fuel oil as represented by the tested sample shall be considered to have met the requirement;
- .2 if 'Z' is greater than the applicable limit required by regulation 14 but less than or equal to that applicable limit +  $0.59R$  (where  $R$  is the reproducibility of the test method)<sup>12</sup>, the sulphur content of the fuel

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<sup>11</sup> Repeatability ( $r$ ) calculation in accordance with ISO 4259:2017-2 and as defined in the test method used.

<sup>12</sup> Reproducibility ( $R$ ) calculation in accordance with ISO 4259:2017-2 and as defined in the test method.

oil as represented by the tested sample shall be considered to have met the requirement; or

- .3 if 'Z' is greater than the applicable limit required by regulation 14 + 0.59R, the sulphur content of the fuel oil as represented by the tested sample shall be considered to have not met the requirement.

**Table 2: Summary of in-use or on board fuel oil sample procedure<sup>13</sup>**

| On the basis of the test method referred to in regulation 2.51 of this Annex |                         |                             |                                 |                          |
|--|-------------------------|-----------------------------|---------------------------------|--------------------------|
| Applicable limit %m/m:<br>V  | Test margin value:<br>W | Result 4.5.1:<br>$Z \leq V$ | Result 4.5.2:<br>$V < Z \leq W$ | Result 4.5.3:<br>$Z > W$ |
| 0.10   | 0.11                    | Met the requirement         | Met the requirement             | Not met the requirement  |
| 0.50   | 0.53                    |                             |                                 |                          |
| Result 'Z' reported to 2 decimal places                                      |                         |                             |                                 |                          |

4.6 The final results obtained from this verification procedure shall be evaluated by the competent authority.

4.7 The laboratory shall provide a copy of the test record to the competent authority managing the verification procedure."

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<sup>13</sup> Results of testing undertaken by the Company or other entities are outside the MARPOL process and hence should be considered within the approach given by ISO 4259:2017-2 regarding recipient drawn samples.