

MARINE ENVIRONMENT PROTECTION
COMMITTEE
75th session
Agenda item 3

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**CONSIDERATION AND ADOPTION OF AMENDMENTS TO
MANDATORY INSTRUMENTS**

Draft amendments to MARPOL Annex VI

Note by the Secretariat

SUMMARY

Executive summary: The Committee is invited to consider, with a view to adoption, proposed amendments to MARPOL Annex VI concerning procedures for sampling and verification of the sulphur content of fuel oil and the Energy Efficiency Design Index (EEDI)

Strategic direction, if applicable: 6

Output: 6.1

Action to be taken: Paragraph 4

Related documents: MEPC 74/18, MEPC 74/18/Add.1 and Circular Letter No.3984

Introduction

1 The Committee will recall that, at its seventy-fourth session (13 to 17 May 2019), it considered and approved draft amendments to MARPOL Annex VI concerning procedures for sampling and verification of the sulphur content of fuel oil and the Energy Efficiency Design Index (EEDI) (MEPC 74/18, paragraphs 5.116 and 5.126 and MEPC 74/18/Add.1, annex 13).

2 The proposed amendments were circulated by the Secretary-General, in accordance with article 16(2)(a) of MARPOL, under cover of Circular Letter No.3984 of 28 June 2019.

3 The text of the proposed amendments as approved by the Committee, together with a draft MEPC resolution on their adoption prepared by the Secretariat, is set out in the annex.

Action requested of the Committee

4 The Committee is invited to consider the draft amendments, with a view to adoption, in accordance with article 16(2)(b), (c) and (d) of MARPOL.

ANNEX

DRAFT MEPC RESOLUTION

**AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1997 TO AMEND THE
INTERNATIONAL CONVENTION FOR THE PREVENTION OF POLLUTION FROM SHIPS,
1973, AS MODIFIED BY THE PROTOCOL OF 1978 RELATING THERETO**

Amendments to MARPOL Annex VI

**(Procedures for sampling and verification of the sulphur content of fuel oil and
the Energy Efficiency Design Index (EEDI))**

THE MARINE ENVIRONMENT PROTECTION COMMITTEE,

RECALLING Article 38(a) of the Convention on the International Maritime Organization concerning the functions of the Marine Environment Protection Committee conferred upon it by international conventions for the prevention and control of marine pollution from ships,

RECALLING ALSO article 16 of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocols of 1978 and 1997 relating thereto (MARPOL), which specifies the amendment procedure and confers upon the appropriate body of the Organization the function of considering amendments thereto for adoption by the Parties,

HAVING CONSIDERED, at its seventy-fifth session, proposed amendments to MARPOL Annex VI concerning procedures for sampling and verification of the sulphur content of fuel oil and the Energy Efficiency Design Index (EEDI), which were circulated in accordance with article 16(2)(a) of MARPOL,

1 ADOPTS, in accordance with article 16(2)(d) of MARPOL, amendments to MARPOL Annex VI, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article 16(2)(f)(iii) of MARPOL, that the amendments shall be deemed to have been accepted on [1 March 2021] unless prior to that date, not less than one third of the Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have communicated to the Organization their objection to the amendments;

3 INVITES the Parties to note that, in accordance with article 16(2)(g)(ii) of MARPOL, the said amendments shall enter into force on [1 September 2021] upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article 16(2)(e) of MARPOL, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to MARPOL;

5 REQUESTS ALSO the Secretary-General to transmit copies of the present resolution and its annex to Members of the Organization which are not Parties to MARPOL.

ANNEX

**DRAFT AMENDMENTS TO MARPOL ANNEX VI
(Regulations 1, 2, 14, 18, 20, 21 and appendices I and VI)**

Regulation 1

Application

- 1 The full text of regulation 1 is replaced by the following:

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

Regulation 2

Definitions

- 2 New paragraphs 52 to 56 are inserted after paragraph 51¹, as follows:

"52 *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.²

53 *Low-flashpoint fuel* means gaseous or liquid fuel oil having a flashpoint lower than otherwise permitted under paragraph 2.1.1 of regulation 4 of chapter II of the International Convention for the Safety of Life at Sea (SOLAS), 1974.

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

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

56 *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_x) and particulate matter

- 3 New paragraphs 8 to 13 and associated headings are inserted after existing paragraph 7 as follows:

"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 sample to be analysed, it shall be done in accordance with the verification procedure set forth in appendix VI to this Annex 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 sample shall be drawn taking into account the guidelines developed by the Organization.³ The on board sample shall be drawn taking into account the guidelines developed by the Organization.⁴

¹ Paragraph 51 was added to regulation 2 through amendments adopted by resolution MEPC.316(74) which were deemed to have been accepted on 1 April 2020 and will enter into force on 1 October 2020.

² Refer to ISO 8754:2003 Petroleum products – Determination of sulphur content – Energy-dispersive X-ray fluorescence spectrometry.

³ 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).

⁴ Refer to the Guidelines developed by the Organization.

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.

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 the guidelines developed by the Organization.²

11 For a ship constructed before [1 September 2021], the sampling point(s) referred to in paragraph 10 shall be fitted or designated no later than the first renewal survey that occurs 12 months or more after [1 September 2021].

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(are) fitted or designated for the purpose of taking representative sample(s) of the fuel oil being used on board in order to verify that 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

4 Paragraph 8.2 is replaced by 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 this Annex to determine whether the fuel oil meets the requirements of this Annex."

Regulation 20

Attained Energy Efficiency Design Index (attained EEDI)

5 A new paragraph 3 is added after existing paragraph 2, 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 Organization⁵, 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 [1 September 2021] for a ship delivered prior to [1 September 2021]."

Regulation 21

⁵ 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.

Required EEDI

6 The existing table 1 (Reduction factors (in percentage) for the EEDI relative to the EEDI reference line) and the associated footnotes are replaced by the following:

"

Ship Type	Size	Phase 0 1 Jan 2013 – 31 Dec 2014	Phase 1 1 Jan 2015 – 31 Dec 2019	Phase 2 1 Jan 2020 – 31 Dec 2024	Phase 3 1 Jan 2022 and onwards	Phase 3 1 Jan 2025 and 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
	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*	

Ship Type	Size	Phase 0 1 Jan 2013 – 31 Dec 2014	Phase 1 1 Jan 2015 – 31 Dec 2019	Phase 2 1 Jan 2020 – 31 Dec 2024	Phase 3 1 Jan 2022 and onwards	Phase 3 1 Jan 2025 and onwards
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
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*** 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."

7 In table 2 (Parameters for determination of reference values for the different ship types), the first row corresponding to Ship type defined in regulation 2.25 is replaced by the following:

"2.25 Bulk carrier	961.79	DWT of the ship where DWT ≤ 279,000 279,000 where DWT > 279,000	0.477"
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Appendix I
Form of International Air Pollution Prevention (IAPP) Certificate (Regulation 8)

Supplement to International Air Pollution Prevention Certificate (IAPP Certificate)
Record of construction and equipment

8 New paragraphs 2.3.4 and 2.3.5 are inserted after paragraph 2.3.3 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)

9 The full text of Appendix VI is replaced by 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 delivered⁶ in accordance with regulation 18.8.1, hereafter referred to as the 'MARPOL delivered sample' as defined in regulation 2.54.

Part 2 – sample of fuel oil in use⁷, 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 2.55 and 'on board sample'⁸ as defined in regulation 2.56.

Part 1 – MARPOL delivered sample

1 General Requirements

1.1 The representative sample of the fuel oil, 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.

⁶ 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)).

⁷ 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).

⁸ Refer to the Guidelines developed by the Organization.

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 accreditation⁹ in respect of the test method to be used.

2 Verification Procedure Part 1

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 2.52 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)¹⁰ 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.

⁹ 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.

¹⁰ Repeatability (r) calculation in accordance with ISO 4259:2017-2 and as defined in the test method used.

- .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.

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 sample procedure

On the basis of the test method referred to in regulation 2.52 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 samples

3 *General Requirements*

3.1 The in-use or on board 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 accreditation¹¹ in respect of the test method to be used.

¹¹ 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.

4 *Verification Procedure Part 2*

- 4.1 The in-use or on board 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
 - .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 2.52 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)¹² 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; and
 - .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.

¹² Repeatability (r) calculation in accordance with ISO 4259:2017-2 and as defined in the test method used.

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)¹³, the sulphur content of the fuel 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 sample procedure¹⁴

On the basis of the test method referred to in regulation 2.52 of this Annex				
Applicable limit %m/m: V	Test margin value: W	Result 4.5.1: $Z \leq V$	Result 4.5.2: $V < Z \leq W$	Result 4.5.3: $Z > W$
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."

¹³ Reproducibility (R) calculation in accordance with ISO 4259:2017-2 and as defined in the test method.

¹⁴ 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.