

MARINE ENVIRONMENT PROTECTION
COMMITTEE
63rd session
Agenda item 23

MEPC 63/23/Add.1
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**REPORT OF THE MARINE ENVIRONMENT PROTECTION COMMITTEE
ON ITS SIXTY-THIRD SESSION**

Attached are annexes 10 to 34 to the report of the Marine Environment Protection Committee on its sixty-third session (MEPC 63/23).

ANNEX 10

**RESOLUTION MEPC.214(63)
Adopted on 2 March 2012**

**2012 GUIDELINES ON SURVEY AND CERTIFICATION OF 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 (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

RECALLING ALSO that, at its sixty-second session, the Committee adopted, by resolution MEPC.203(62), 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 (inclusion of regulations on energy efficiency for ships in MARPOL Annex VI),

NOTING the amendments to MARPOL Annex VI adopted at its sixty-second session by inclusion of a new chapter 4 for regulations on energy efficiency for ships, are expected to enter into force on 1 January 2013 upon their acceptance on 1 July 2012,

NOTING ALSO that regulation 5 (Surveys) of MARPOL Annex VI, as amended, requires ships to which chapter 4 applies shall also be subject to survey and certification taking into account guidelines developed by the Organization,

RECOGNIZING that the amendments to MARPOL Annex VI requires the adoption of relevant guidelines for smooth and uniform implementation of the regulations and to provide sufficient lead time for industry to prepare,

HAVING CONSIDERED, at its sixty-third session, the draft 2012 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI),

1. ADOPTS the 2012 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI), as set out in the annex to the present resolution;
2. INVITES Administrations to take the annexed Guidelines into account when developing and enacting national laws which give force to and implement provisions set forth in regulation 5 of MARPOL Annex VI, as amended;
3. REQUESTS the Parties to MARPOL Annex VI and other Member Governments to bring the annexed Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI), to the attention of masters, seafarers, shipowners, ship operators and any other interested groups;
4. AGREES to keep these Guidelines under review in light of the experience gained; and
5. REVOKES Interim Guidelines circulated by MEPC.1/Circ.682, as from this date.

ANNEX

**2012 GUIDELINES ON SURVEY AND CERTIFICATION OF THE
ENERGY EFFICIENCY DESIGN INDEX (EEDI)**

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1 GENERAL

The purpose of these Guidelines is to assist verifiers of Energy Efficiency Design Index (EEDI) of ships in conducting the survey and certification of the EEDI in accordance with regulations 5, 6, 7, 8 and 9 of MARPOL Annex VI, and assist shipowners, shipbuilders and manufacturers being related to the energy efficiency of a ship and other interested parties in understanding the procedures of the survey and certification of the EEDI.

2 DEFINITIONS¹

2.1 *Verifier* means an Administration or organization duly authorized by it, which conducts the survey and certification of the EEDI in accordance with regulations 5, 6, 7, 8 and 9 of MARPOL Annex VI and these Guidelines.

2.2 *Ship of the same type* means a ship of which hull form (expressed in the lines such as sheer plan and body plan) excluding additional hull features such as fins and of which principal particulars are identical to that of the base ship.

2.3 *Tank test* means model towing tests, model self-propulsion tests and model propeller open water tests. Numerical calculations may be accepted as equivalent to model propeller open water tests or used to complement the tank tests conducted (e.g. to evaluate the effect of additional hull features such as fins, etc., on ship's performance), with approval of the verifier.

3 APPLICATION

These Guidelines should be applied to new ships for which an application for an initial survey or an additional survey specified in regulation 5 of MARPOL Annex VI has been submitted to a verifier.

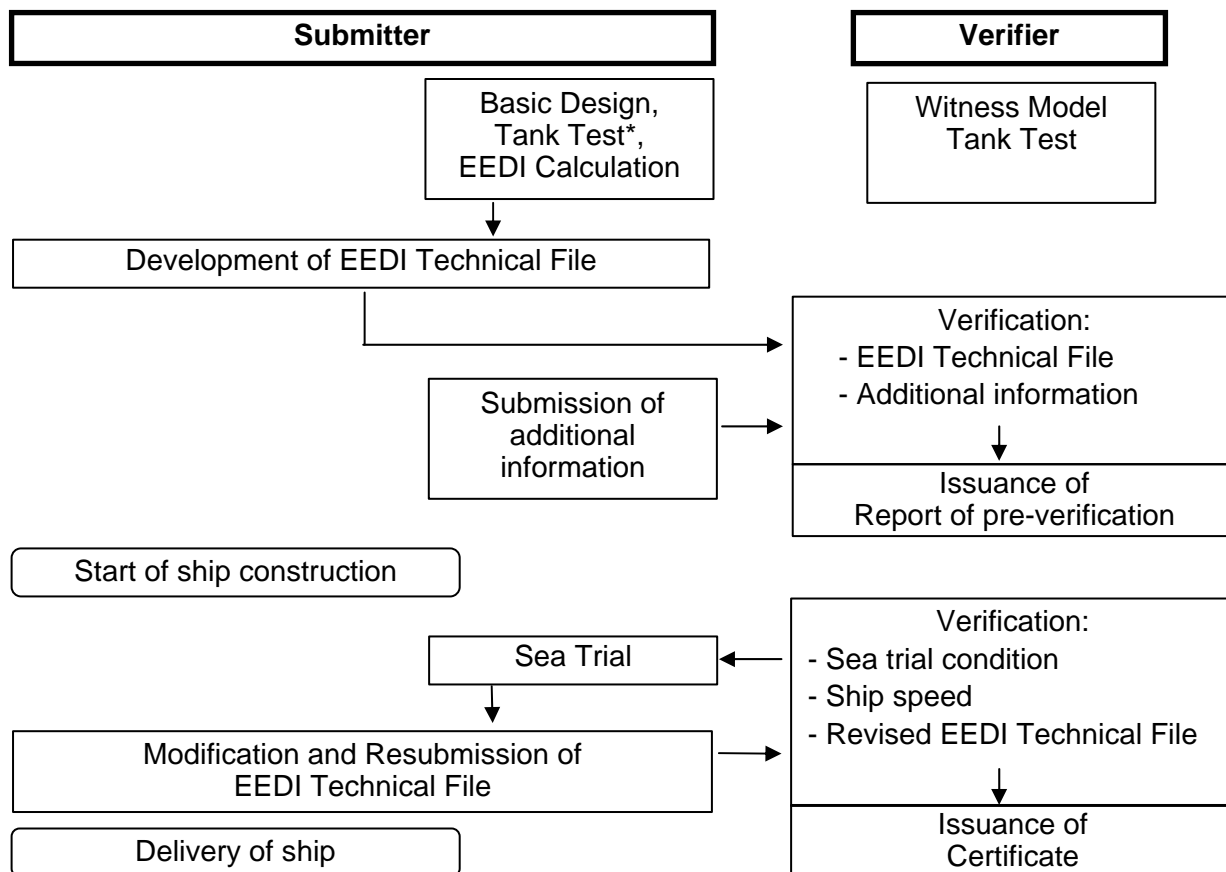
4 PROCEDURES FOR SURVEY AND CERTIFICATION

4.1 General

4.1.1 Attained EEDI should be calculated in accordance with regulation 20 of MARPOL Annex VI and the "Guidelines on the method of calculation of the attained EEDI for new ships" ("EEDI Calculation Guidelines", hereafter). Survey and certification of the EEDI should be conducted on two stages: preliminary verification at the design stage, and final verification at the sea trial. The basic flow of the survey and certification process is presented in figure 1.

4.1.2 The information used in the verification process may contain confidential information of submitters, which requires Intellectual Property Rights (IPR) protection. In the case where the submitter want a non-disclosure agreement with the verifier, the additional information should be provided to the verifier upon mutually agreed terms and conditions.

¹ Other terms used in these Guidelines have the same meaning as those defined in the EEDI Calculation Guidelines.



* To be conducted by a test organization or a submitter itself.

Figure 1: Basic Flow of Survey and Certification Process

4.2 Preliminary verification of the attained EEDI at the design stage

4.2.1 For the preliminary verification at the design stage, an application for an initial survey and an EEDI Technical File containing the necessary information for the verification and other relevant background documents should be submitted to a verifier.

4.2.2 EEDI Technical File should be written at least in English. The EEDI Technical File should include at least but not limited to:

- .1 deadweight (DWT) or gross tonnage (GT) for passenger and ro-ro passenger ships, the maximum continuous rating (MCR) of the main and auxiliary engines, the ship speed (V_{ref}), as specified in paragraph 2.2 of the EEDI Calculation Guidelines, type of fuel, the specific fuel consumption (SFC) of the main engine at the 75 per cent of MCR power, the SFC of the auxiliary engines at the 50 per cent MCR power, and the electric power table[†] for certain ship types, as necessary, as defined in the EEDI Calculation Guidelines;
- .2 power curve(s) (kW – knot) estimated at design stage under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines, and in the event that the sea trial is carried out in a condition other than the above condition, then also a power curve estimated under the sea trial condition;

- .3 principal particulars, ship type and the relevant information to classify the ship into such a ship type, classification notations and the overview of propulsion system and electricity supply system on board;
- .4 estimation process and methodology of the power curves at design stage;
- .5 description of energy saving equipment;
- .6 calculated value of the attained EEDI including the calculation summary, which should contain, at a minimum, each value of the calculation parameters and the calculation process used to determine the attained EEDI; and
- .7 calculated values of the attained $EEDI_{weather}$ and f_w value (not equal to 1.0), if those values are calculated, based on the EEDI Calculation Guidelines.

† Electric power table should be validated separately, taking into account guidelines set out in appendix 2 to these Guidelines.

A sample of an EEDI Technical File is provided in the appendix 1 to these Guidelines.

4.2.3 If dual fuel engines are installed on the ship, the C_F factor and the Specific Fuel Consumption of gas fuel should be used if gas fuel will be used as the primary fuel on the ship. In order to verify this, the following information should be provided:

- .1 The use of boil-off gas or capacities of the gas fuel storage tanks, and the capacities of fuel oil storage tanks.
- .2 Arrangements of bunkering facilities for gas fuel in the intended operational area of the ship.

4.2.4 The *SFC* of the main and auxiliary engines should be quoted from the approved NO_x Technical File and should be corrected to the value corresponding to the ISO standard reference conditions using the standard lower calorific value of the fuel oil (42,700kJ/kg), referring to ISO 15550:2002 and ISO 3046-1:2002. For the confirmation of the *SFC*, a copy of the approved NO_x Technical File and documented summary of the correction calculations should be submitted to the verifier. In case NO_x Technical File has not been approved at the time of the application for initial survey, the test reports provided by manufacturers should be used. In this case, at the time of the sea trial verification, a copy of the approved NO_x Technical File and documented summary of the correction calculations should be submitted to the verifier.

Note: *SFC* in the NO_x Technical File are the values of a parent engine, and the use of such value of *SFC* for the EEDI calculation for member engines may have the following technical issues for further consideration:

- .1 The definition of "member engines" given in NO_x Technical File is broad and specification of engines belonging to the same group/family may vary; and
- .2 The rate of NO_x emission of the parent engine is the highest in the group/family – i.e. CO_2 emission, which is in the trade-off relationship with NO_x emission, can be lower than the other engines in the group/family.

4.2.5 For ships to which regulation 21 of MARPOL Annex VI applies, the power curves used for the preliminary verification at the design stage should be based on reliable results of tank test. A tank test for an individual ship may be omitted based on technical justifications

such as availability of the results of tank tests for ships of the same type. In addition, omission of tank tests is acceptable for a ship for which sea trials will be carried under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines, upon agreement of the shipowner and shipbuilder and with approval of the verifier. For ensuring the quality of tank tests, ITTC quality system should be taken into account. Model tank test should be witnessed by the verifier.

Note: It would be desirable in the future that an organization conducting a tank test be authorized.

4.2.6 The verifier may request the submitter for additional information on top of those contained in Technical File, as necessary, to examine the calculation process of the attained EEDI. The estimation of the ship speed at the design stage much depends on each shipbuilder's experiences, and it may not be practicable for any person/organization other than the shipbuilder to fully examine the technical aspects of experience-based parameters such as the roughness coefficient and wake scaling coefficient. Therefore, the preliminary verification should focus on the calculation process of the attained EEDI to ensure that it is technically sound and reasonable and follows regulation 20 of MARPOL Annex VI and the EEDI Calculation Guidelines.

Note 1: A possible way forward for more robust verification is to establish a standard methodology of deriving the ship speed from the outcomes of tank test, by setting standard values for experience-based correction factors such as roughness coefficient and wake scaling coefficient. In this way, ship-by-ship performance comparison could be made more objectively by excluding the possibility of arbitrary setting of experience-based parameters. If such standardization is sought, this would have an implication on how the ship speed adjustment based on sea trial results should be conducted in accordance with paragraph 4.3.8 of these Guidelines.

Note 2: A joint industry standard to support the method and role of the verifier will be developed.

4.2.7 Additional information that the verifier may request the submitter to provide directly to it includes but not limited to:

- .1 descriptions of a tank test facility; this should include the name of the facility, the particulars of tanks and towing equipment, and the records of calibration of each monitoring equipment;
- .2 lines of a model ship and an actual ship for the verification of the appropriateness of the tank test; the lines (sheer plan, body plan and half-breadth plan) should be detailed enough to demonstrate the similarity between the model ship and the actual ship;
- .3 lightweight of the ship and displacement table for the verification of the deadweight;
- .4 detailed report on the method and results of the tank test; this should include at least the tank test results at sea trial condition and under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines;
- .5 detailed calculation process of the ship speed, which should include the estimation basis of experience-based parameters such as roughness coefficient, wake scaling coefficient; and
- .6 reasons for exempting a tank test, if applicable; this should include lines and tank test results of the ships of same type, and the comparison of the

principal particulars of such ships and the ship in question. Appropriate technical justification should be provided explaining why the tank test is unnecessary.

4.2.8 The verifier should issue the report on the "Preliminary Verification of EEDI" after it has verified the attained EEDI at the design stage in accordance with paragraphs 4.1 and 4.2 of these Guidelines.

4.3 Final verification of the attained EEDI at sea trial

4.3.1 Sea trial conditions should be set as conditions specified in paragraph 2.2 of the EEDI Calculation Guidelines, if possible.

4.3.2 Prior to the sea trial, the following documents should be submitted to the verifier: a description of the test procedure to be used for the speed trial, the final displacement table and the measured lightweight, or a copy of the survey report of deadweight, as well as a copy of NO_x Technical File as necessary. The test procedure should include, at a minimum, descriptions of all necessary items to be measured and corresponding measurement methods to be used for developing power curves under the sea trial condition.

4.3.3 The verifier should attend the sea trial and confirm:

- .1 propulsion and power supply system, particulars of the engines, and other relevant items described in the EEDI Technical File;
- .2 draught and trim;
- .3 sea conditions;
- .4 ship speed; and
- .5 shaft power and RPM of the main engine.

4.3.4 Draught and trim should be confirmed by the draught measurements taken prior to the sea trial. The draught and trim should be as close as practical to those at the assumed conditions used for estimating the power curves.

4.3.5 Sea conditions should be measured in accordance with ISO 15016:2002 or the equivalent.

4.3.6 Ship speed should be measured in accordance with ISO 15016:2002 or the equivalent and at more than two points of which range includes the power of the main engine as specified in paragraph 2.5 of the EEDI Calculation Guidelines.

4.3.7 The main engine output should be measured by shaft power meter or a method which the engine manufacturer recommends and the verifier approves. Other methods may be acceptable upon agreement of the shipowner and shipbuilder and with approval of the verifier.

4.3.8 The submitter should develop power curves based on the measured ship speed and the measured output of the main engine at sea trial. For the development of the power curves, the submitter should calibrate the measured ship speed, if necessary, by taking into account the effects of wind, tide, waves, shallow water and displacement in accordance with

ISO 15016:2002² or the equivalent which may be acceptable provided that the concept of the method is transparent for the verifier and publicly available/accessible. Upon agreement with the shipowner, the submitter should submit a report on the speed trials including details of the power curve development to the verifier for verification.

4.3.9 The submitter should compare the power curves obtained as a result of the sea trial and the estimated power curves at the design stage. In case differences are observed, the attained EEDI should be recalculated, as necessary, in accordance with the following:

- .1 for ships for which sea trial is conducted under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines: the attained EEDI should be recalculated using the measured ship speed at sea trial at the power of the main engine as specified in paragraph 2.5 of the EEDI Calculation Guidelines; and
- .2 for ships for which sea trial cannot be conducted under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines: if the measured ship speed at the power of the main engine as specified in paragraph 2.5 of the EEDI Calculation Guidelines at the sea trial conditions is different from the expected ship speed on the power curve at the corresponding condition, the shipbuilder should recalculate the attained EEDI by adjusting ship speed under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines by an appropriate correction method that is agreed by the verifier.

An example of possible methods of the speed adjustment is given in figure 2:

Note: Further consideration would be necessary for speed adjustment methodology in paragraph 4.3.9.2 of these Guidelines. One of the concerns relates to a possible situation where the power curve for sea trial condition is estimated in an excessively conservative manner (i.e. power curve is shifted in a leftward direction) with the intention to get an upward adjustment of the ship speed by making the measured ship speed at sea trial easily exceed the lower-estimated speed for sea trial condition at design stage.

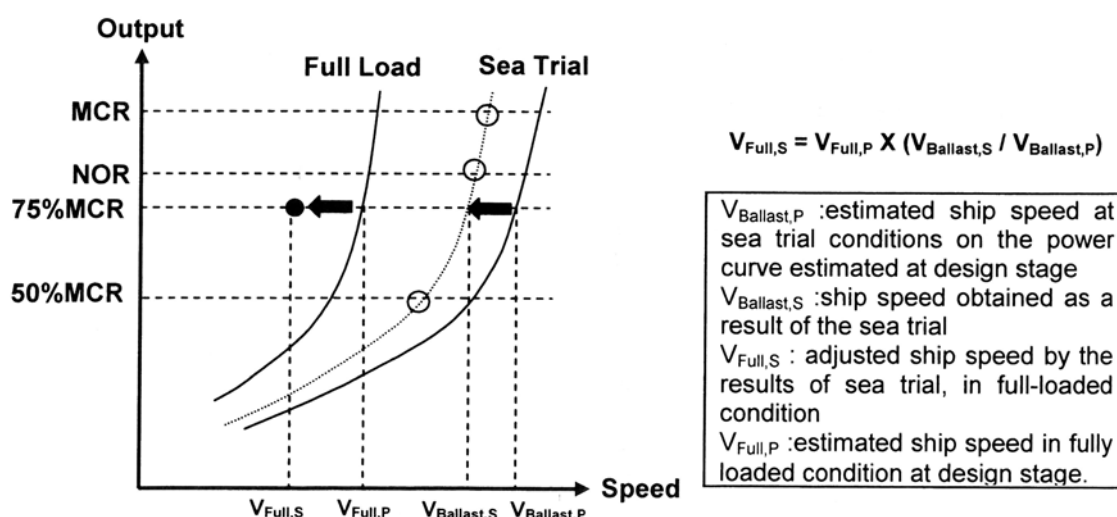


Figure 2: An Example of Possible Ship Speed Adjustment

² An ITTC standard for this purpose will be developed.

4.3.10 In cases where the finally determined deadweight/gross tonnage differs from the designed deadweight/gross tonnage used in the EEDI calculation during the preliminary verification, the submitter should recalculate the attained EEDI using the finally determined deadweight/gross tonnage. The finally determined gross tonnage should be confirmed in the Tonnage Certificate of the ship.

4.3.11 In case where the attained EEDI is calculated at the preliminary verification by using *SFC* based on the manufacturer's test report due to the non-availability at that time of the approved NO_x Technical File, the EEDI should be recalculated by using *SFC* in the approved NO_x Technical File.

4.3.12 The EEDI Technical File should be revised, as necessary, by taking into account the results of sea trial. Such revision should include, as applicable, the adjusted power curve based on the results of sea trial (namely, modified ship speed under the condition as specified in paragraph 2.2 of the EEDI Calculation Guidelines), the finally determined deadweight/gross tonnage and *SFC* described in the approved NO_x Technical File, and the recalculated attained EEDI based on these modifications.

4.3.13 The EEDI Technical File, if revised, should be submitted to the verifier for the confirmation that the (revised) attained EEDI is calculated in accordance with regulation 20 of MARPOL Annex VI and the EEDI Calculation Guidelines.

4.4 Verification of the attained EEDI in case of major conversion

4.4.1 In cases where a major conversion is made to a ship, the shipowner should submit to a verifier an application for an Additional Survey with the EEDI Technical File duly revised based on the conversion made and other relevant background documents.

4.4.2 The background documents should include at least but are not limited to:

- .1 documents explaining details of the conversion;
- .2 EEDI parameters changed after the conversion and the technical justifications for each respective parameter;
- .3 reasons for other changes made in the EEDI Technical File, if any; and
- .4 calculated value of the attained EEDI with the calculation summary, which should contain, at a minimum, each value of the calculation parameters and the calculation process used to determine the attained EEDI after the conversion.

4.4.3 The verifier should review the revised EEDI Technical File and other documents submitted and verify the calculation process of the attained EEDI to ensure that it is technically sound and reasonable and follows regulation 20 of MARPOL Annex VI and the EEDI Calculation Guidelines.

4.4.4 For verification of the attained EEDI after a conversion, speed trials of the ship are required, as necessary.

APPENDIX 1

SAMPLE OF EEDI TECHNICAL FILE

1 Data

1.1 General information

Shipbuilder	JAPAN Shipbuilding Company
Hull No.	12345
IMO No.	94111XX
Kind of ship	Bulk carrier

1.2 Principal particulars

Length overall	250.0 m
Length between perpendiculars	240.0 m
Breadth, moulded	40.0 m
Depth, moulded	20.0 m
Summer load line draught, moulded	14.0 m
Deadweight at summer load line draught	150,000 tons

1.3 Main engine

Manufacturer	JAPAN Heavy Industries Ltd.
Type	6J70A
Maximum continuous rating (MCR)	15,000 kW x 80 rpm
SFC at 75% MCR	165.0 g/kWh
Number of set	1
Fuel type	Diesel Oil

1.4 Auxiliary engine

Manufacturer	JAPAN Diesel Ltd.
Type	5J-200
Maximum continuous rating (MCR)	600 kW x 900 rpm
SFC at 50% MCR	220.0 g/kWh
Number of set	3
Fuel type	Diesel Oil

1.5 Ship speed

Ship speed in deep water at summer load line draught at 75% of MCR	14.25 knots
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2 Power Curves

The power curves estimated at the design stage and modified after the speed trials are shown in figure 2.1.

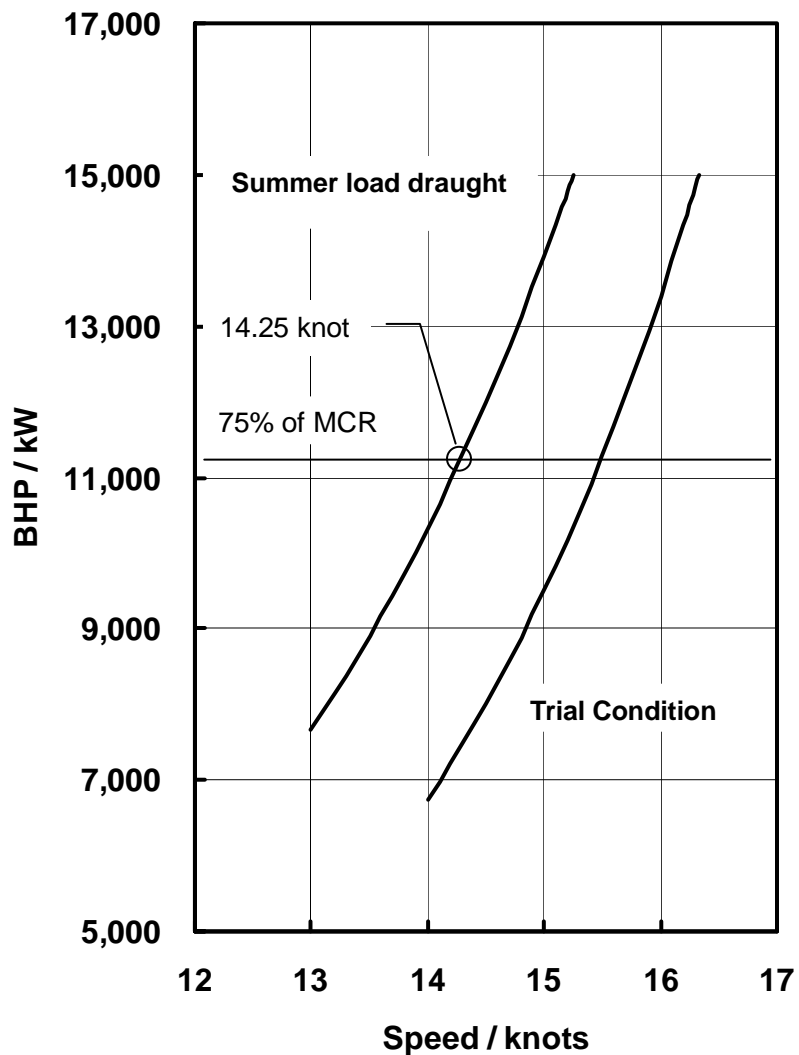


Figure 2.1: Power curves

3 Overview of Propulsion System and Electric Power Supply System

3.1 Propulsion system

3.1.1 Main engine

Refer to subparagraph 1.3.

3.1.2 Propeller

Type	Fixed pitch propeller
Diameter	7.0 m
Number of blades	4
Number of set	1

3.2 Electric power supply system

3.2.1 Auxiliary engines

Refer to subparagraph 1.4.

3.2.2 Main generators

Manufacturer	JAPAN Electric
Rated output	560 kW (700 kVA) x 900 rpm
Voltage	AC 450 V
Number of set	3

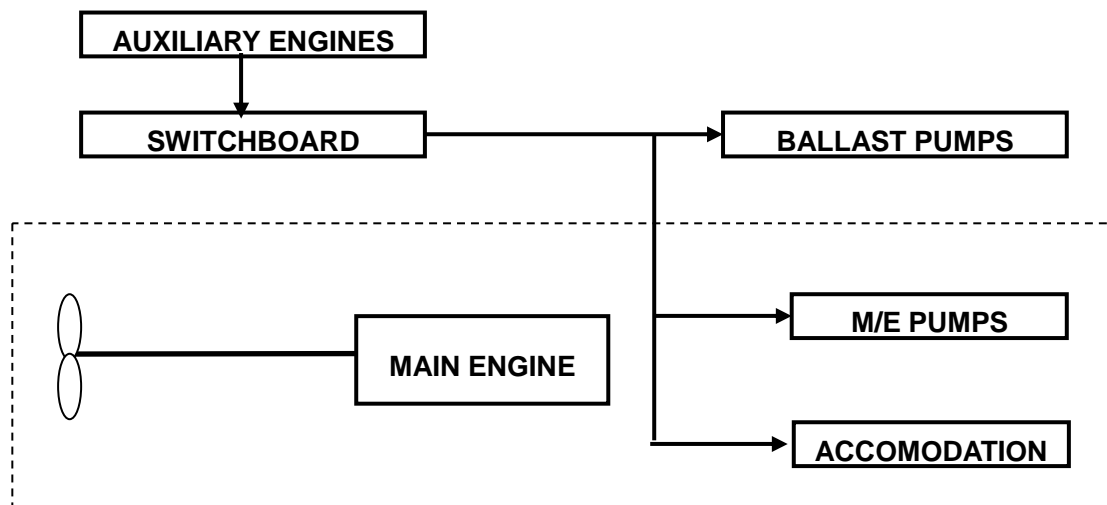


Figure 3.1: Schematic figure of propulsion and electric power supply system

4 Estimation Process of Power Curves at Design Stage

Power curves are estimated based on model test results. The flow of the estimation process is shown below.

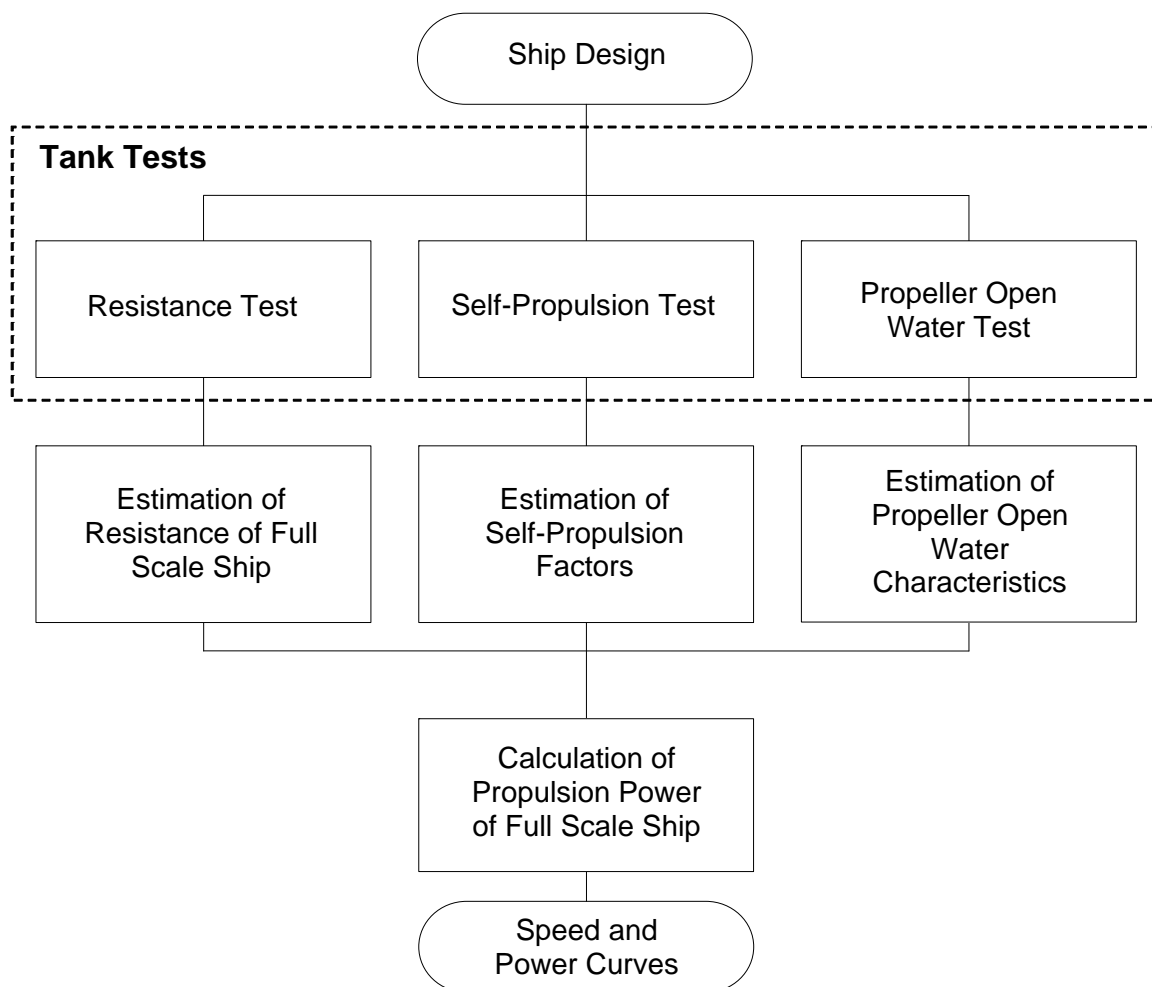


Figure 4.1: Flow-chart of process for estimating power curves

5 Description of Energy Saving Equipment

5.1 Energy saving equipment of which effects are expressed as $P_{AEff(i)}$ and/or $P_{eff(i)}$ in the EEDI calculation formula

N/A

5.2 Other energy saving equipment

(Example)

5.2.1 Rudder fins

5.2.2 Propeller boss cap fins

.....

(Specifications, schematic figures and/or photos, etc., for each piece of equipment or device should be indicated. Alternatively, attachment of the commercial catalogue may be acceptable.)

6 Calculated Value of attained EEDI

6.1 Basic data

Type of Ship	Capacity DWT	Speed V_{ref} (knots)
Bulk Carrier	150,000	14.25

6.2 Main engine

MCR_{ME} (kW)	Shaft Gen.	P_{ME} (kW)	Type of Fuel	C_{FME}	SFC_{ME} (g/kWh)
15,000	N/A	11,250	Diesel Oil	3.206	165.0

6.3 Auxiliary engines

P_{AE} (kW)	Type of Fuel	C_{FAE}	SFC_{AE} (g/kWh)
625	Diesel Oil	3.206	220.0

6.4 Ice class

N/A

6.5 Innovative electrical energy efficient technology

N/A

6.6 Innovative mechanical energy efficient technology

N/A

6.7 Cubic capacity correction factor

N/A

6.8 Calculated value of attained EEDI

$$\begin{aligned}
 EEDI &= \frac{\left(\prod_{j=1}^M f_j \right) \left(\sum_{i=1}^{nME} P_{ME(i)} \cdot C_{FME(i)} \cdot SFC_{ME(i)} \right) + (P_{AE} \cdot C_{FAE} \cdot SFC_{AE})}{f_i \cdot f_c \cdot Capacity \cdot f_w \cdot V_{ref}} \\
 &+ \frac{\left\{ \left(\prod_{j=1}^M f_j \cdot \sum_{i=1}^{nPTI} P_{PTI(i)} - \sum_{i=1}^{neff} f_{eff(i)} \cdot P_{AEff(i)} \right) C_{FAE} \cdot SFC_{AE} \right\} - \left(\sum_{i=1}^{neff} f_{eff(i)} \cdot P_{eff(i)} \cdot C_{FME} \cdot SFC_{ME} \right)}{f_i \cdot f_c \cdot Capacity \cdot f_w \cdot V_{ref}} \\
 &= \frac{1 \times (11250 \times 3.206 \times 165.0) + (625 \times 3.206 \times 220.0) + 0 - 0}{1 \cdot 1 \cdot 150000 \cdot 1 \cdot 14.25} \\
 &= 2.99 \quad (\text{g} - \text{CO}_2/\text{ton} \cdot \text{mile})
 \end{aligned}$$

attained EEDI: 2.99 g-CO₂/ton mile

7 Calculated value of attained EEDI_{weather}

7.1 Representative sea conditions

	Mean wind speed	Mean wind direction	Significant wave height	Mean wave period	Mean wave direction
BF6	12.6 (m/s)	0 (deg.)*	3.0 (m)	6.7 (s)	0 (deg.)*

* Heading direction of wind/wave in relation to the ship's heading, i.e. 0 (deg.) means the ship is heading directly into the wind.

7.2 Calculated weather factor, f_w

f_w	0.900
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7.3 Calculated value of attained EEDI_{weather}

attained EEDI_{weather}: 3.32 g-CO₂/ton mile

APPENDIX 2

GUIDELINES FOR VALIDATION OF ELECTRIC POWER TABLES FOR EEDI (EPT-EEDI)

1 INTRODUCTION

The purpose of these Guidelines is to assist Recognized Organizations in the validation of ship's Electric Power Tables (EPT) for calculation of Energy Efficiency Design Index (EEDI). As such, these Guidelines support the implementation of "GUIDELINES ON THE METHOD OF CALCULATION OF THE ATTAINED ENERGY EFFICIENCY DESIGN INDEX FOR NEW SHIPS" ("EEDI Calculation Guidelines", hereafter) and "GUIDELINES ON SURVEY AND CERTIFICATION OF THE ENERGY EFFICIENCY DESIGN INDEX". This document will also assist shipowners, shipbuilders, ship designers, and manufacturers in relation to aspects of developing more energy efficient ships and also in understanding the procedures for the EPT-EEDI validation.

2 OBJECTIVES

These Guidelines provide a framework for the uniform application of the EPT-EEDI validation process for those ships that come under paragraph 2.5.6.3 of the EEDI Calculation Guidelines.

3 DEFINITIONS

3.1 *Applicant* means an organization, primarily a shipbuilder or a ship designer, which requests the EPT-EEDI validation in accordance with these Guidelines.

3.2 *Validator* means a Recognized Organization which conducts the EPT-EEDI validation in accordance with these Guidelines.

3.3 *Validation* for the purpose of these Guidelines means review of submitted documents and survey during construction and sea trials.

3.4 *Standard EPT-EEDI-Form* refers to the layout given in appendix 3 that contains the EPT-EEDI results that will be the subject of validation. Other supporting documents submitted for this purpose will be used as reference only and will not be subject to validation.

3.5 P_{AE} herein is defined as per definition in paragraph 2.5.6 of the EEDI Calculation Guidelines.

3.6 *Ship Service and Engine-room Loads* refer to all the load groups which are needed for the hull, deck, navigation and safety services, propulsion and auxiliary engine services, engine-room ventilation and auxiliaries and ship's general services.

3.7 *Diversity Factor* is the ratio of the "total installed load power" and the "actual load power" for continuous loads and intermittent loads. This factor is equivalent to the product of service factors for load, duty and time.

4 APPLICATION

4.1 These Guidelines are applicable to ships as stipulated by paragraph 2.5.6.3 of the EEDI Calculation Guidelines.

4.2 These Guidelines should be applied for new ships for which an application for an EPT-EEDI validation has been submitted to a validator.

4.3 The steps of the validation process include:

- .1 Review of documents during the design stage
 - .1.1 Check if all relevant loads are listed in the EPT;
 - .1.2 Check if reasonable service factors are used; and
 - .1.3 Check the correctness of the P_{AE} calculation based on the data given in the EPT.
- .2 Survey of installed systems and components during construction stage
 - .2.1 Check if a randomly selected set of installed systems and components are correctly listed with their characteristics in the EPT.
- .3 Survey of sea trials
 - .3.1 Check if selected units/loads specified in EPT are observed.

5 SUPPORTING DOCUMENTS

5.1 The applicant should provide as a minimum the ship electric balance load analysis.

5.2 Such information may contain shipbuilders' confidential information. Therefore, after the validation, the validator should return all or part of such information to the applicant at the applicant's request.

5.3 A special EEDI condition during sea trials may be needed and defined for each vessel and included into the sea trial schedule. For this condition a special column should be inserted into the EPT.

6 PROCEDURES FOR VALIDATION

6.1 General

6.1.1 P_{AE} should be calculated in accordance with the EPT-EEDI Calculation Guidelines. EPT-EEDI validation should be conducted in two stages: preliminary validation at the design stage and final validation during sea trials. The validation process is presented in figure 1.

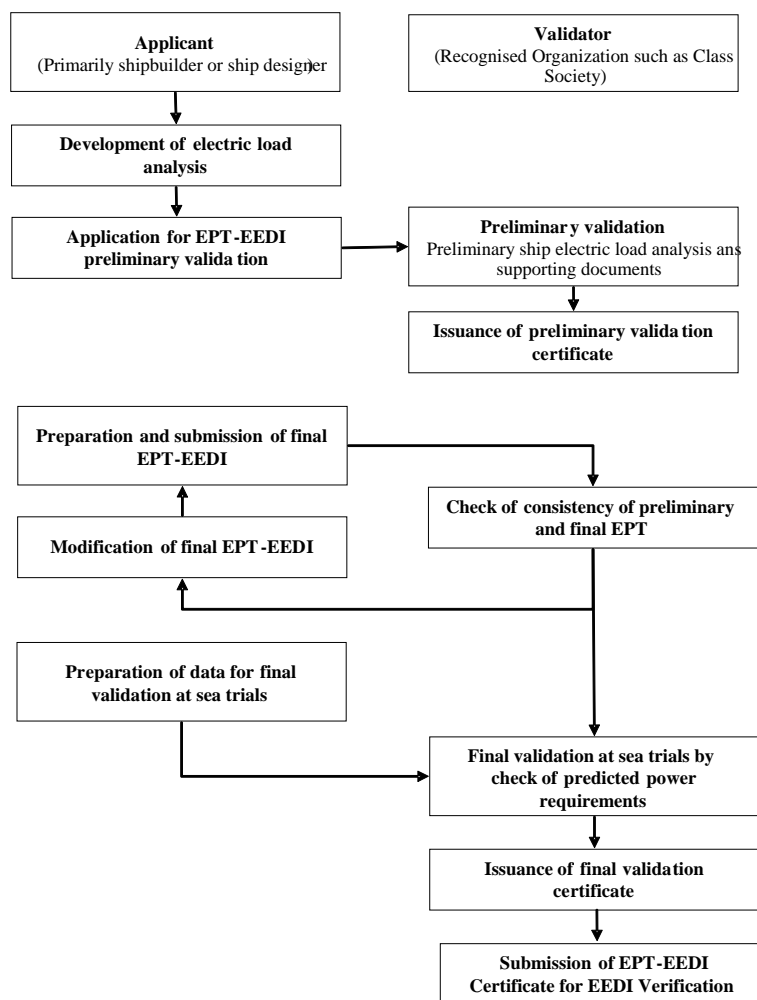


Figure 1: Basic Flow of EPT-EEDI Validation Process

6.2 Preliminary validation at the design stage

6.2.1 For the preliminary validation at the design stage, the applicant should submit to a validator an application for the validation of EPT-EEDI inclusive of EPT-EEDI Form and all the relevant and necessary information for the validation as supporting documents.

6.2.2 The applicant should supply as a minimum the supporting data and information, as specified in appendix A (to be developed).

6.2.3 The validator may request from the applicant additional information on top of those contained in these Guidelines, as necessary, to enable the validator to examine the calculation process of the EPT-EEDI. The estimation of the ship EPT-EEDI at the design stage depends on each applicant's experiences, and it may not be practicable to fully examine the technical aspects and details of each machinery component. Therefore, the preliminary validation should focus on the calculation process of the EPT-EEDI that should follow the best marine practices.

Note: A possible way forward for more robust validation is to establish a standard methodology of deriving the ship EPT by setting standard formats as agreed and used by industry.

6.3 Final validation

6.3.1 The final validation process as a minimum shall include the check of ship electric load analysis to ensure that all electric consumers are listed; their specific data and the calculations in the power table itself are correct and are supported by sea trial results. If necessary, additional information has to be requested.

6.3.2 For final validation the applicant shall revise the EPT-EEDI Form and supporting documents as necessary, by taking into account the characteristics of the machinery and other electrical loads actually installed on board the ship. The EEDI condition at sea trials shall be defined and the expected power requirements in these conditions documented in the EPT. Any changes within the EPT from design stage to construction stage should be highlighted by the shipyard.

6.3.3 The preparation for the final validation includes a desk top check comprising:

- .1 consistency of preliminary and final EPT;
- .2 changes of service factors (compared to the preliminary validation);
- .3 all electric consumers are listed;
- .4 their specific data and the calculations in the power table itself are correct; and
- .5 in case of doubt, component specification data is checked in addition.

6.3.4 A survey prior to sea trials is performed to ensure that machinery characteristics and data as well as other electric loads comply with those recorded in the supporting documents. This survey does not cover the complete installation but selects randomly a number [to be defined] of samples.

6.3.5 For the purpose of sea trial validation, the surveyor will check the data of selected systems and/or components given in the special column added to the EPT for this purpose or the predicted overall value of electric load by means of practicable measurements with the installed measurement devices.

7 ISSUANCE OF THE EPT-EEDI STATEMENT OF VALIDATION

7.1 The validator should stamp the EPT-EEDI Form "as Noted" after it validated the EPT-EEDI in the preliminary validation stage in accordance with these Guidelines.

7.2 The validator should stamp the EPT-EEDI Form "as Endorsed" after it validated the final EPT-EEDI in the final validation stage in accordance with these Guidelines.

APPENDIX 3

**ELECTRIC POWER TABLE FORM FOR ENERGY EFFICIENCY DESIGN INDEX
(EPT-EEDI FORM) AND STATEMENT OF VALIDATION**

Ship ID:

IMO No.: _____
Ship's Name: _____
Shipyard: _____
Hull No.:5 Miles _____

Applicant:

Name: _____
Address: _____

Validation Stage:

Preliminary validation

Final validation

Summary Results of EPT-EEDI

Load Group	Seagoing Condition EEDI Calculation Guidelines		Remarks
	Continuous Load (kW)	Intermittent Load (kW)	
Ship Service and Engine-room Loads			
Accommodation and Cargo Loads			
Total installed load			
Diversity Factor			
Normal seagoing load			
Weighted average efficiency of generators			
PAE			

Supporting Documents

Title	ID or Remarks

Validator details:

Organization: _____
Address: _____

This is to certify that the above-mentioned electrical loads and supporting documents have been reviewed in accordance with EPT-EEDI Validation Guidelines and the review shows a reasonable confidence for use of the above PAE in EEDI calculations.

The date of review: _____ Statement of validation No. _____

This statement is valid on condition that the electric power characteristics of the ship do not change.

Signature of Validator

Printed Name:

ANNEX 11

**RESOLUTION MEPC.215(63)
Adopted on 2 March 2012**

**GUIDELINES FOR CALCULATION OF REFERENCE LINES FOR USE WITH 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 (the Committee) conferred upon it by international conventions for the prevention and control of marine pollution,

RECALLING ALSO that, at its sixty-second session, the Committee adopted, by resolution MEPC.203(62), 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 (inclusion of regulations on energy efficiency for ships in MARPOL Annex VI),

NOTING that regulation 21 (Required EEDI) of MARPOL Annex VI, as amended, requires reference lines to be established for each ship type to which regulation 21 is applicable,

HAVING CONSIDERED, at its sixty-third session, the draft Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI),

ADOPTS the Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI), as set out at annex to the present resolution.

ANNEX

GUIDELINES FOR CALCULATION OF REFERENCE LINES FOR USE WITH THE ENERGY EFFICIENCY DESIGN INDEX (EEDI)

1 The reference lines are established for each ship type to which regulation 21 (Required EEDI) of MARPOL Annex VI is applicable. The purpose of the EEDI is to provide a fair basis for comparison, to stimulate the development of more efficient ships in general and to establish the minimum efficiency of new ships depending on ship type and size. Hence, the reference lines for each ship type is calculated in a transparent and robust manner.

2 Ship types are defined in regulation 2 of MARPOL Annex VI. The reference line for each ship type is used for the determination of the required EEDI as defined in regulation 21 of MARPOL Annex VI.

3 These guidelines apply to the following ships types: bulk carrier, gas carrier, tanker, containership, general cargo ship, refrigerated cargo carrier and combination carrier. It is noted that a method of calculating reference lines has not been established for ro-ro cargo ships, ro-ro cargo ships (vehicle), ro-ro-passenger ships and passenger ships, as well as for ships with diesel-electric propulsion, turbine propulsion and hybrid propulsion.

Definition of a reference line

4 A reference line is defined as a curve representing an average index value fitted on a set of individual index values for a defined group of ships.

5 One reference line is developed for each ship type to which regulation 21 of MARPOL Annex VI is applicable, ensuring that only data from comparable ships are included in the calculation of each reference line.

6 The reference line value is formulated as *Reference line value* = $a (100\% \text{ deadweight})^{-c}$ where "a" and "c" are parameters determined from the regression curve fit.

7 Input data for the calculation of the reference lines is filtered through a process where data deviating more than two standard deviations from the regression line are discarded. The regression is then applied again to generate a corrected reference line. For the purpose of documentation, discarded data is listed with the ships IMO number.

Data sources

8 IHS Fairplay (IHSF) database is selected as the standard database delivering the primary input data for the reference line calculation. For the purpose of the EEDI reference line calculations, a defined version of the database is archived as agreed between the Secretariat and IHSF.

9 For the purpose of calculating the reference lines, data relating to existing ships of 400 GT and above from the IHSF database delivered in the period from 1 January 1999 to 1 January 2009 are used.

10 The following data from the IHSF database on ships with conventional propulsion systems is used when calculating the reference lines:

- .1 data on the ships' capacity is used as *Capacity* for each ship type as defined in MEPC.XXX(63);
- .2 data on the ships' service speed is used as reference speed V_{ref} ; and
- .3 data on the ships' total installed main power is used as $MCR_{ME(i)}$.

11 For some ships, some data entries may be blank or contain a zero (0) in the database. Datasets with blank power, capacity and/or speed data should be removed from the reference line calculations. For the purpose of later references, the omitted ships should be listed with their IMO number.

12 To ensure a uniform interpretation, the association of ship types defined in regulation 2 of MARPOL Annex VI, with the ship types given by the IHSF database and defined by the so-called Stat codes, is shown in the appendix to this guideline. Table 1 in the appendix lists the ship types from IHSF used for the calculation of reference lines. Table 2 lists the IHSF ship types not used when calculating the reference lines.

Calculation of reference lines

13 To calculate the reference line, an estimated index value for each ship contained in the set of ships per ship type is calculated using the following assumptions:

- .1 the carbon emission factor is constant for all engines, i.e. $C_{F,ME} = C_{F,AE} = CF = 3.1144$ g CO₂/g fuel;
- .2 the specific fuel consumption for all ship types is constant for all main engines, i.e. $SFC_{ME} = 190$ g/kWh;
- .3 $P_{ME(i)}$ is 75% of the total installed main power ($MCR_{ME(i)}$);
- .4 the specific fuel consumption for all ship types is constant for all auxiliary engines, i.e. $SFC_{AE} = 215$ g/kWh;
- .5 P_{AE} is the auxiliary power and is calculated according to paragraphs 2.5.6.1 and 2.5.6.2 of the annex to MEPC.XXX(63);
- .6 no correction factors are used; and
- .7 innovative mechanical energy efficiency technology, shaft motors and other innovative energy efficient technologies are all excluded from the reference line calculation, i.e. $P_{AEff} = 0$, $P_{PTI} = 0$, $P_{eff} = 0$.

14 The equation for calculating the estimated index value for each ship (excluding containerhips – see paragraph 15) is as follows:

$$Estimated\ Index\ Value = 3.1144 \cdot \frac{190 \cdot \sum_{i=1}^{NME} P_{MEi} + 215 \cdot P_{AE}}{Capacity \cdot V_{ref}}$$

15 For containerships, 70 per cent of the deadweight (70% DWT) is used as *capacity* for calculating the estimated index value for each containership as follows:

$$\text{Estimated Index Value} = 3.1144 \cdot \frac{190 \cdot \sum_{i=1}^{NME} P_{MEi} + 215 \cdot P_{AE}}{70\% \text{ DWT} \cdot V_{ref}}$$

Calculation of reference line parameters "a" and "c"

16 For all ship types to which these guidelines apply, parameters "a" and "c" are determined from a regression analysis undertaken by plotting the calculated estimated index values against 100 per cent deadweight (100% DWT).

Documentation

17 For purposes of transparency, the ships used in the calculation of the reference lines should be listed with their IMO numbers and the numerator and denominator of the index formula, as given in paragraphs 14 and 15. The documentation of the aggregated figures preserves the individual data from direct access but offers sufficient information for possible later scrutiny.

APPENDIX

1 To ensure a uniform interpretation, ship types defined in regulation 2 of MARPOL Annex VI are compared to the ship types given in the IHSF database.

2 The IHSF Stat code system provides several levels of definition as follows:

.1 Highest level:

A	Cargo carrying
B	Work vessel
W	Non-seagoing merchant ships
X	Non-merchant
Y	Non-propelled
Z	Non-ship structures

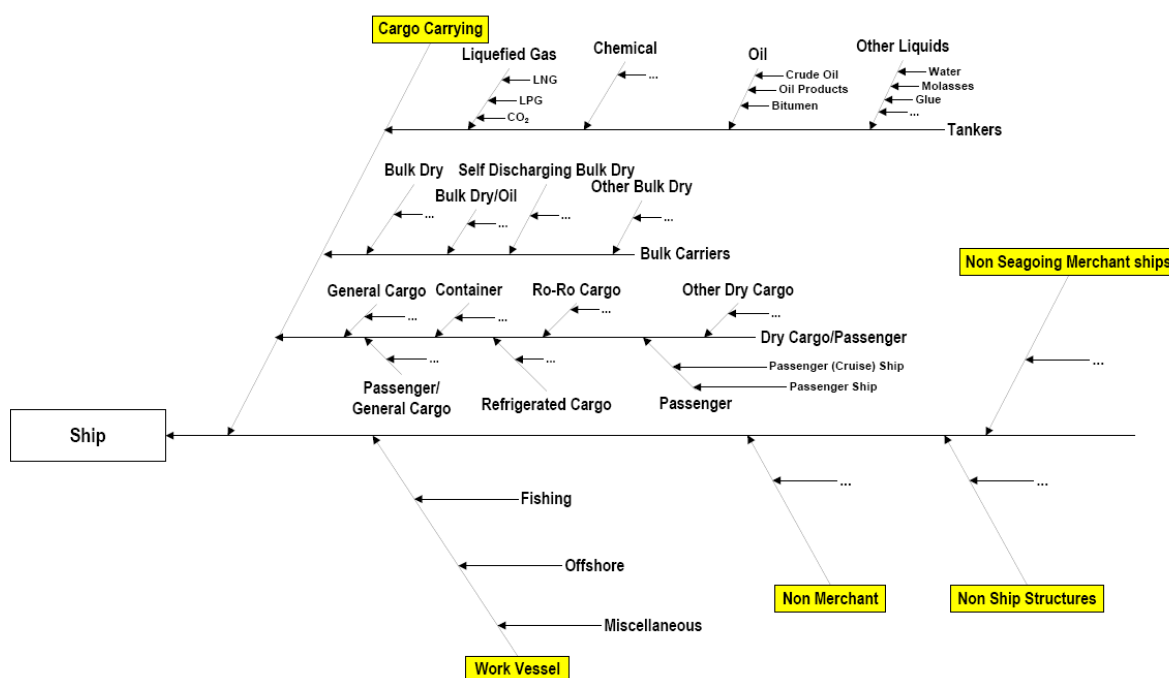
For the purpose of the EEDI, only group "A cargo carrying" needs to be considered. A graphical representation of this is given below.

.2 The next level comprises:

A1	Tankers
A2	Bulk carriers
A3	Dry cargo/passenger

There are further differentiations until level five, e.g. "A31A2GX General Cargo Ship", and each category is described.

The complete list is attached.



3 The ship types from the IHSF Stat code 5 (Statcode5v1075) used for the calculation of reference lines for the following ship types: bulk carrier, gas carrier, tanker, containership, general cargo ship, refrigerated cargo carrier and combination carrier, are set out in Table 1. The IHSF database ship types, not used in the calculation of reference lines for the specific ship types, are set out in Table 2, e.g. ships built for sailing on the Great Lakes and landing craft.

Table 1: Ship types from IHSF used for the calculation of reference lines for use with the EEDI

.1 Bulk carrier	Bulk dry	A21A2BC	Bulk carrier	A single deck cargo vessel with an arrangement of topside ballast tanks for the carriage of bulk dry cargo of a homogeneous nature.
	Bulk dry	A21B2BO	Ore carrier	A single deck cargo ship fitted with two longitudinal bulkheads. Ore is carried in the centreline holds only.
	Self-discharging bulk dry	A23A2BD	Bulk cargo carrier, self-discharging	A bulk carrier fitted with self-trimming holds, a conveyor belt (or similar system) and a boom which can discharge cargo alongside or to shore without the assistance of any external equipment.
	Other dry bulk	A24A2BT	Cement carrier	A single deck cargo vessel fitted with pumping arrangements for the carriage of cement in bulk. There are no weather deck hatches. May be self-discharging.
		A24B2BW	Wood chips carrier, self-unloading	A single deck cargo vessel with high freeboard for the carriage of wood chips. May be self-discharging.
		A24C2BU	Urea carrier	A single deck cargo vessel for the carriage of urea in bulk. May be self-discharging.
A24D2BA		Aggregates carrier	A single deck cargo vessel for the carriage of aggregates in bulk. Also known as a sand carrier. May be self-discharging.	
	A24E2BL	Limestone carrier	A single deck cargo vessel for the carriage of limestone in bulk. There are no weather deck hatches. May be self-discharging.	
.2 Gas carrier	Liquefied gas	A11A2TN	LNG tanker	A tanker for the bulk carriage of liquefied natural gas (primarily methane) in independent insulated tanks. Liquefaction is achieved at temperatures down to -163 deg C.
		A11B2TG	LPG tanker	A tanker for the bulk carriage of liquefied petroleum gas in insulated tanks, which may be independent or integral. The cargo is pressurized (smaller vessels), refrigerated (larger vessels) or both ("semi-pressurized") to achieve liquefaction.
		A11C2LC	CO ₂ tanker	A tanker for the bulk carriage of liquefied carbon dioxide.
		A11A2TQ	CNG tanker	A tanker for the bulk carriage of compressed natural gas. Cargo remains in gaseous state but is highly compressed.
.3 Tanker	Chemical	A12A2LP	Molten sulphur tanker	A tanker for the bulk carriage of molten sulphur in insulated tanks at a high temperature.
		A12A2TC	Chemical tanker	A tanker for the bulk carriage of chemical cargoes, lube oils, vegetable/animal oils and other chemicals as defined in the International Bulk Chemical Code. Tanks are coated with suitable materials which are inert to the cargo.

		A12B2TR	Chemical/ products tanker	A chemical tanker additionally capable of the carriage of clean petroleum products.
		A12C2LW	Wine tanker	A cargo ship designed for the bulk transport of wine in tanks. Tanks will be stainless steel or lined. New vessels will be classified as chemical carriers.
		A12D2LV	Vegetable oil tanker	A cargo ship designed for the bulk transport of vegetable oils in tanks. Tanks will be stainless steel or lined. New vessels will be classified as chemical carriers.
		A12E2LE	Edible oil tanker	A cargo ship designed for the bulk transport of edible oils in tanks. Tanks will be stainless steel or lined. New vessels will be classified as chemical carriers.
		A12F2LB	Beer tanker	A tanker for the bulk carriage of beer.
		A12G2LT	Latex tanker	A tanker for the bulk carriage of latex.
		A12H2LJ	Fruit juice tanker	A tanker for the bulk carriage of fruit juice concentrate in insulated tanks.
	Oil	A13A2TV	Crude oil tanker	A tanker for the bulk carriage of crude oil.
		A13A2TW	Crude/oil products tanker	A tanker for the bulk carriage of crude oil but also for carriage of refined oil products.
		A13B2TP	Products tanker	A tanker for the bulk carriage of refined petroleum products, either clean or dirty.
		A13B2TU	Tanker (unspecified)	A tanker whose cargo is unspecified.
		A13C2LA	Asphalt/ Bitumen tanker	A tanker for the bulk carriage of asphalt/bitumen at temperatures between 150 and 200 deg C.
		A13E2LD	Coal/oil mixture tanker	A tanker for the bulk carriage of a cargo of coal and oil mixed as a liquid and maintained at high temperatures.
	Other liquids	A14A2LO	Water tanker	A tanker for the bulk carriage of water.
		A14F2LM	Molasses tanker	A tanker for the bulk carriage of molasses.
		A14G2LG	Glue tanker	A tanker for the bulk carriage of glue.
		A14H2LH	Alcohol tanker	A tanker for the bulk carriage of alcohol.
		A14N2LL	Caprolactam tanker	A tanker for the bulk carriage of caprolactam, a chemical used in the plastics industry for the production of polyamides.
	Chemical	A12A2TL	Parcels tanker	A chemical tanker with many segregated cargo tanks to carry multiple grades of chemicals as defined in the International Bulk Chemical Code. Typically these can have between 10 and 60 different tanks.

.4 Containership	Container	A33A2CC	Containership (fully cellular)	A single deck cargo vessel with boxed holds fitted with fixed cellular guides for the carriage of containers.
.5 General cargo ship	General cargo	A31A2GX	General cargo ship	A single or multi-deck cargo vessel for the carriage of various types of dry cargo. Single deck vessels will typically have box-shaped holds. Cargo is loaded and unloaded through weather deck hatches.
	Other dry cargo	A38H2GU	Pulp carrier	A vessel designed for carrying paper pulp.
.6 Refrigerated cargo carrier	Refrigerated cargo	A34A2GR	Refrigerated cargo ship	A multi-deck cargo ship for the carriage of refrigerated cargo at various temperatures.
.7 Combination carrier	Bulk dry/oil	A22A2BB	Bulk/oil carrier (OBO)	A bulk carrier arranged for the alternative (but not simultaneous) carriage of crude oil.
	Bulk dry/oil	A22B2BR	Ore/oil carrier	An ore carrier arranged for the alternative (but not simultaneous) carriage of crude oil.
	Bulk dry/oil	A22A2BP	Ore/bulk/products carrier	A bulk carrier arranged for the alternative (but not simultaneous) carriage of oil products.

Table 2: Ship types from IHSF not included in the calculation of reference lines for use with the EEDI

.1 Bulk carrier	Bulk dry	A21A2BG	Bulk carrier, laker only	A single deck cargo vessel with dimensions suited to the limitations of Great Lakes of North America trade, unsuitable for open sea navigation. Hatches are more numerous than standard bulk carriers, and much wider than they are long.
	Bulk dry	A21A2BV	Bulk carrier (with vehicle decks)	A bulk carrier with movable decks for the additional carriage of new vehicles.
	Bulk dry/oil	A22A2BB	Bulk/oil carrier (OBO)	A bulk carrier arranged for the alternative (but not simultaneous) carriage of crude oil.
	Bulk dry/oil	A22B2BR	Ore/oil carrier	An ore carrier arranged for the alternative (but not simultaneous) carriage of crude oil.
	Bulk dry/oil	A22A2BP	Ore/bulk/products carrier	A bulk carrier arranged for the alternative (but not simultaneous) carriage of oil products.
	Self-discharging bulk dry	A23A2BK	Bulk cargo carrier, self-discharging, laker	A Great Lakes bulk carrier fitted with a conveyor belt (or similar system) and a boom which can discharge cargo alongside or to shore without the assistance of any external equipment.
	Other bulk dry	A24H2BZ	Powder carrier	A single deck cargo vessel for the carriage of fine powders such as fly ash. There are no weather deck hatches.
	Other bulk dry	A24G2BS	Refined sugar carrier	A single deck cargo vessel for the carriage of refined sugar. Sugar is loaded in bulk and bagged in transit (BIBO – Bulk In – Bag Out).
.2 Gas carrier	Liquefied gas	A11B2TH	LPG/chemical tanker	An LPG tanker additionally capable of the carriage of chemical products as defined in the International Bulk Chemical Code.
.3 Tanker	Oil	A13A2TS	Shuttle tanker	A tanker for the bulk carriage of crude oil specifically for operation between offshore terminals and refineries. Is typically fitted with bow loading facilities.

.4 Containership	Container	A33B2CP	Passenger/ containership	A containership with accommodation for the carriage of more than 12 passengers.
.5 General cargo ship	General cargo	A31A2GO	Open hatch cargo ship	A large single deck cargo vessel with full width hatches and boxed holds for the carriage of unitized dry cargo such as forest products and containers. Many are fitted with a gantry crane.
	General cargo	A31A2GS	General cargo/tanker (container/oil/bulk – COB ship)	A general cargo ship with reversible hatch covers; one side is flush and the other is fitted with baffles for use with liquid cargoes. Containers can be carried on the hatch covers in dry cargo mode.
	General cargo	A31A2GT	General cargo/tanker	A general cargo ship fitted with tanks for the additional carriage of liquid cargo.
	General cargo	A31C2GD	Deck cargo ship	A vessel arranged for carrying unitized cargo on deck only. Access may be by use of a ro-ro ramp.
	Passenger/general cargo	A32A2GF	General cargo/passenger ship	A general cargo ship with accommodation for the carriage of more than 12 passengers.
	Other dry cargo	A38A2GL	Livestock carrier	A cargo vessel arranged for the carriage of livestock.
	Other dry cargo	A38B2GB	Barge carrier	A cargo vessel arranged for the carriage of purpose built barges (lighters) loaded with cargo. Typically loading is by way of a gantry crane. Also known as Lighter Aboard SHip vessels (LASH).
	Other dry cargo	A38C3GH	Heavy load carrier, semi-submersible	A heavy load carrier which is semi-submersible for the float on loading/unloading of the cargoes.
	Other dry cargo	A38C3GY	Yacht carrier, semi-submersible	A semi-submersible heavy load carrier specifically arranged for the carriage of yachts.
	Other dry cargo	A38D2GN	Nuclear fuel carrier	A cargo vessel arranged to carry nuclear fuel in flasks.
	Other dry cargo	A38D2GZ	Nuclear fuel carrier (with ro-ro facility)	A nuclear fuel carrier which is loaded and unloaded by way of a ro-ro ramp.
Other dry cargo	A38B3GB	Barge carrier, semi-submersible	A barge carrier which is semi-submersible for the float on loading/unloading of the barges.	

	Other dry cargo	A38C2GH	Heavy load carrier	A cargo vessel able to carry heavy and/or outsized individual cargoes. Cargo may be carried on deck or in holds and may be loaded by crane and/or ro-ro ramps.
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ANNEX 12

WORK PLAN AND SCHEDULE FOR FURTHER DEVELOPMENT OF TECHNICAL AND OPERATIONAL MEASURES FOR SHIPS

1 EEDI framework for ship types and sizes, and propulsion systems not covered by the current EEDI requirements

MEPC session:		MEPC 63	MEPC 64	MEPC 65	MEPC 66	MEPC 67	MEPC 68	MEPC 69
Date (for 2012 to 2016, the dates are tentative):		February 2012	October 2012	[July 2013]	[March 2014]	[October 2014]	[July 2015]	[March 2016]
Regulatory frameworks (reference lines and reduction factors) for: - passenger ships - ro-ro cargo ships - ro-ro passenger ships		—————→			Finalization	Adoption		
Consideration of EEDI calculation method for ships having diesel electric propulsion, turbine propulsion, hybrid propulsion and other propulsion systems or dual fuel systems		—————→			Finalization	Adoption		
Review process	Review of applicable requirements for small ship segments with linear reduction factors in regulation 21 (review process 1)	—————→			Finalization			
	Review of EEDI for larger size segment of oil tankers and bulk carriers	—————→			Finalization			
	Review of technological developments and adjust the time period and reduction factors set out in Phases 2 and 3 (review process 2)					—————→		

2 Remaining EEDI and SEEMP related guidelines to be developed

MEPC session:	MEPC 63	MEPC 64	MEPC 65	MEPC 66	MEPC 67
Date (for 2012, 2013, 2014 and 2015, the dates are tentative):	February 2012	October 2012	[July 2013]	[March 2014]	[October 2014]
Consideration of CO ₂ abatement technologies (Conversion factors/Guidelines) (three sessions after receiving proposal; time schedule shown in right is the earliest possibility)	—————→		Finalization		
Consideration of Guidelines on propulsion power needed to maintain the manoeuvrability of the ship under adverse conditions		Interim	Finalization		

ANNEX 13

STATEMENTS BY THE DELEGATIONS OF AUSTRALIA, BRAZIL, CHINA, INDIA, SWEDEN AND THE UNITED KINGDOM ON THE DRAFT MEPC RESOLUTION ON PROMOTION OF TECHNICAL CO-OPERATION AND TRANSFER OF TECHNOLOGY RELATING TO THE IMPROVEMENT OF ENERGY EFFICIENCY OF SHIPS

(listed in alphabetical order)

Statement by the delegation of Australia

Australia would like to express its deep gratitude to Mr. Dominguez in his effort to bring us to this outcome. He discharged his duties with professionalism, patience and extreme stamina. He exercised his full powers to maximize the time available to consider this important issue. He adhered to our request to operate on the basis of unanimity and delivered on his responsibility to provide a report to this room so that Parties not present in the Group can understand the nature of our work.

We are disappointed by comments that developed countries actively sought to counter attempts to agree measures to promote technical cooperation and transfer of technology to developing countries. As a Party to MARPOL Annex VI, Australia will fully implement regulation 23 in Chapter 4 of that Annex to promote technical cooperation and transfer of technology relating to the improvement of energy efficiency of ships.

Australia had also looked forward this week to elaborating on that regulation to a substantive resolution. In this regard, we would like to thank our fellow WG members. Through the course of our work together this week, we have gained a far better understanding of colleagues' views.

As noted in the report, the Group clearly identified areas of convergence and divergence on what should be included in this resolution. The Group also managed to transpose these views into text proposals, as set out in Annex I and II to the report. While we did not manage to discuss the text in Annex II, the exercise of collecting all the text proposals will significantly accelerate our conclusion of the resolution at our next session.

Mr Chairman, this delegation is not discouraged by the number of square brackets in Annexes I and II. To us, it represents the depth of interest, and breadth of engagement, in this issue, and the importance that States place on it. We are conscious that not all States could participate in the WG and that is why we would also like to thank our colleagues for taking the time to prepare this report. Along with its annexes, the report gives important transparency to our work, putting all countries on an equal footing in taking this issue forward.

In terms of our next steps, Australia supports the approval of this report and inclusion of this issue on the agenda of our next session. Drawing on our work this week, this delegation will strive intersessionally to formulate proposals that will bring States together to conclude a resolution on this important issue at MEPC 64.

Statement by the delegation of Brazil

Brazil expresses its strong disappointment with the lack of flexibility of developed countries in the discussions on the draft resolution on promotion of technical co-operation and transfer of technology relating to energy efficiency measures for ships.

The draft resolution is of paramount importance for developing countries, especially LDCs and SIDS, in addressing emissions from shipping. It was part of a package that should have been adopted by MEPC 62, but after adoption by vote the technical and operational measures, developed countries were unwilling to compromise on the draft resolution and rejected all developing countries requests.

Mr. Chairman, this is an unfinished business of MEPC 62 that needs to be resolved if we want to achieve balanced results in this session. Twenty-eight countries put forward a proposal (J-8 paper) taking into account your text and other inputs from developing countries. This text contains elements of fundamental importance for these countries and other Member States such as the principle of common but differentiated responsibilities in addressing climate change in the shipping sector, and the need of financial, technology, and capacity building support for developing countries by developed countries.

Mr. Chairman, regulations in Chapter 4 of MARPOL Annex VI will enter into force in January 2013. We need a resolution now. We must consider this matter as a top priority of this Committee and adopt a text at this session. We cannot simply ignore the needs of developing countries in this Organization. We cannot trample on the rules of this Organization to impose one's views on the whole membership.

The adoption of EEDI and SEEMP amendments by a vote of the Parties to MARPOL Annex VI at MEPC 62, regardless of the concerns expressed by many developing countries, defeated the purpose of IMO efforts to address the climate change challenge, a task that can only be accomplished through multilateral agreement. The adoption of rash decisions by vote also runs counter to the efforts of this Organization in fulfilling the task entrusted to it by the UNFCCC's Kyoto Protocol Article 2.2.

It is high time countries that are committing resources to tackle climate change in other fora put aside their short-term narrow objectives at the IMO and take due account of developing countries concerns on means to implement IMO standards related to GHG emissions reduction.

Mr. Chairman, at the 27th session of the IMO Assembly, our highest political body, sent a very clear message to this Committee when it refrained from endorsing its reports and requested MEPC to revert to the way of consensus. You can count on your willingness to follow this course, in spite of the negative precedents and the lack or real disposition from other countries to engage in negotiations.

Statement by the delegation of China

The resolution on Technology transfer was part of the proceedings, and an unfinished work of the last session and is one of the priorities of this session. We are disappointed that discussions among all the parties concerned could not lead to a consensus. According to the provisions of UNFCCC, the developed countries should provide technology transfer and assistance on capacity-building to the developing countries, on which consensus has been reached between the parties concerned, though difference still exists in the understandings on particular arrangements.

China believes that this work is the continuation of the past work of the MEPC, as well as an important foundation of its future work, which will facilitate mutual understanding. Without progress on this work, the MEPC could hardly achieve any smooth progress on the work regarding climate change.

The MEPC resolution failed to be adopted, and it would be further discussed at next session. We also wish to remind the MEPC that the same treatment should be given to other premature documents such as the terms of reference for the Steering Committee for Further Impact Assessment of the Proposed Market-Based Measures for International Shipping. Due to the entirely different views among the various parties, they are far from being mature and should therefore be postponed to the next session for further discussion.

Statement by the delegation of India

Now that MEPC 63 is coming to a close we certainly need to look back, particularly, the strenuous session that had to be undergone by all those who thought that this was the one and only forum which was empowered to decide on the future of the contribution that International shipping was liable to make to the intractable problem of climate change.

Mr. Chairman, going by the way the meeting was conducted last night and early this morning, boring as it will sound, we surely need to recall, yet again, Article 55 of the UN Charter, which says, "with a view to the creation of conditions of stability and well being which are necessary for peaceful and friendly relation among nations the UN shall promote : higher standards of living, full employment and, conditions of economic and social progress and development". India, at times, strains itself to recall whether most of the delegations do appreciate that the IMO is an arm of the UN and also that each one of us present in this plenary is bound by the said provisions of the UN Charter.

It is also worth a recall that in September, 2000 at the Millennium Summit, world leaders adopted a set of Millennium Development Goals aimed at eradicating extreme poverty and hunger. This also included, "cutting in half the proportion of those who earn less than a dollar a day by the year 2015. And yet, going by the proceedings while drafting the terms of reference for further impact assessment of the proposed MBM and the draft resolution on promotion of technical cooperation and transfer of technology, this delegation is constrained to rethink who on earth is committed to the achieving of the said Millennium Development Goals.

Mr. Chairman, Honourable Secretary General and distinguished delegates, India finds it a burden to recall Article 3.5 of the UNFCCC which relates to the principles of the UNFCCC and says, "the party should cooperate to promote a supportive and open international economic system that would lead to sustainable economic growth and development in all parties, particularly developing country parties, thus enabling them better to address the problems of climate change. Measures taken to combat climate change, including unilateral ones (repeat), should not constitute a means of arbitrary and unjustifiable discrimination or a disguised restriction on international trade". Ladies and gentlemen, we were witness to a process during the functioning of the Working Group which bears testimony to the fact that a substantial number of delegates chose to overlook the fact that even they were bound by this principle of the UNFCCC. If the report of a Working Group constitutes an Annex in which more than 95 per cent of the paragraphs had to be resigned to "square brackets", even though not one such paragraph went beyond the provisions of the UNFCCC and the KP, it only goes to show how inclined the MEPC 63 was to honour and abide by these fundamental provisions of climate change.

Mr. Chairman, this delegation salutes Mr. Arsenio Dominguez, Vice Chairman for the immense composure he exhibited despite his fits of desperation. However, this delegation was unpleasantly surprised to hear that the provisions of the UNFCCC/ KP could not be included in the resolution to be adopted since these did not pertain to the IMO. An example was quoted that in the past when ILO matters were required to be included in the relevant IMO formal documents, that was not agreed to. If that be so, IMO should rise to the occasion and derecognize the famously established MoUs pertaining to Port State control which

conspicuously mention that issues related to for example, ILO 147 if violated, should lead to detention of merchant ships. We are a trifle surprised that most of these MOUs have been formulated by Parties from which delegates vehemently opposed the inclusion of the provisions of UNFCCC/KP. Had the Chairman of the Working Group made certain exclusions based on reasons related to the high intellectual property standards in international treaties, especially the trade related aspects of Intellectual Property Rights, there was reason for some comfort. But alas, that was not the reason why exclusions were made or square brackets multiplied in geometric progression.

This delegation, therefore, finds it necessary to bring forth the following points which should help in examining whether the decision to treat provisions of the UNFCCC/KP with prejudice, as was on wanton display in the wee hours of this morning, was justifiable or not.

While integrating provisions of other statutes into home statutes:

- 1) Care must be exercised not to invalidate other provisions in other treaties and regimes;
- 2) Interpretation should render both provisions operational and compatible, and if that is not possible, the rule that is determined to have priority must nevertheless take the other rule into account; and,
- 3) The process of integration of such statutory provisions into others needs to be put to the "basic effects test" which is an examination of whether or not one set of provisions in a treaty would essentially limit, negate or impair the effectiveness of other provisions or regimes. Once shared objectives are established, a connection can be clarified by seeking specified shared provisions that suggest that the provisions need to be incorporated in a fashion to give effect to all of them.

Mr. Chairman Sir, Honourable Secretary General and dear delegates, none of the above exercises were adopted during the conduct of the Working Group and yet all that which in some manner or the other, however slender, went the way of the developing countries was resigned to square brackets. This was a historically painful exercise to have been borne, and certainly not for the odd and long hours of working.

We, therefore, once again remind all concerned with no rhetoric, that the increasing tendency with which such exercises are being undertaken by our IMO only goes to testify that the very foundations of the UN Charter and the UNFCCC are simply being ignored, and that too by design. This is unacceptable.

Ladies and Gentlemen, the history of the right to development has been one of sequencing, prioritizing and is full of argument about conflicts of rights and conflicts with other systems of international economic and environmental governance. Given this scenario of potentially competing norms arising out of different areas of international law, the potential for conflicts and tensions may undermine effective policies ensuring the establishing of climate justice and related technologies. The experience we went through in the Working Group could not have been a better proof of this. Notwithstanding this, allow us to repose every faith in our IMO so that the developing countries are not flagrantly denied that to which they are entitled.

Statement by the delegation of Sweden

Sweden came to this session of MEPC committed to honour the agreement at MEPC 62 to develop a resolution on promotion of technical cooperation and transfer of technology to be adopted as a package with the amendments to MARPOL regarding EEDI. We are still committed to doing so. We feel that all members of the group have worked hard – beyond hard – to achieve a compromise. This is a serious issue that deserves serious consideration – and we are in the process of doing this. We regret we were unable to come to a conclusion, but like others have stated, we are convinced all the hard work we have put in has brought us a big step forward and that we will be in a position at our next session to finalize the work.

Finally, I want to thank Mr. Arsenio Dominguez for his excellent leadership and patience with the group. He has been clear, fair and much nicer to us than we deserve. Thanks to him, we have a basis for further work and we are grateful to him for that.

Statement by the delegation of the United Kingdom

The UK would like to express its appreciation to the Chairman of the Working Group, his efforts can only be described as valiant and confirmed why we elected him as your Vice Chairman earlier this week.

As previously stated the UK came to this session of the Committee willing to agree to the draft resolution as proposed by your good self in MEPC 63/5/4.

Despite the efforts put in by all, it is unfortunate that an agreed draft text could not be finalized for consideration by the Committee.

As such the UK feels that the most appropriate action would be to forward the matter to MEPC 64 for further consideration.

ANNEX 14

GENERAL STATEMENTS BY THE DELEGATIONS OF BRAZIL, CHILE, CHINA AND INDIA ON MATTERS OF PRINCIPLE OR POLICY CONCERNING REDUCTION OF GREENHOUSE GAS EMISSIONS

Statement by the delegation of Brazil

Greenhouse gas emissions from international transportation must be addressed multilaterally and consensually, in accordance with the principles and provisions of the UNFCCC and its Kyoto Protocol.

The United Nations Climate Change Conference, held in Durban, in December 2011, reached a comprehensive and balanced outcome that ensured the second commitment period of the Kyoto Protocol, and enabled enhanced ambition under the climate change regime in the future, including through enhanced long-term cooperative action and the launching of the "Durban Platform for Enhanced Action".

The positive outcome of Durban should be taken as an example to be followed by IMO when addressing greenhouse gas emissions from shipping, in particular, with respect to the multilateral approach, based on consensually agreed rules. The consensual and ambitious results from Durban strengthened the leadership of the UNFCCC in addressing climate change.

Brazil regrets the outcome of MEPC 62, in July 2011, which did not reflect the views of all countries, despite serious concerns expressed by many developing countries, especially in relation to the amendments to MARPOL Annex VI, which required a voting procedure for approval. MEPC 62 demonstrated that IMO membership is clearly divided with respect to issues related to climate change.

The adoption of decisions without consensus jeopardizes the legitimacy of this Committee in addressing greenhouse gas emissions from ships. The lack of legitimacy of the results of the last MEPC session was clearly highlighted in subsequent discussions at the Council Extraordinary Session and the IMO Assembly that decided, at its 27th Session, not to approve the MEPC 62 report. The IMO highest political body also urged MEPC to work in the future on the basis of consensus rather than by vote.

Brazil fully concurs with this perspective. It is important that Parties promote confidence-building by ensuring that all decisions adopted by MEPC are consensually agreed by the entire IMO membership. We also expect the Secretariat to play its part by displaying the necessary balance and impartiality in supporting Parties on our way forward concerning climate change issues, in a process that must be Member State driven. The methods and pace of our work are to be carefully defined by the Member States, taking into account the sensitiveness of the issues under discussion.

The negative precedent of last July's vote should not be repeated. Negotiations must go back to track, regardless of the difficulties to find common ground among delegations.

Statement by the delegation of Chile

Chile holds the view that the industry's efforts should be focused on continuing to progress, jointly and on a consensual basis, towards the reduction of GHG emissions. Our country maintains an open economic policy and has no objection to Market-Based Measures.

Nevertheless, Chile feels it is relevant to assess thoroughly whether there is real need to implement measures of this type; and, if that is the case, that they should not lead to distortions in trade and competition.

To that end, Chile believes it is important to consider, as part of the objectives of the study, the comparative analyses that exist on the distortions in trade and competition that could ensue as a result of the application of market-based measures. The Committee will be aware that Chile is one of the most remote countries, and that market-based measures which distort trade will affect it negatively.

Likewise, Chile maintains that if Market-Based Measures are applied, the revenue that they generate must not exceed the percentage of emissions that this industry contributes to climate change.

Chile proposes that the measures, if they prove necessary, should be implemented taking into account the special circumstances and respective capacities of each of the Parties.

Statement by the delegation of China

Climate change is a common challenge faced by the global community which shall be addressed through international cooperation. Likewise, the issue of emission reduction from international shipping shall also be addressed through multilateral cooperative mechanism.

The essence of the multilateralism lies in the degree of flexibility by which the common ground would be reached and the resolution would be accepted by all parties. Voting shall not be resorted to settle any issue.

The Secretariat plays an important role throughout the IMO multilateral negotiations. The Secretariat staff should provide equal and fair services and avoid making preferred statements and giving directive opinions. This will not assist the work of the MEPC. The Secretariat should also carry out its work in line with the mandate by the MEPC and refrain from conducting relevant work on the basis of preference. It is hoped that in future the Secretariat will provide its service in an equal and fair manner, and carry out its work according to the mandate by the MEPC.

Statement by the delegation of India

The delegation of India takes cognizance of the importance given by the International Maritime Organization (IMO) and the Secretary-General to the issues of identifying and developing the technical measures needed to achieve reduction of emissions from international shipping. While appreciating this mission of the IMO, India takes this opportunity to reaffirm that a slew of measures have been taken for reducing our emission intensity and the country's National Action Plan on Climate Change is designed to meet this objective.

In this regard, the issue of a long-term stabilization goal cannot be separated from the issue of sharing the carbon space and ensuring equitable burden sharing including taking into account historical cumulative emissions, per-capita emissions and the developmental needs of developing countries and must also be guided by Article 2 of the UNFCCC in its entirety. In this context common and differentiated responsibilities is critical and needs to be respected both in letter and spirit.

The entire structure of the UNFCCC and Kyoto Protocol is driven by a need to equitably address climate change given the non-level sharing of the available environmental space by the developed and developing countries. Thus it is not compatible to now use the argument of "no more favourable treatment" to detract from specific commitments necessary for Annex I countries to address the challenge of climate change.

India notes with concern that the deliberation and adoption of mandatory application by the 62nd session of the Maritime Environment Protection Committee, which was held at International Maritime Organization in the month of July, 2011, adopted the new chapter 4 to MARPOL Annex VI related to Energy Efficiency Design Index (EEDI) for new ships and Ship Energy Efficiency Management Plan (SEEMP) for all ships, for reduction of GHG from international shipping through technical measures without recognizing the CBDR principle of UNFCCC.

- .1 The amendment is scheduled to enter into force on 1st January, 2013. However, India would like to state that IMO failed to take cognizance of Article 2-2 of the Kyoto Protocol and the principle of 'Common but Differentiated Responsibilities' and respective capabilities as enshrined in the UNFCCC. The principle of CBDR is the overarching principle underlying the UNFCCC and the KP and, needs to be respected by any other covenant that seeks to introduce measures for GHG mitigation.
- .2 In order to address concerns raised by the developing countries during the discussions at MEPC sessions at IMO, the regulations were also amended to include a clause allowing any Administration to waive the EEDI requirements for ships flying its flag for a time period of up to four years (linked to contract date) or six years and six months (linked to delivery date) after 1 January 2013.

India would further highlight that the amendment to include EEDI in MARPOL Annex VI was not adopted by consensus, and in fact it has been adopted despite strong objections expressed by several developing countries, such as Argentina, Brazil, Chile, China, Cuba, India, Kuwait, Saudi Arabia, and South Africa.

India understands that in the coming sessions of MEPC, Market-Based Measures will be deliberated, to raise funds, through Bunker levy, or any other model of MBMs.

As a developing country, India would not like to have any agreement on Market-Based Measures which will impact on our basic principle of CBDR and have an adverse impact on our developmental need and which varies from the policy of common but differentiated responsibility with respect to GHG emissions.

Further, as we are all aware that the Copenhagen accord has called for binding emissions reductions targets for developed countries and voluntary promises from developing countries, and has envisaged mechanisms to support capacity building and technology development in developing countries for helping them to tackle climate change, it has omitted specifying cuts for CO₂ emission from the international shipping and aviation. This action not only runs counter to multilateralism but also overtly falls foul of the UNFCCC. Are we in the IMO also under similar threat of unilateral measures, as far as international shipping goes? The opening remarks of the Secretary General may be worth a re-reading, in case we can find some answers to this apprehension.

India understands that the United Nation Framework Convention on Climate Change remains the only comprehensive framework to deal with the climate change issues.

The Durban Conference has decided to launch a Durban Platform for conducting negotiations for a future Protocol or a legal instrument or an agreed outcome with a legal force, to be finalized no sooner than 2015 for implementation not later than 2020. These new arrangements will be designed under the existing Convention and will hence, be subjected to the relevant principles and provisions of the Convention including the principles of equity and CBDR.

The proposal to enforce at any cost, Market-Based Measures for international maritime transport, as well as the impact of those policies for developing countries is still under discussion. Moreover, given the current existing uncertainty related to the impacts of Market-Based Measures, mainly on developing countries, there is a need to undertake additional and comprehensive studies about their direct, indirect and spill over effects, and to continue discussing on the basis of those studies, the convenience and opportunity of those types of measures before any possible decision on this matter.

Moreover, a study by the Member States (not Consultants) to confirm the consistency of the proposed MBMs with other relevant conventions such as UNFCCC, and the principle of CBDR, WTO rules and Kyoto Protocol, needs to be carried out.

These observations are certainly not for the purpose of precipitating political differences or conflicting priorities for responding to climate change. When delegations are urged to consider resolutions upfront on an issue which has hardly been subject to even the most rudimentary of impact assessment on one hand and which on the other, promise to impose stiff challenges to the very economic fabric of a country, it is obviously a question of impropriety.

In view of what has been said, India is constrained to highlight the following issues for consideration:

- .1 Any measures taken with respect to the Market-Based Measures, shall differentiate between developed and developing countries, and the measures so taken should not constrain the social and economic development of developing countries. Due account of the special conditions and national circumstance of those developing countries should also be taken into account.
- .2 Further, a legally binding agreement for emission reduction in the form of Market-Based Measures for the shipping sector cannot be agreed upon at this stage of the country's development, since the emissions in India are bound to grow, though in a controlled manner, so that socio-economic development and poverty eradication targets could be fulfilled.
- .3 Any measures taken to address the issue of climate change shall differentiate between developed and developing country Parties and not constrain the social and economic development of developing country Parties, taking due cognizance of the special circumstances and national priorities of those countries.

ANNEX 15

STATEMENTS BY THE DELEGATIONS OF BRAZIL AND JAPAN ON THE CONSIDERATION AND POSSIBLE CONSOLIDATION OF MBM PROPOSALS

Statement by the delegation of Brazil

Brazil thanks all proponents for their submissions discussing proposals for an MBM for international shipping.

First and foremost, it must be said that failure to clearly demonstrate a compelling need for an MBM means that none should be discussed. We must first settle this matter, and only then, upon proven need, start debating MBMs.

Since this is what is being asked of us now, then Brazil wishes to start by reiterating the existing incompatibility between the UNFCCC principles and those measures taken by IMO that do not distinguish between Parties and non-Parties of Annex I of the Kyoto Protocol.

Furthermore, one must not forget that the effects of adopting an MBM have not yet been fully analyzed as regards compensation for loss of competitiveness of national products, economic consequences and food security, among others. No MBM can be adopted before we know what the impacts on developing countries of such a decision will be.

As stated many times before, Brazil strongly opposes any levy on fuel because this directly affects freight costs, effectively affecting products from countries that are distant from the largest centres of consumption. This may bring about negative impacts on the economy, development and welfare of the affected countries.

Brazil also opposes establishing a Fund as we understand it is difficult to manage (to say the least) and it is not clear which Organization would be in charge of running it.

In addition, it is the understanding of Brazil that proposing the application of technical and operational measures to both new and existing ships be it via an MBM or otherwise, goes against the very amendments adopted at the last session. We fully align ourselves with the understanding that the EEDI is a regulatory tool to stimulate improvement in the energy efficiency of new ships through ship design. It should, therefore, only apply to those ships and not to existing ones. This is why Brazil cannot support those proposals based on technical measures applying to all ships.

With regards to document MEPC 63/5/9, even though Brazil truly appreciates the effort, time and money invested in this endeavour, Brazil believes that, among other aspects, the sampling taken cannot be deemed to be representative by any standards as far as the effects of a global ETS on the organization and operations of companies worldwide are concerned. Brazil cannot, therefore, agree with their conclusions.

Lastly, although the SECT proposal presents a seemingly attractive concept, there is no certainty with regard to the economic viability of the proposed credit trading system and no study on the impacts of the associated measures. Furthermore, the measures proposed are currently still on a theoretical level, as they have not to date been put to the test by a relevant group of interested parties within the shipping industry, such as shipowners, operators and builders.

Statement by the delegation of Japan

Japan has two comments from the viewpoints of 1) whether the discussion at IMO has already been matured enough to narrow down the number of specific MBMs for future discussion, and, even if this is the case, 2) whether it is appropriate to rely on the existence of draft legal text for this purpose.

Clearly, Japan is of the opinion that the discussion has not yet been matured on MBMs at the IMO, so that it is understood that we require to undertake another Impact Assessment Study. Therefore, it is too premature at this stage to limit the number of MBMs for this study, but all the MBMs so far proposed should continue to be on the table.

On the second issue whether it is appropriate to consider that an MBM is matured if they have associated themselves with draft legal text. Japan opposes this view, in having looked at the level of maturity of draft legal texts which have so far been submitted. Japan stresses that in these texts submitted, it can be seen that there are a significant number of the words "to be developed". Therefore, Japan believes that it is not appropriate at all to use the draft legal text for a benchmark to narrow down the proposed options, nor to undertake the narrowing down exercise. All the proposals should be on the table.

Having said that and if the IMO so wishes, Japan will submit the legal draft of our proposal, prior to the due date for a bulky document for the next MEPC 64, namely, Japan will submit its text before the end of June this year.

ANNEX 16

STATEMENTS BY THE DELEGATIONS OF BRAZIL AND THE REPUBLIC OF KOREA ON CLIMATE FINANCE AND USE OF MBM REVENUES

Statement by the delegation of Brazil

Brazil would like to reiterate that MBMs to be considered by the MEPC must not be conceived as sources of international finance for climate change. It is not appropriate to consider the maritime sector as a whole as a potential source of financial resources for climate change.

In accordance with the UNFCCC and the Cancun Agreements, the financial burden of the international response to climate change must be met by developed countries. Annex II Parties to the UNFCCC have a clear obligation, in particular under Articles 4.3 and 4.4 of the Convention, to support mitigation and adaptation actions in developing countries. This obligation must not be extended to developing countries.

As regards charges on maritime fuels as a potentially promising source of climate finance, Brazil reiterates its understanding that this directly affects freight costs, effectively affecting products from countries that are distant from the largest centers of consumption. This may bring about negative impacts on the economy, development and welfare of the affected countries.

Statement by the delegation of the Republic of Korea

With regard to GCF, the Republic of Korea would like to express concern that revenues mobilized by Market-Based Measures of IMO would be included into the Green Climate Fund of UNFCCC. The Korean Government is of the view that the revenues from MBM of IMO have to be re-invested and redeemed to develop new technology and transfer of technology in terms of improving the fuel economy of vessels. Then, this new technology enhancing economic efficiency with reduction of emission of greenhouse gases will contribute to promote retirement of older more polluting vessels, and encourage use of vessels that economize on fuel. In this point of view, the Korean Government concerns possibility to utilize revenues, though mobilized in IMO, in other industries than the international shipping.

In addition, with regard to long term finance in UNFCCC, the Republic of Korea would also like to note that the International shipping is the cleanest transportation in view of climate change perspective, it occupies only 3 per cent of emission of greenhouse gases among the entire emission. Therefore, even though MBM of IMO for maritime fuels are likely a more cost-effective way to raise finance for climate or other purposes than are broader fiscal instruments to other industries than the international shipping, Market-Based Measures as the first mandatory greenhouse gases reduction regime would also have the effect to cause significant distortion on the international shipping.

Finally, the Korean delegation would like to call all distinguished Member States to consider practical application of Market-Based Measures of IMO in lines with the above mentioned.

ANNEX 17

STATEMENT BY THE DELEGATION OF INDIA ON THE RELATION BETWEEN AN MBM FOR INTERNATIONAL SHIPPING AND THE WTO RULES

In March 2011, during discussions on the subject in the third Intersessional Meeting of the Working Group on Greenhouse Gas (GHG) Emissions, some Members had opined, in definitive terms, that the MBMs under consideration in IMO are compatible with the WTO rules. Prior to that, the Expert Group on Feasibility Study and Impact Assessment of Possible MBMs had concluded that all of the MBMs are implementable notwithstanding the challenges involved in their introduction.

India cannot accept these sweeping conclusions. In the first place, most of the MBM proposals lack sufficient details and are not mature enough to lend support to any such conclusion. Besides, the IMO itself has not yet taken any decision, even on tentative terms, as to the appropriate instrument that would be used for reducing the GHG emissions from ships. Members have also held that all of the proposals are on the table and that, as of now, no proposal can be said to have been discarded or withdrawn. In the circumstances, it will be premature at this stage to take any definitive view on the issue whether the MBMs are compatible with WTO rules. However, preliminary examination shows that the MBMs could contravene GATT/WTO Rules as explained hereunder:

WTO Rules: MFN Treatment Obligation

The MFN (Most Favoured Nation) treatment obligation set out in Article I: 1 of the GATT 1994 is one of the main pillars of the rules-based multilateral trading system. This Article explicitly states that any trade advantage granted by a WTO Member to imports from any country must be granted immediately and unconditionally to imports from all other WTO Members. The WTO practice shows that not only actions, but also omissions, to the extent that they confer an advantage to any country are covered by the discipline laid down in GATT Article I.

Further, Article I: 1 prohibits discrimination between like products originating in, or destined for, different countries and ensures that like products are treated equally irrespective of their origin. This Article covers not only 'in law', or *de jure* discrimination but also 'in fact', or *de facto* discrimination, meaning thereby that both *de jure* and *de facto* discriminatory measures applied to imports or exports are prohibited under the WTO law. Thus, measures which appear, on their face, to be 'origin neutral' but can give certain countries more opportunity to trade than others would, therefore, violate the non-discrimination obligation of Article I.

MBM Proposals

The proposal filed by Denmark and others, inter alia, states that if the ship is detected to be in violation of this Convention (Convention on the International Greenhouse Gas Fund), the ships can be detained, excluded or dismissed from a port. A violation would occur if a ship was found to have not taken the bunker fuel from a registered bunker fuel supplier or the GHG contribution was not paid by the shipowner to the GHG Fund, or a valid bunker delivery note and other documentation and record-keeping required under the Convention were not maintained on board a ship. The proposal filed by Norway contains a similar provision. In the case of the Norwegian proposal, a violation would occur if the inspection revealed that a valid International Emission Trading Certificate was not available on board a ship; the emission allowances for the latest commitment period had not been surrendered; and other documentation and record keeping required by the Convention was not found on board.

Compatibility of the Said Proposals with WTO Rules

The proposals are likely to breach the non-discrimination principle, commonly known as the MFN treatment obligation, of the GATT, 1994 as explained below.

Ships are products classifiable under Chapter 89 of the Harmonized System of Nomenclature (HSN). The non-discrimination principle of GATT Article I requires WTO Members to ensure that ships originating from different countries are granted equal treatment when they call at their ports. The fact that the GHG contribution has not been paid by a ship owner or the emission allowances have not been surrendered, are not valid grounds under the WTO law for detention, dismissal or exclusion of ships from the ports. Such actions are violate the non-discrimination principle, as it creates a differentiation between two WTO Members solely on the factor of their ships having complied or not complied with the provisions of a non-WTO instrument.

Article I of GATT 1994, as stated earlier, applies not only to measures (which are discriminatory by definition), but also to measures which, on their face, appear 'origin neutral' but are in fact discriminatory. MBMs would fall in the latter category. Various studies undertaken on the subject have shown that the MBMs would increase the freight costs and this will have a larger impact on exports and imports of certain products from certain countries. As for instance, in the case of imports and exports of coal and food grains and other goods having a low value to weight ratio, the impact of MBMs on the export competitiveness of developing countries would be greater. Other countries may not be affected by the same degree. The Expert Group on Feasibility Study and Impact Assessment of Possible MBMs had also opined that the implementation of MBMs would affect some countries and products more than others and that in some cases, even small increases in costs could have relatively significant consequences.

It is the view of this delegation that implementation of MBMs would change the conditions of competition across countries and across similar products. The MBMs would, in fact, bring about a state of unstable equilibrium in international trade which, in turn, could create favourable trading conditions for certain countries and unfavourable trading conditions for others. This would be a violation of GATT Article I.

WTO Rules: General Elimination of Quantitative Restrictions on Imports and Exports

Article XI of the GATT 1994 deals with general elimination of quantitative restrictions on imports and exports. As per this Article, "no prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licenses or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party ..."

The MBM that denies access to ports to ships on grounds of non-payment of the GHG contribution or non-surrender of emission allowances would have a consequential effect of restricting the importation of goods aboard those ships. This type of measure may be inconsistent with Article XI. In terms of this Article, restrictive measures in the form of "quotas, import or export licenses or other measures" are "restrictions" on importation. In GATT and WTO jurisprudence, the panels have interpreted Article XI as a comprehensive ban of all types of limitations on the importation of products, other than duties, taxes and other charges. The requirement of ships having to carry an Emission Trading Certificate does not take the form of "duties, taxes or other charges" within the meaning of Article XI. Consequently, the requirement may be inconsistent with this Article.

WTO Rules: Article V of the GATT 1994: Freedom of Transit

The MFN treatment obligation is also enshrined in Article V of the GATT 1994 dealing with the freedom of transit of goods, vessels and other means of transport. Article V states that "no distinction shall be made which is based on the flag of vessels, the place of origin, departure, entry, exit or destination, or on any circumstances relating to the ownership of goods, of vessels or of other means of transport". Although the subject matter of discussion here is not Freedom of Transit, the afore-cited GATT Article is quoted to underscore the point that the MFN treatment obligation applies to all ships and vessels with regard to their entry, exit or departure at ports irrespective of the origin or the flag.

WTO Rules: Article VIII of the GATT 1994: Fees and Charges on Imports and Exports

Article VIII of the GATT 1994 deals with fees and charges on imports. Article VIII states that all fees and charges imposed by contracting parties on or in connection with importation shall be limited in amount to the approximate cost of services rendered and that such fees and charges shall not represent an indirect protection to domestic products or a taxation of imports for fiscal purposes. The MBM proposal providing for levy of a penalty/fine could contravene this Article.

WTO Rules: General Agreement on Trade in Services (GATS)

The General Agreement on Trade in Services (GATS) contains an identical provision on MFN treatment obligation. It is however relevant to mention here that the negotiations on maritime transport services have not yet been concluded and Members have decided that until the conclusion of the negotiations, the MFN treatment obligation under Article II of the GATS shall stand suspended for this sector. However, the suspension does not apply to maritime transport services commitments that the Members have inscribed in their WTO Schedules. In such cases, violation would occur if the non-discrimination principle of GATS Article II was not honoured.

Furthermore, maritime transport sector has a special status in services negotiations as the negotiation of commitments and lists of MFN exemptions in the maritime transport sector is subject to particular conditions as specified in the Decision of the Council for Trade in Services of 3 July 1996 (S/L/24). Paragraph 7 of this decision provides that "*commencing immediately and continuing until the conclusion of the negotiations, ... it is understood that Members shall not apply any measures affecting trade in maritime transport services except in response to measures applied by other countries and with a view to maintaining or improving the freedom of provision of maritime transport services, nor in such a manner as would improve their negotiating position and leverage*". The compatibility of the various proposals on MBMs will need to be examined *vis a vis* this decision on "stand still" obligation.

India would also like to offer some general observations/suggestions which are as follows:

- .1 Shipping is a servant of world trade. The industry should not and must not introduce measures which would create complications for world trade and trigger trade disputes. Trade generates wealth and offers the possibility to developing countries of investing this wealth on measures to reduce GHG emissions from ships and other measures to reduce such emissions. This would not happen if these countries are made poorer because of the requirement to implement MBMs.

- .2 MBM proposals are not compatible with the UNFCCC principles of Common but Differentiated Responsibilities (CBDR) and respective capabilities and the principle of equity. If the CBDR principle is to be respected, then all trading partners cannot be expected to adopt climate mitigation measures of equal intensity, as the MBM proposals entail. The CBDR principle must be incorporated in the MBM proposals upfront by the proponents.
- .3 The time honoured principles of Member-driven, bottom-up and transparent approach must guide our negotiations. The principle of "inclusiveness" must be followed in letter and spirit. Further, the principle of "No surprises" should guide the negotiating process.
- .4 The new IMO measures could help ship operators save up to US\$34 to 60 billion in fuel costs by 2020 and reduce carbon dioxide emissions from international shipping by up to 180 million tons annually by 2020, a figure that will increase to 390 million tons by 2030. A Study estimates that the technical and operational measures could increase efficiency and reduce emissions rate by 25-75%. In view of this, it is felt that, for the present, technical and operational measures are good enough in reducing emissions from shipping and the so-called short fall to be addressed through MBMs has no basis.
- .5 It is India's considered view that the WTO compatibility of MBM proposals with GATT 1994 and other WTO instruments should be studied in all their aspects before any decision is taken on the adoption of MBMs to reduce GHG emissions from ships. Such measures should not be adopted until a thorough study is conducted to assess the impact of such measures on developing countries.
- .6 India should be allowed to file a detailed submission on WTO compatibility of MBMs in continuation of the paper already filed in IMO. India would also request that the Terms of Reference for the Study to be conducted on MBMs should, inter alia, include the subject of compatibility of MBMs with WTO Rules.

ANNEX 18

STATEMENT BY A REPRESENTATIVE OF THE UNFCCC SECRETARIAT ON UNFCCC MATTERS

Overall assessment of the Durban outcome

I noted that the MEPC 63 has been provided with information on the UNFCCC process and outcomes.

I would take the opportunity to give you a broad overview of the outcomes from the Climate Change Conference that took place in Durban, South Africa, from 28 November to 10 December, 2011 and then to highlight specific outcomes that are relevant for the international shipping sector.

The Durban Conference is one of the most all-encompassing and far-reaching in the history of climate change negotiations. In many areas, governments reached historic agreements between developing and industrialized countries.

Most notably, governments agreed on a pathway towards a new global system, covering the emissions of all countries. They decided to launch negotiations towards developing of a protocol, another legal instrument or an agreed outcome with a legal force under the Convention applicable to all Parties. They also decided to conclude these negotiations by 2015 and that this new agreement shall come into effect from 2020.

Secondly, governments agreed to keep the existing legal system under which industrialized countries have to reduce emissions, the Kyoto Protocol. The second commitment period under the Kyoto Protocol is to start in January 2013.

Thirdly, for the time up to 2020, 89 countries, both industrialized and developing confirmed their mitigation pledges made under the Convention. Taken together, these pledges account for around 80 per cent of global emissions.

Fourthly, you may recall that a year earlier, during the Cancun Conference, governments agreed to set up an institutional infrastructure that is needed to support developing countries to fully contribute to the global climate change regime. This infrastructure evolved significantly in Durban.

In this context, the COP adopted critical decisions on:

- .1 the governing instrument of the Green Climate Fund;
- .2 the terms of reference of the Climate Technology Centre and Network which is the implementing arm of the Technology Mechanism; and
- .3 the launch of the Adaptation Committee which will coordinate and guide adaptation action.

Durban outcomes specific for the international shipping sector

In addition to these far-reaching decisions on the global climate change regime, governments significantly advanced their considerations on other matters relating to the implementation of the Convention, including matters relating to the limitation and reduction of GHG emissions from international shipping.

As many of you know, these negotiations took place in two fora:

- .1 under the mitigation item on sectoral approaches of the Ad Hoc Working Group on Long Term Cooperative Action, the AWG-LCA; and
- .2 under agenda item 9(a) of the Subsidiary Body for Scientific and Technical Advice, the SBSTA.

Under the AWG-LCA Parties agreed to continue their deliberation on the matters relating to emissions from international aviation and maritime transport.¹ This is the first decision by the COP on this matter since the adoption of the Kyoto Protocol and it sends a signal on the role of the shipping sector as part of a global and comprehensive strategy to address climate change.

Under the SBSTA – which is the body that receives and considers information from IMO and ICAO – Parties took note of the information provided by ICAO and IMO on recent progress and current work undertaken to address emissions from fuel used in international aviation and maritime transport. The SBSTA invited the secretariats of ICAO and IMO to continue reporting on relevant work in their respective areas at future SBSTA sessions.

The way ahead

Durban was a breakthrough on the road to a renewed and more comprehensive response to climate change, in particular with regards to the Parties' decision to launch negotiations towards a future legal agreement that is expected to cover all Parties of the Convention.

But no single agreement or set of agreements can provide a definitive answer to the challenge of climate change. Every government and every sector must do their utmost to address the worst effects of climate change.

Between now and 2015, negotiations on the future international climate change agreement need encouragement and support through concrete action so that together we travel on the same road and meet this much needed outcome that will carry us forward on the path to a more sustainable world.

The international shipping sector needs to contribute a fair share if the international community is to achieve its climate change mitigation objectives on time.

The latest decisions here at the Marine Environment Protection Committee highlight IMO's role in addressing GHG emissions from international shipping. These decisions show that the sector responsibly accepted the challenge to contribute to international efforts to develop a more sustainable global society. We cannot afford to let these steps forward lose momentum.

¹ Draft decision [2/CP.17] paragraph 78.
(http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_lcaoutcome.pdf).

Parties under the IMO, and in particular at this Committee, need to continue their leadership in addressing GHG emissions from international shipping. Decisions to further implement the mandatory measures to increase efficiency and reduce emissions (technical and operational measures) and relevant guidelines, as well as to analyse additional market-based measures would strongly encourage the process under the UNFCCC to negotiate a legal climate change framework and would contribute to a global and comprehensive response to climate change.

Concluding remarks

I would like to conclude by reaffirming the UNFCCC secretariat's commitment to continue supporting and working with IMO and the Marine Environment Protection Committee, and their Secretariat, so as to ensure progress on limiting and reducing GHG emissions from international shipping.

ANNEX 19

STATEMENT BY THE DELEGATION OF BRAZIL ON UNFCCC MATTERS

The consideration of uniform mitigation targets for a single sector, such as international shipping, is not consistent with the UNFCCC and its Kyoto Protocol. The climate change regime is based on an economy-wide approach, where each country elects freely nationally appropriate actions and sectors for mitigation, in accordance with their national circumstances.

Brazil has undertaken very ambitious nationally appropriate mitigation actions. In Durban, the Executive Director of the United Nations Environment Programme stated that Brazil has been the single country that has contributed the most to addressing climate change. This view was seconded by the head of the delegation of Norway during the final plenary of COP 17.

Brazil is not ready to consider binding targets for the shipping sector, which is a key sector for sustainable development, while other sectors of the Brazilian economy are making ambitious efforts to reduce greenhouse gases emissions.

Instead of considering a target for international shipping, Brazil expects the developed countries to take the lead in addressing climate change, in accordance with their commitment under the UNFCCC and the Kyoto Protocol, and take ambitious domestic actions that are deemed necessary by the developed countries, as concluded by the Intergovernmental Panel on Climate Change.

ANNEX 20

**RESOLUTION MEPC.216(63)
Adopted on 2 March 2012**

**AMENDMENTS TO THE ANNEX OF THE PROTOCOL OF 1978 RELATING TO
THE INTERNATIONAL CONVENTION FOR THE PREVENTION OF
POLLUTION FROM SHIPS, 1973**

**(Regional arrangements for port reception facilities under
MARPOL Annexes I, II, IV and V)**

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,

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention") and article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") which together specify the amendment procedure of the 1978 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 Protocol (MARPOL 73/78),

HAVING CONSIDERED draft amendments to Annexes I, II, IV and V of MARPOL 73/78,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to Annexes I, II, IV and V of MARPOL 73/78, 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 the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 February 2013 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 per cent 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 the 1973 Convention, the said amendments shall enter into force on 1 August 2013 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to MARPOL 73/78 certified copies of the present resolution and the text of the amendments contained in the annex;
5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to MARPOL 73/78 copies of the present resolution and its annex.

ANNEX

AMENDMENTS TO MARPOL ANNEXES I, II, IV AND V

1 *New paragraphs 3bis and 4bis are added to regulation 38 of Annex I:*

3bis Small Island Developing States may satisfy the requirements in paragraphs 1 to 3 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.

The Government of each Party participating in the arrangement shall consult with the Organization, for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
- .2 particulars of the identified Regional Ships Waste Reception Centres; and
- .3 particulars of those ports with only limited facilities.

4bis Small Island Developing States may satisfy the requirements in paragraph 4 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.

The Government of each Party participating in the arrangement shall consult with the Organization for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
- .2 particulars of the identified Regional Ships Waste Reception Centres; and
- .3 particulars of those ports with only limited facilities.

2 *New paragraphs 2bis and 2ter are added to regulation 18 of Annex II:*

2bis Small Island Developing States may satisfy the requirements in paragraphs 1, 2 and 4 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.

The Government of each Party participating in the arrangement shall consult with the Organization for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
- .2 particulars of the identified Regional Ships Waste Reception Centres; and
- .3 particulars of those ports with only limited facilities.

2ter Where regulation 13 of this annex requires a prewash and the Regional Reception Facility Plan is applicable to the port of unloading, the prewash and subsequent discharge to a reception facility shall be carried out as prescribed in regulation 13 of this annex or at a Regional Ship Waste Reception Centre specified in the applicable Regional Reception Facility Plan.

3 *New paragraph 1bis is added to regulation 12 of Annex IV:*

1bis Small Island Developing States may satisfy the requirements in paragraph 1 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.

The Government of each Party participating in the arrangement shall consult with the Organization for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
- .2 particulars of the identified Regional Ships Waste Reception Centres; and
- .3 particulars of those ports with only limited facilities.

4 *New paragraph 2bis is added to regulation 8 of Annex V¹:*

2bis Small Island Developing States may satisfy the requirements in paragraphs 1 and 2.1 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.

The Government of each Party participating in the Arrangement shall consult with the Organization for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
- .2 particulars of the identified Regional Ships Waste Reception Centres; and
- .3 particulars of those ports with only limited facilities.

¹ Text of revised Annex V, adopted by resolution MEPC.201(62).

ANNEX 21

**RESOLUTION MEPC.217(63)
Adopted on 2 March 2012**

**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**

**(Regional arrangements for port reception facilities under MARPOL Annex VI and
Certification of marine diesel engines fitted with Selective Catalytic Reduction
systems under the NO_x Technical Code 2008)**

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,

NOTING article 16 of the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1973 Convention"), article VI of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973 (hereinafter referred to as the "1978 Protocol") and article 4 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 (hereinafter referred to as the "1997 Protocol"), which together specify the amendment procedure of the 1997 Protocol and confer upon the appropriate body of the Organization the function of considering and adopting amendments to the 1973 Convention, as modified by the 1978 and 1997 Protocols,

NOTING that, by the 1997 Protocol, Annex VI entitled Regulations for the Prevention of Air Pollution from Ships was added to the 1973 Convention (hereinafter referred to as "Annex VI"),

NOTING FURTHER regulation 13 of MARPOL Annex VI which makes the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (NO_x Technical Code) mandatory under that Annex,

NOTING ALSO that both the revised Annex VI adopted by resolution MEPC.176(58) and the NO_x Technical Code 2008 adopted by resolution MEPC.177(58) entered into force on 1 July 2010,

HAVING CONSIDERED draft amendments to the revised Annex VI and the NO_x Technical Code 2008,

1. ADOPTS, in accordance with article 16(2)(d) of the 1973 Convention, the amendments to Annex VI and the NO_x Technical Code 2008, 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 the 1973 Convention, that the amendments shall be deemed to have been accepted on 1 February 2013, 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 per cent 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 the 1973 Convention, the said amendments shall enter into force on 1 August 2013 upon their acceptance in accordance with paragraph 2 above;

4. REQUESTS the Secretary-General, in conformity with article 16(2)(e) of the 1973 Convention, to transmit to all Parties to the 1973 Convention, as modified by the 1978 and 1997 Protocols, certified copies of the present resolution and the text of the amendments contained in the annex;

5. REQUESTS FURTHER the Secretary-General to transmit to the Members of the Organization which are not Parties to the 1973 Convention, as modified by the 1978 and 1997 Protocols, copies of the present resolution and its annex.

ANNEX

AMENDMENTS TO MARPOL ANNEX VI AND THE NO_x TECHNICAL CODE 2008

Amendments to MARPOL Annex VI

1 *New paragraph 1bis is added to regulation 17:*

1bis Small Island Developing States may satisfy the requirements in paragraph 1 of this regulation through regional arrangements when, because of those States' unique circumstances, such arrangements are the only practical means to satisfy these requirements. Parties participating in a regional arrangement shall develop a Regional Reception Facilities Plan, taking into account the guidelines developed by the Organization.

The Government of each Party participating in the arrangement shall consult with the Organization for circulation to the Parties of the present Convention:

- .1 how the Regional Reception Facilities Plan takes into account the Guidelines;
- .2 particulars of the identified Regional Ships Waste Reception Centres; and
- .3 particulars of those ports with only limited facilities.

Amendments to the NO_x Technical Code 2008

2 *Existing paragraph 2.2.4 is replaced by the following:*

"2.2.4 *Engines not pre-certified on a test-bed*

- .1 There are engines which, due to their size, construction and delivery schedule, cannot be pre-certified on a test-bed. In such cases, the engine manufacturer, shipowner or shipbuilder shall make application to the Administration requesting an onboard test (see 2.1.2.2). The applicant must demonstrate to the Administration that the onboard test fully meets all of the requirements of a test-bed procedure as specified in chapter 5 of this Code. In no case shall an allowance be granted for possible deviations of measurements if an initial survey is carried out on board a ship without any valid pre-certification test. For engines undergoing an onboard certification test, in order to be issued with an EIAPP Certificate, the same procedures apply as if the engine had been pre-certified on a test-bed, subject to the limitations given in paragraph 2.2.4.2.
- .2 This pre-certification survey procedure may be accepted for an Individual Engine or for an Engine Group represented by the Parent Engine only, but it shall not be accepted for an Engine Family certification."

3 *Paragraph 2.2.5.1 is replaced by the following:*

- ".1 Where a NO_x-reducing device is to be included within the EIAPP certification, it must be recognized as a component of the engine, and its presence shall be recorded in the engine's Technical File. The engine shall be tested with the NO_x-reducing device fitted unless, due to technical and practical reasons, the combined testing is not appropriate and the procedures specified in paragraph 2.2.4.1 cannot be applied, subject to approval by the Administration. In the latter case, the applicable test procedure shall be performed and the combined engine/NO_x-reducing device shall be approved and pre-certified by the Administration taking into account guidelines developed by the Organization*. However, this pre-certification is subject to the limitations given in paragraph 2.2.4.2."

* Refer to the 2011 Guidelines addressing additional aspects to the NO_x Technical Code 2008 with regard to particular requirements related to marine diesel engines fitted with selective catalytic reduction (SCR) systems adopted by resolution MEPC.198(62).

ANNEX 22

**RESOLUTION MEPC.218(63)
Adopted on 2 March 2012**

**DEVELOPMENT OF TECHNICAL ONBOARD EQUIPMENT IN RELATION
TO THE DESIGNATION OF THE BALTIC SEA AS A SPECIAL AREA
UNDER MARPOL ANNEX IV**

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 the international conventions for the prevention and control of marine pollution,

RECALLING ALSO the amendments to MARPOL Annex IV adopted by resolution MEPC.200(62), which are expected to enter into force on 1 January 2013, prohibiting the discharge of sewage from passenger ships within a special area unless, in accordance with regulation 11.3 of MARPOL Annex IV, the passenger ship has in operation an approved sewage treatment plant which shall be type approved by the Administration, taking into account the standards and test methods developed by the Organization,

RECALLING FURTHER the work of the Sub-Committee on Ship Design and Equipment at its fifty-sixth session on the development of the revised guidelines on implementation of effluent standards and performance tests for sewage treatment plants,

BEING CONSCIOUS of the importance of the development and availability of adequate and cost-effective technical means so as to make it possible for the shipping industry to comply with the discharge standards under MARPOL Annex IV,

HAVING CONSIDERED the amendments to MARPOL Annex IV,

1. CALLS for the development, without delay, of proven, adequate and cost-effective technical onboard equipment to make it possible to meet the discharge standards under regulation 11.3 of MARPOL Annex IV; and
2. UNDERTAKES to keep under review the development of the revised guidelines on implementation of effluent standards and performance tests for sewage treatment plants.

ANNEX 23

STATEMENT BY THE DELEGATION OF CYPRUS AFTER ADOPTION OF THE AMENDMENTS TO MARPOL ANNEXES I, II, IV, V AND VI ON REGIONAL ARRANGEMENTS FOR PORT RECEPTION FACILITIES

Allow me first to congratulate the Committee for the adoption of the amendments to MARPOL Annexes I, II, IV, V and VI regarding Regional Arrangements for Port Reception Facilities.

The delegation of Cyprus remains cautious about the compatibility of the adopted amendments with Articles of the MARPOL Convention regarding the obligations of individual Parties.

However, Cyprus did NOT raise any objections or even reserve its position on the adoption of the amendments. This is due to the fact that, Cyprus fully understands and respects the importance of the adopted amendments to the Small Island Developing States (SIDS), due to their unique situation.

Cyprus therefore, underlines that the acceptance of the current amendments should NOT be considered as a precedent as to the position of this delegation, to any future proposals for Regional Reception Facilities.

Cyprus kindly requests Small Island Developing States to establish an efficient system which will ensure the acceptance of ALL kinds of residues within the area of the Regional Reception Facility, and in particular to the acceptance of Annex II residues.

Such a system should fully respect the provision of Article 7 of MARPOL, to avoid any undue delay to ships, or any unnecessary deviation of their intended routes.

Cyprus would like to underline further that any Regional Reception Facility established by Small Island Developing States should not present contravention to the provisions of applicable international conventions and in particular the Basel Convention.

ANNEX 24

RESOLUTION MEPC.219(63)
Adopted on 2 March 2012

2012 GUIDELINES FOR THE IMPLEMENTATION OF MARPOL ANNEX V

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 (the Committee) conferred upon it by the international conventions for the prevention and control of marine pollution,

RECALLING ALSO that Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78) relating thereto provides regulations for the prevention of pollution by garbage from ships,

NOTING that the Committee, at its twenty-sixth session, approved the Guidelines for the Implementation of Annex V of MARPOL 73/78,

NOTING ALSO that the Committee, at its thirty-third session, adopted the Revised Guidelines for the Implementation of Annex V of MARPOL 73/78 (the Revised Guidelines) by resolution MEPC.59(33), which were further amended by resolution MEPC.92(45), adopted at its forty-fifth session,

NOTING FURTHER that the Committee, at its sixty-second session, adopted the revised MARPOL Annex V by resolution MEPC.201(62), which is expected to enter into force on 1 January 2013,

RECOGNIZING the need to review the Revised Guidelines in light of the revised MARPOL Annex V,

HAVING CONSIDERED, at its sixty-third session, the draft 2012 Guidelines for the Implementation of MARPOL Annex V,

1. ADOPTS the 2012 Guidelines for the Implementation of MARPOL Annex V, the text of which is set out in the annex to this resolution;
2. INVITES Governments, in implementation of the provisions of the revised MARPOL Annex V, to take into account the 2012 Guidelines for the Implementation of MARPOL Annex V, upon the entry into force of the revised MARPOL Annex V; and
3. REVOKES the Revised Guidelines for the Implementation of Annex V of MARPOL 73/78 (resolution MEPC.59(33), as amended by resolution MEPC.92(45)), upon the entry into force of the revised MARPOL Annex V.

ANNEX

2012 GUIDELINES FOR THE IMPLEMENTATION OF MARPOL ANNEX V

PREFACE

The main objectives of these guidelines are to assist:

- .1 governments in developing and enacting domestic laws which implement Annex V;
- .2 shipowners, ship operators, ships' crews, cargo owners and equipment manufacturers in complying with requirements set forth in Annex V and relevant domestic laws; and
- .3 port and terminal operators in assessing the need for, and providing, adequate reception facilities for garbage generated on all types of ships. In the interest of uniformity, governments are requested to refer to these guidelines and related International Maritime Organization guidance¹ when developing and enforcing appropriate national regulations.

1 INTRODUCTION

1.1 The revised MARPOL Annex V with an entry into force date of 1 January 2013, prohibits the discharge of all types of garbage into the sea unless explicitly permitted under the Annex. These guidelines have been developed taking into account the regulations set forth in Annex V, as amended, of the International Convention for the Prevention of Pollution from Ships, (MARPOL) (hereinafter referred to as the "Convention"). The purpose of these guidelines is to provide guidance to governments, shipowners, ship operators, ships' crews, cargo owners, port reception facility operators and equipment manufacturers. The guidelines are divided into the following six sections that provide a general framework upon which governments can formulate programmes:

- Introduction;
- Garbage management;
- Management of cargo residues of solid bulk cargoes;
- Training, education and information;
- Port reception facilities for garbage; and
- Enhancement of compliance with MARPOL Annex V.

¹ Comprehensive Manual on Port Reception Facilities, 1999 Edition; MEPC.83(44), Guidelines for ensuring the Adequacy of Port Waste Reception Facilities; and MEPC.1/Circ.671, 20 July 2009, Guide to Good Practice for Port Reception Facility Providers and Users Guidelines.

1.2 Under the revised MARPOL Annex V, discharge of all garbage is now prohibited, except as specifically permitted in regulations 3, 4, 5 and 6 of MARPOL Annex V. MARPOL Annex V reverses the historical presumption that garbage may be discharged into the sea based on the nature of the garbage and defined distances from shore. Regulation 7 provides limited exceptions to these regulations in emergency and non-routine situations. Generally, discharge is restricted to food wastes, identified cargo residues, animal carcasses, and identified cleaning agents and additives and cargo residues entrained in washwater which are not harmful to the marine environment. It is recommended that ships use port reception facilities as the primary means of discharge for all garbage.

1.3 Recognizing that the Annex V regulations continue to restrict the discharge of garbage into the sea, require garbage management for ships, and that garbage management technology continues to evolve, it is recommended that governments and the Organization continue to gather information and review these guidelines periodically.

1.4 Regulation 8 of MARPOL Annex V provides that Governments must ensure the provision of adequate port reception facilities for garbage from ships and should facilitate and promote their use. Section 5 provides guidelines for these facilities.

1.5 The Convention provides definitions for terms used throughout these guidelines. Section 1.6 includes relevant aspects of these definitions, followed by other definitions which are useful for these guidelines.

1.6 Definitions

1.6.1 **Dishwater** means the residue from the manual or automatic washing of dishes and cooking utensils which have been pre-cleaned to the extent that any food particles adhering to them would not normally interfere with the operation of automatic dishwashers.

1.6.2 **Grey water** means drainage from dishwater, shower, laundry, bath and washbasin drains. It does not include drainage from toilets, urinals, hospitals, and animal spaces, as defined in regulation 1.3 of MARPOL Annex IV (sewage), and it does not include drainage from cargo spaces. Grey water is not considered garbage in the context of Annex V.

1.6.3 **Recycling** means the activity of segregating and recovering components and materials for reprocessing.

1.6.4 **Reuse** means the activity of recovering components and materials for further use without reprocessing.

1.7 Application

1.7.1 This section provides clarification as to what should and should not be considered garbage under MARPOL Annex V.

1.7.2 Ash and clinkers from shipboard incinerators and coal-burning boilers should be considered as operational wastes within the meaning of regulation 1.12 of MARPOL Annex V, and therefore are included in the term garbage, within the meaning of regulation 1.9 of MARPOL Annex V.

1.7.3 The definition of "operational wastes" (regulation 1.12 of MARPOL Annex V) excludes grey water, bilge water, or other similar discharges essential to the operation of a ship. "Other similar discharges" essential to the operation of a ship include, but are not limited to the following:

- boiler/economizer blowdown;
- boat engine wet exhaust;
- chain locker effluent;
- controllable pitch propeller and thruster hydraulic fluid and other oil to sea interfaces (e.g. thruster bearings, stabilizers, rudder bearings, etc.);
- distillation/reverse osmosis brine;
- elevator pit effluent;
- firemain systems water;
- freshwater lay-up;
- gas turbine washwater;
- motor gasoline and compensating discharge;
- machinery wastewater;
- pool, spa water and recreational waters;
- sonar dome discharge; and
- welldeck discharges.

1.7.4 While cleaning agents and additives contained in hold washwater, and deck and external surface washwater are considered "operational wastes" and thus "garbage" under Annex V, these cleaning agents and additives may be discharged into the sea so long as they are not harmful to the marine environment.

1.7.5 A cleaning agent or additive is considered not harmful to the marine environment if it:

- .1 is not a "harmful substance" in accordance with the criteria in MARPOL Annex III; and
- .2 does not contain any components which are known to be carcinogenic, mutagenic or reprotoxic (CMR).

1.7.6 The ship's record should contain evidence provided by the producer of the cleaning agent or additive that the product meets the criteria for not being harmful to the marine environment. To provide an assurance of compliance, a dated and signed statement to this effect from the product supplier would be adequate for the purposes of a ship's record. This might form part of a Safety Data Sheet or be a stand-alone document but this should be left to the discretion of the producer concerned.

1.7.7 Releasing small quantities of food into the sea for the specific purpose of fish feeding in connection with fishing or tourist operations should not be considered a discharge of garbage in the context of Annex V.

1.7.8 Fishing gear that is released into the water with the intention for later retrieval, such as fish aggregating devices (FADs), traps and static nets, should not be considered garbage or accidental loss in the context of Annex V.

2 GARBAGE MANAGEMENT

2.1 Waste Minimization

2.1.1 All shipowners and operators should minimize taking onboard material that could become garbage. Ship-specific garbage minimization procedures should be included in the Garbage Management Plan. It is recommended that manufacturers, cargo owners, ports and terminals, shipowners and operators and governments consider the management of garbage associated with ships' supplies, provisions, and cargoes as needed to minimize the generation of garbage in all forms.

2.1.2 When making supply and provisioning arrangements, shipowners and operators, where possible, with the ships suppliers should consider the products being procured in terms of the garbage they will generate. Options that should be considered to decrease the amount of such garbage include the following:

- .1 using supplies that come in bulk packaging, taking into account factors such as adequate shelf-life (once a container is open) to avoid increasing garbage associated with such products;
- .2 using supplies that come in reusable or recyclable packaging and containers; avoiding the use of disposable cups, utensils, dishes, towels and rags and other convenience items whenever possible; and
- .3 avoiding supplies that are packaged in plastic, unless a reusable or recyclable plastic is used.

2.1.3 When considering selection of materials for stowage and securing of cargo or protection of cargo from the weather, shipowners and operators should consider how much garbage such materials will generate. Options that should be considered to decrease the amount of such garbage include the following:

- .1 using permanent reusable coverings for cargo protection instead of disposable or recyclable plastic sheeting;
- .2 using stowage systems and methods that reuse dunnage, shoring, lining and packing materials; and

- .3 discharging to port reception facilities the dunnage, lining and packaging materials generated in port during cargo activities as its discharge into the sea is not permitted.

2.1.4 Governments are encouraged to undertake research and technology development to minimize potential garbage and its impacts on the marine environment. Suggested areas for such study are listed below:

- .1 development of recycling technology and systems for all types of materials that may be returned to shore as garbage; and
- .2 development of technology for use of biodegradable materials to replace current plastic products as appropriate. In connection with this, governments should also study the impacts on the environment of the products from degradation of such new materials.

2.2 Fishing gear

2.2.1 Lost fishing gear may harm the marine environment or create a navigation hazard. Fishing vessel operators are required to record the discharge or loss of fishing gear in the Garbage Record Book or Ship's log as specified within regulations 7.1 and 10.3.4 of MARPOL Annex V.

2.2.2 Fishing vessel operators are further required to report the accidental loss or discharge of fishing gear which poses a significant threat to the marine environment and navigation. Reports should be made to the flag State, and where appropriate, the coastal State in whose jurisdiction the loss of the fishing gear occurred, as specified in regulation 10.6 of MARPOL Annex V:

- .1 the accidental loss or discharge of fishing gear which is required to be reported by regulation 10.6 of MARPOL Annex V should be determined specifically by the government. For such determination, the government is encouraged to consider various factors including: (1) the amount of the gear lost or discharged and (2) the conditions of the marine environment where it was lost or discharged. Comprehensive consideration is needed on the characteristics of the gear that was lost, including types, size (weight and/or length), quantity, material (especially, synthetic/plastic or not), buoyancy. In addition, governments should consider the impact of the fishing gear in different locations in order to assess whether the lost gear represents a significant threat to the marine environment or navigation, taking into account the vulnerability of habitat and protected species to gear interactions. Governments are encouraged to report to IMO their measures taken for this issue with a view to promoting information sharing and opinion exchange among governments and relevant International Organizations. Further, governments are encouraged to report to IMO, progress made in implementing these measures, including summaries of where gear was lost and, if applicable, actions taken to address the gear loss;
- .2 examples of lost or abandoned fishing gear which could be considered to pose a significant threat to the marine environment include whole or nearly whole large fishing gear or other large portions of gear. In determining the threat to the marine environment, governments should give careful consideration to the impact of gear in sensitive areas, such as coral reefs, and in areas where interactions would have higher risks of detrimental impacts, such as foraging or breeding areas for protected species;

- .3 governments are encouraged to develop communication frameworks to enable the recording and sharing of information on fishing gear loss where necessary in order to reduce loss and facilitate recovery of fishing gear. Governments are further encouraged to develop frameworks to assist fishing vessels in reporting the loss of gear to the flag State and to a coastal State. Such frameworks should take into consideration implementation challenges in small scale and artisanal fisheries and recreational operations;
- .4 fishing industry, relevant international organizations and governments are encouraged to undertake such research, technology development, information sharing and management measures as may be needed to minimize the probability of loss, and maximize the probability of retrieval of fishing gear from the sea; and
- .5 governments should encourage vessel operators to implement appropriate onboard storage and handling of fishing gear, and should also consider relevant guidance from FAO and IMO.

2.3 Shipboard garbage handling (collection, processing, storage, discharge)

2.3.1 Regulation 3 of MARPOL Annex V provides that the discharge of garbage into the sea is prohibited, with limited exceptions, as summarized in table 1. Under certain conditions discharge into the sea of food wastes, animal carcasses, cleaning agents and additives contained in hold washwater, deck and external surface washwater and cargo residues which are not considered to be harmful to the marine environment is permitted.

TABLE 1 – SUMMARY OF RESTRICTIONS TO THE DISCHARGE OF GARBAGE INTO THE SEA UNDER REGULATIONS 4, 5 AND 6 OF MARPOL ANNEX V

(Note: Table 1 is intended as a summary reference. The provisions in MARPOL Annex V, not table 1, prevail.)

Garbage type ¹	All ships except platforms ⁴		Offshore platforms located more than 12 nm from nearest land and ships when alongside or within 500 metres of such platforms ⁴ Regulation 5
	Outside special areas Regulation 4 (Distances are from the nearest land)	Within special areas Regulation 6 (Distances are from nearest land or nearest ice-shelf)	
Food waste comminuted or ground ²	≥3 nm, en route and as far as practicable	≥12 nm, en route and as far as practicable ³	Discharge permitted
Food waste not comminuted or ground	≥12 nm, en route and as far as practicable	Discharge prohibited	Discharge prohibited
Cargo residues ^{5, 6} not contained in washwater	≥ 12 nm, en route and as far as practicable	Discharge prohibited	Discharge prohibited
Cargo residues ^{5, 6} contained in washwater		≥ 12 nm, en route and as far as practicable (subject to conditions in regulation 6.1.2)	
Cleaning agents and additives ⁶ contained in cargo hold washwater	Discharge permitted	≥ 12 nm, en route and as far as practicable (subject to conditions in regulation 6.1.2)	Discharge prohibited

Garbage type ¹	All ships except platforms ⁴		Offshore platforms located more than 12 nm from nearest land and ships when alongside or within 500 metres of such platforms ⁴ Regulation 5
	Outside special areas Regulation 4 (Distances are from the nearest land)	Within special areas Regulation 6 (Distances are from nearest land or nearest ice-shelf)	
Cleaning agents and additives ⁵ in deck and external surfaces washwater		Discharge permitted	
Animal Carcasses (should be split or otherwise treated to ensure the carcasses will sink immediately)	Must be en route and as far from the nearest land as possible. Should be >100 nm and maximum water depth	Discharge prohibited	Discharge prohibited
All other garbage including plastics, synthetic ropes, fishing gear, plastic garbage bags, incinerator ashes, clinkers, cooking oil, floating dunnage, lining and packing materials, paper, rags, glass, metal, bottles, crockery and similar refuse	Discharge prohibited	Discharge prohibited	Discharge prohibited

- 1 When garbage is mixed with or contaminated by other harmful substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.
- 2 Comminuted or ground food wastes must be able to pass through a screen with mesh no larger than 25 mm.
- 3 The discharge of introduced avian products in the Antarctic area is not permitted unless incinerated, autoclaved or otherwise treated to be made sterile.
- 4 Offshore platforms located 12 nm from nearest land and associated ships include all fixed or floating platforms engaged in exploration or exploitation or associated processing of seabed mineral resources, and all ships alongside or within 500 m of such platforms.
- 5 Cargo residues means only those cargo residues that cannot be recovered using commonly available methods for unloading.
- 6 These substances must not be harmful to the marine environment.

2.3.2 Compliance with Annex V involves personnel, equipment and procedures for collecting, sorting, processing, storing, recycling, reusing and discharging garbage. Economic and procedural considerations associated with these activities include storage space requirements, sanitation, equipment and personnel costs and in port garbage service charges.

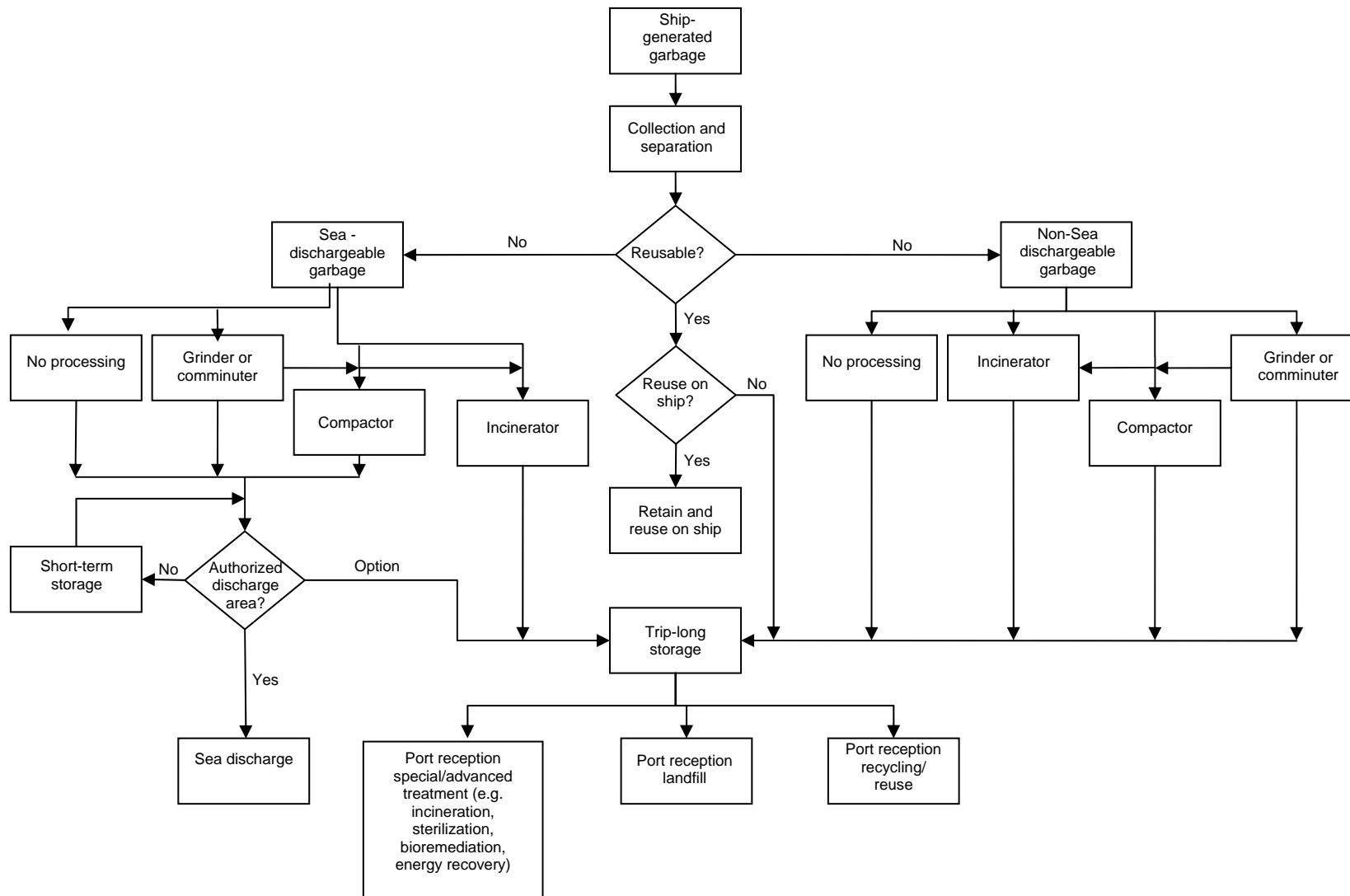
2.3.3 Compliance with the provisions of Annex V involves careful planning by the ship's owner and operator and proper execution by crew members as well as other seafarers. The most appropriate procedures for handling and storing garbage on board ships may vary depending on factors such as the type and size of the ship, the area of operation (e.g. special area, distance from nearest land or ice-shelf), shipboard garbage processing equipment and storage space, number of crew or passengers, duration of voyage, and regulations and reception facilities at ports of call. However, in view of the cost involved with the different garbage handling options, it is economically advantageous to first, limit the

amount of material that may become garbage from being brought on board the ship and second, separate garbage eligible for discharge into the sea from other garbage that may not be discharged into the sea. Proper management of containers and packaging coming on board and proper handling and storage can minimize shipboard storage space requirements and enable efficient transfer of retained garbage to port reception facilities for proper handling (i.e. recycling, reuse) or land-based disposal.

2.3.4 Every ship of 100 gross tonnage and above, and every ship certified to carry 15 or more persons, and fixed and floating platforms are required to carry and implement a garbage management plan that specifies procedures to be followed to ensure proper and efficient handling and storage of garbage. A garbage management plan² should be developed that can be incorporated into crew and ship operating manuals. Such manuals should identify crew responsibilities (including an Environmental Control Officer) and procedures for all aspects of handling and storing garbage on board the ship. Procedures for handling ship-generated garbage are divided into four phases: collection, processing, storage, and discharge. A generalized garbage management plan for handling and storing ship-generated garbage is presented in table 2. Specific procedures for each phase are discussed below.

² Garbage management plans are mandatory on certain ships in accordance with regulation 10 of Annex V of MARPOL 73/78.

Table 2: Options for shipboard handling and discharge of garbage



2.4 Collection

2.4.1 Procedures for collecting garbage generated on board should be based on the consideration of what is permitted and what is not permitted to be discharged into the sea while en route, and whether a particular garbage type can be discharged to port facilities for recycling or reuse. The details of these procedures should be written in the garbage management plan.

2.4.2 To reduce or avoid the need for sorting after collection and to facilitate recycling, it is recommended that distinctively marked garbage receptacles be provided on board the ship to receive garbage as it is generated. Receptacles on board can be in the form of drums, metal bins, cans, container bags, or wheelie bins. Any receptacles on deck areas, poop decks or areas exposed to the weather should be secured on the ship and have lids that are tight and securely fixed. All garbage receptacles should be secured to prevent loss, spillage, or loss of any garbage that is deposited in the receptacles. Receptacles should be clearly marked and distinguishable by graphics shape, size, or location. Receptacles should be placed in appropriate spaces throughout the ship (e.g. the engine-room, mess deck, wardroom, galley, and other living or working spaces) and all crew members and passengers should be advised of what garbage should and should not be placed in them.

2.4.3 The recommended garbage types that should be separated are:

- non-recyclable plastics and plastics mixed with non-plastic garbage;
- rags;
- recyclable material:
 - cooking oil;
 - glass;
 - aluminium cans;
 - paper, cardboard, corrugated board;
 - wood;
 - metal;
 - plastics; (including styrofoam or other similar plastic material); and
- garbage that might present a hazard to the ship or crew (e.g. oily rags, light bulbs, acids, chemical, batteries, etc.).

2.4.4 Crew responsibilities should be assigned for collecting or emptying these receptacles and taking the garbage to the appropriate processing or storage location. Use of such a system facilitates subsequent shipboard processing and minimizes the amount of garbage which must be stored on board ship for return to port.

Plastics and plastics mixed with non-plastic garbage

2.4.5 Plastics are used for a variety of marine purposes including, but not limited to, packaging (vapour-proof barriers, bottles, containers, liners, bags, cargo wrapping material, foam cushioning material, etc.); ship construction (fibreglass and laminated structures, siding, piping, insulation, flooring, carpets, fabrics, paints and finishes, adhesives, electrical and electronic components, etc.); disposable eating utensils (styrofoam plates, bowls, food containers, cups, etc.); bags; sheeting; floats; fishing nets; fishing lines; strapping bands; wire rope with synthetic fibre sheaths; combination wire rope; rope; line; sails; and many other manufactured plastic items.

2.4.6 Regulation 3.2 of Annex V prohibits the discharge of all plastics into the sea. When plastic is mixed with other garbage, the mixture must be treated as if it were all plastic. The most stringent procedures for the handling and discharge should be followed taking into account the applicable provisions of the garbage management plan.

Food wastes

2.4.7 Some governments have regulations for controlling human, plant, and animal diseases that may be carried by foreign food wastes and materials that have been associated with them (e.g. food packing and disposable eating utensils, etc.). These regulations may require incinerating, sterilizing, double bagging or other special treatment of garbage to destroy possible pest and disease organisms. This type of garbage should be kept separate from other garbage and preferably retained for discharge at port reception facilities in accordance with the laws of the receiving country. Governments are reminded of their obligation to ensure the provision of adequate reception facilities. Precautions must be taken to ensure that plastics contaminated by food wastes (e.g. plastic food wrappers) are not discharged into the sea with other food wastes.

Synthetic fishing net and line scraps

2.4.8 As regulation 3.2 of MARPOL Annex V prohibits the discharge into the sea of synthetic fishing net and line scraps generated by the repair or operation of fishing gear, these items should be collected in a manner that avoids their loss overboard. Such material may be incinerated, compacted, or stored along with other plastics or it may be preferable to keep it separate from other types of garbage if it has strong odour or is present in great volume. Unless such garbage is appropriately incinerated, the atmospheric incineration products could be toxic. Onboard incineration should follow regulation 16 of MARPOL Annex VI.

Recovery of garbage at sea

2.4.9 Seafarers are encouraged to recover persistent garbage from the sea during routine operations as opportunities arise and prudent practice permits, and they are encouraged to retain the material for discharge to port reception facilities.

2.5 Processing

2.5.1 Depending on factors such as the type of ship, area of operation, number of crew or passengers, etc., ships may be equipped with incinerators³, compactors, comminuters, or other devices for shipboard garbage processing (see sections 2.8 to 2.11). Appropriate members of the crew should be trained and assigned responsibility for operating this equipment on a schedule commensurate with ship needs. In selecting appropriate processing procedures, the following should be considered.

2.5.2 Use of compactors, incinerators, comminuters, and other such devices has a number of advantages, such as, reducing shipboard space requirements for storing garbage, and making it easier to discharge garbage at port reception facilities.

2.5.3 It should be noted that special rules on incineration under domestic law may apply in some ports and may exist in some special areas. Incineration of hazardous materials (e.g. scraped paint, impregnated wood) and certain types of plastics (e.g. PVC-based plastics or other plastics containing hazardous chemicals) calls for special precaution due to

³ Refer to resolution MEPC.76(40), "Standard specification for shipboard incinerators". Amended by resolution MEPC.93(45).

the potential environmental and health effects from combustion of by-products. The problems of combustion of by-products are discussed in 2.11.3.

2.5.4 Ships operating primarily in special areas or within three nautical miles from the nearest land or ice-shelf are greatly restricted in what they can discharge. These ships should choose between storage of either compacted or uncompacted material for discharging at port reception facilities or incineration with retention of ash and clinkers. The type of ship and the expected volume and type of garbage generated determine the suitability of compaction, incineration or storage options.

2.6 Storage

2.6.1 Garbage collected from throughout the ship should be delivered to designated processing or storage locations. Garbage that must be returned to port for discharge at port reception facilities may require storage until arrangements can be made to discharge it ashore for appropriate processing. In all cases, garbage should be stored in a manner which avoids health and safety hazards. The following points should be considered when selecting procedures for storing garbage:

- .1 sufficient storage space and equipment (e.g. cans, drums, bags or other containers) should be provided. Where storage space is limited, ship operators are encouraged to consider the installation of compactors or incinerators. To the extent possible, all processed and unprocessed garbage stored for any length of time should be in tight, securely covered containers in order to prevent the unintentional discharge of stored garbage;
- .2 food wastes and other garbage to be returned to port and which may carry diseases or pests should be stored in tightly covered containers and be kept separate from garbage which does not contain such food wastes. Quarantine arrangements in some countries may require double bagging of this type of waste. Both types of garbage should be stored in separate clearly marked containers to avoid incorrect discharge and facilitate proper handling and treatment on land; and
- .3 cleaning and disinfecting are both preventative and remedial pest control methods that should be applied regularly in garbage storage areas.

2.7 Discharge

2.7.1 Although discharge into the sea of limited types of garbage is permitted under Annex V, discharge of garbage to port reception facilities should be given primary consideration. When discharging garbage, the following points should be considered:

- .1 regulations 4, 5, and 6 of MARPOL Annex V, summarized in table 1, set forth the requirements for garbage permitted to be discharged into the sea. In general the discharge shall take place when the ship is en route and as far as practicable from the nearest land. Attempts should be made to spread the discharge over as wide an area as possible and in deep water (50 metres or more). Prevailing currents and tidal movements should be taken into consideration when discharging into the sea is permitted; and

- .2 to ensure timely transfer of large quantities of ship-generated garbage to port reception facilities, it is essential for shipowners, operators or their agents to make arrangements well in advance for garbage reception. At the same time, discharge needs should be identified in order to make arrangements for garbage requiring special handling or other necessary arrangements. Advice should be provided to the port of the type of garbage to be discharged and whether it is separated and the estimated amounts. The port may have special discharge requirements for food wastes and related garbage which may carry certain disease or pest organisms, dunnage, batteries, medicines, outdated pyrotechnics or unusually large, heavy, or odorous derelict fishing gear, etc.

2.8 Shipboard equipment for processing garbage

2.8.1 The choice of options⁴ for garbage processing depends largely upon personnel limitations, generation rate, capacity, vessel configuration, voyage route and availability of port reception facilities. The type of equipment available for shipboard garbage handling includes incinerators, compactors, comminuters and their associated hardware.

2.9 Grinding or comminution

2.9.1 The discharge of comminuted food wastes may be permitted under regulations 4.1.1 and 6.1.1 of MARPOL Annex V whilst the ship is en route. Such comminuted or ground food waste must be capable of passing through a screen with openings no greater than 25 mm.

2.9.2 A wide variety of food waste grinders is available on the market and most modern ships' galleys have the equipment needed to produce a slurry of food particles and water that washes easily through the required 25 mm screen. Output ranges from 10 to 250 litres per minute. The discharge from shipboard comminuters should be directed into an appropriately constructed holding tank when the vessel is operating within an area where discharge is prohibited.

2.9.3 Size reduction of certain other garbage items can be achieved by shredding or crushing and machines for carrying out this process are available for use on board ships.

2.9.4 Information on the development, advantages and use of comminuters for processing food waste aboard ships should be forwarded to the Organization for sharing between interested parties.

2.9.5 Outside special areas, ships operating primarily beyond three nautical miles from the nearest land are encouraged to install and use comminuters to grind food wastes to a particle size capable of passing through a screen with openings no larger than 25 mm. Regulation 4 requires comminuting or grinding food wastes if the food wastes are to be discharged between three and 12 nautical miles from the nearest land. Although unprocessed food wastes may be discharged beyond 12 nautical miles, it is recommended that comminuters be used as they hasten assimilation into the marine environment. Because food wastes comminuted with plastics cannot be discharged into the sea, all plastic materials need to be removed before food wastes are placed into a comminuter or grinder.

⁴ Reference may also be made to other technical guidance such as, ISO/CD21070 Ships and marine technology – Marine environment protection – Management and handling of shipboard garbage.

2.9.6 When operating *inside* a special area, regulation 6 of MARPOL Annex V requires all food wastes to be comminuted or ground prior to discharge in to the sea. All discharges are to be as far as practicable and not less than 12 nautical miles from the nearest land or ice-shelf.

2.10 Compaction

Table 3 shows compaction options for various types of garbage.

Table 3 – Compaction options for shipboard-generated garbage

Examples of garbage	Special handling by vessel personnel before compaction	Compaction characteristics			Onboard storage space
		Rate of alteration	Retainment of compacted form	Density of compacted form	
Metal, food and beverage containers, glass, small wood pieces	None	Very rapid	Almost 100%	High	Minimum
Comminuted plastics, fibre and paper board	Minor – reduce material to size for feed, minimal manual labour	Rapid	Approximately 80%	Medium	Minimum
Small metal drums ⁵ , uncomminuted cargo packing, large pieces of wood	Moderate – longer manual labour time required to size material for feed	Slow	Approximately 50%	Relatively low	Moderate
Uncomminuted plastics	Major – very long manual labour time to size material for feed; usually impractical	Very slow	Less than 10%	Very low	Maximum
Bulky metal cargo containers, thick metal items	Impractical for shipboard compaction; not feasible	Not applicable	Not applicable	Not applicable	Maximum

⁵ Small and large drums can be compacted very easily with the proper device – a large number of these devices have been designed for remote locations, and therefore they are small and easy to operate with excellent results. It should be noted, that the compaction of drums is probably restricted to larger vessels, due to lack of space on smaller (fishing) vessels.

2.10.1 Most garbage can be compacted to some degree; the exceptions include unground plastics, fibre and paper board, bulky cargo containers and thick metal items. Pressurized containers should not be compacted or shredded without the use of specialized equipment designed for this purpose because they present an explosion hazard in standard compactors.

2.10.2 Compaction reduces the volume of garbage. In most cases, the output from a compactor is a block of material which facilitates the shipboard storage of garbage and its discharging of the material in a port facility. It should be taken into account that the output from a compactor might be subject to quarantine, sanitary or health requirements or other requirements from the port reception facilities and advice from local authorities should be sought on any standards or requirements which are additional to those set by the Organization.

2.10.3 Compactors have options including sanitizing, deodorizing, adjustable compaction ratios, bagging in plastic or paper, boxing in cardboard (with or without plastic or wax paper lining), baling, etc. Compacted materials should be stored appropriately. While metal and plastic bales can get wet, paper and cardboard bales should be kept dry.

2.10.4 If grinding machines are used prior to compaction, the compaction ratio can be increased and the storage space decreased. Careful investigation of the appropriate compaction machine should be undertaken, based on the type and volume of material that will be compacted, as not all compactors require grinding. Compaction is just one step in the solid waste management scheme and the shipowner/operator should ensure all phases of garbage management are described in their Garbage Management Plan. Proper care should be taken when handling and storing binder wrap to prevent it from accidentally entering the marine environment.

2.10.5 A compactor should be installed in a compartment with adequate room for operating and maintaining the unit and storing garbage to be processed. The compartment should be located adjacent to the areas of food processing and commissary store-rooms. If not already required by regulation, it is recommended that the space should have freshwater wash down service, coamings, deck drains, adequate ventilation and hand or automatic fixed fire-fighting equipment.

2.10.6 Information on the development and use of shipboard compactors should be forwarded to the Organization for sharing between interested parties.

2.11 Incineration

2.11.1 Ash and clinkers from shipboard incinerators should be considered as operational waste and, therefore, as garbage that is not eligible for discharge into the sea.

2.11.2 Incineration conducted in a shipboard incinerator can significantly reduce the need to store garbage on board the ship. Shipboard incinerators should be designed, constructed, operated and maintained in accordance with the IMO Standard Specification for Shipboard Incinerators (footnote 3). MARPOL Annex VI requires shipboard incinerators installed after 1 January 2000 to be type approved and meet specific air pollution criteria. Incinerators should only be used to incinerate materials that are specified by the incinerator manufacturer.

2.11.3 In general, shipboard incineration should not be undertaken when the ship is in port or at offshore terminal. Some ports may have domestic laws that specify additional air emission restrictions, particularly those near high population areas. The use of a shipboard incinerator may require permission from the port authority concerned.

2.11.4 Table 4 presents options for incineration of garbage, and includes considerations for special handling by vessel personnel, combustibility, reduction in volume, residual materials, exhaust, and onboard storage space. Most garbage is amenable to incineration with the exception of metal and glass.

Table 4 – Incineration options for shipboard-generated garbage

Examples of garbage	Special handling by vessel personnel ⁶ before incineration	Incineration characteristics				Onboard storage space
		Combustibility	Reduction of volume	Residual	Exhaust	
Paper Packing, food and beverage containers	Minor – easy to feed into hopper	High	Over 95%	Powder ash	Possibly smoky and not hazardous	Minimum
Fibre and paper board	Minor – reduce material to size for feed, minimum manual labour	High	Over 95%	Powder ash	Possibly smoky and not hazardous	Minimum
Plastics packaging, food and beverage containers, etc.	Minor – easy to feed into hopper	High	Over 95%	Powder ash	Possibly smoky and not hazardous based on incinerator design	Minimum
Plastics sheeting, netting, rope and bulk material.	Moderate – manual labour time to size reduction	High	Over 95%	Powder ash	Possibly smoky and not hazardous based on incinerator design	Minimum
Rubber hoses and bulk pieces	Major – manual labour time to size reduction	High	Over 95%	Powder ash	Possibly smoky and not hazardous based on incinerator design	Minimum
Metal food and beverage containers, etc.	Minor – easy to feed into hopper	Low	Less 10%	Slag	Possibly smoky and not hazardous	Moderate

⁶ Each operator of the onboard garbage incinerator should be trained and familiar in the use of the equipment and the types of garbage that can be destroyed in the incinerator.

Examples of garbage	Special handling by vessel personnel ⁶ before incineration	Incineration characteristics				Onboard storage space
		Combustibility	Reduction of volume	Residual	Exhaust	
Metal cargo, bulky containers, thick metal items	Major – manual labour time to size reduction(not easily incinerated)	Very low	Less 5%	Large metal Fragments and slag	Possibly smoky and not hazardous	Maximum
Glass food and beverage containers, etc.	Minor – easy to feed into hopper	Low	Less 10%	Slag	Possibly smoky and not hazardous	Moderate
Wood, cargo containers and large wood scrapes	Moderate – manual labour time to size reduction	High	Over 95%	Powder ash	Possibly smoky and not hazardous	Minimum

2.11.5 Some of the disadvantages of incinerators may include the possible hazardous nature of the ash or vapour, dirty operation, excessive labour required for charging, stoking and ash removal. Some incinerators may not be able to meet air pollution regulations imposed in some ports and harbours or by flag and coastal States when such matters are subject to their jurisdiction. Some of these disadvantages can be remedied by automatic equipment for charging and stoking, however, the additional equipment to perform automatic functions will require more installation space.

2.11.6 The incineration of garbage that contains a large amount of plastic involves very specific incinerator settings such as higher oxygen injection and higher temperatures (850 to 1,200°C). If these special conditions are not met, depending on the type of plastic and conditions of combustion, some toxic gases can be generated in the exhaust stream, including vaporized hydrochloric (HCl) and hydrocyanic (HCN) acids. These and other intermediary products of combustion of waste containing plastics are toxic to humans and marine life.

2.11.7 Onboard incineration of garbage may reduce the volume of garbage subject to quarantine requirements in some countries. However, incinerator ash may still be subject to local quarantine, sanitary or health requirements. Advice should be sought from local authorities regarding requirements that are in addition to MARPOL. For example, higher temperatures and more complete combustion may be required to effectively destroy organisms that present a risk.

2.11.8 Information on the development and advantages on the use of shipboard incinerator systems should be forwarded to the Organization for sharing between interested parties.

2.12 Treatment of animal carcasses

2.12.1 Only fit and healthy animals should be presented for loading as cargo and managed in accordance with international standards for the transport of animals at sea⁷. The master of the ship is expected to have responsibility for shipboard livestock operational issues, animal health and welfare, and conditions for the control and reporting of animal mortality on board.

2.12.2 Ships carrying live animal cargo consignments are expected to have animals that die during a voyage. These mortalities accrue gradually over the voyage and are dependent on various factors including age and type of animal species, facilities on board the ship and local climatic conditions. The most common mortality causes stem from enteritis, refusal to feed, injury, exhaustion, or illness not evident prior to loading. The mortality numbers are generally low and are operational issues to be controlled as part of cargo management practice. These mortalities are considered to be generated during the normal operation of the ship and liable to be discharged of continually or periodically and therefore subject to Annex V regulations.

2.12.3 As part of normal livestock ship management procedures, regular inspections (day and night) are recommended to ensure the health and welfare of the animals. It is recommended that these inspections include shipboard recording, on a daily basis, of the number of animals that have died or have been euthanized.

2.12.4 When mortalities occur on board, the carcasses should be removed from the pen areas and assessed for appropriate disposition. The options for appropriate discharge of the carcasses under Annex V will typically be discharge into the sea or discharge to a reception facility. Where the ship has an appropriate storage area on board, limited quantities of treated carcasses may be stored for short periods for subsequent discharge into the sea or to reception facilities. Any storage on board should take into account occupational health and safety requirements.

2.12.5 Regulation 4.1.4 of MARPOL Annex V permits the discharge into the sea of animal carcasses generated during the normal operation of a ship, but only if the ship is en route, outside a special area, as far as possible from the nearest land and taking into account the guidelines developed by the Organization. To comply with regulation 4.1.4 of MARPOL Annex V, it is recommended that the discharge into the sea should take place greater than 100 nautical miles (nm) from the nearest land and in the maximum water depth possible.

2.12.6 When a ship is on a voyage that is not often greater than 100 nm from nearest land, the retention of carcasses on board during conditions of high temperatures and high humidity may constitute a threat to human health and safety or to the remaining live animals. In these circumstances it may not be possible to discharge animal carcasses in accordance with these guidelines. In such circumstances where the master of the ship determines that such health and safety threats exist, it is recommended the discharge into the sea should take place greater than 12 nm from the nearest land. Where the discharge of animal carcasses at sea occurs under these circumstances, the entry in the Garbage Record Book of the position of the ship should also include a remark about these circumstances.

⁷

The World Organisation for Animal Health (OIE) formulated "Guidelines for the Transport of Animals by Sea" as part of the Terrestrial Animal Health Code (2010).

2.12.7 Animal carcasses should be split or otherwise treated prior to their discharge at sea. Procedures for the treatment of carcasses should take into account the health and safety of the crew and other livestock cargo. Treatment should facilitate the sinking or dispersal of the carcass when it is discharged into the sea.

2.12.8 Treatment of a carcass involves:

- manually slitting or cutting the carcass to the extent that the thoracic and abdominal cavities are opened; or
- passing the carcass through equipment such as a comminuter, grinder, hogger, or mincer.

2.12.9 For each animal carcass incinerated, discharged into the sea or discharged to a reception facility, an entry in the Garbage Record Book shall be made. The entry should include the date/time, position of the ship and remarks to specify the animal species (e.g. sheep, cattle, goats), the category "H" and the number of carcasses discharged. Where the discharge is to a reception facility, the receipt obtained from the facility should be attached to the Garbage Record Book.

2.12.10 Following the completion of a voyage, the master of the ship is encouraged to provide a copy of the pages of the Garbage Record Book that contain the entries for the discharges of animal carcasses at sea to the flag State and the State from whose port the voyage originated, and other information requested.

2.12.11 Governments are encouraged to analyse the garbage records of discharges of animal carcasses and other relevant information to inform and assist future reviews of the Annex V guidelines and regulations.

Mortalities in excess of those generated during the normal operation of a ship

2.12.12 Carcasses of animals resulting from mortalities in excess of those generated during the normal operation of a ship are not "garbage" under Annex V and are not covered under these guidelines. To assist in managing these situations, masters should contact the flag State of the ship and where appropriate, port and/or coastal State(s) to seek guidance on the appropriate legal regimes and requirements, as well as consult relevant IMO guidelines and circulars. In particular, masters should refer to the joint London Convention-London Protocol/MEPC "Guidance on Managing Spoilt Cargoes".

2.12.13 "Mortalities in excess of those generated during the normal operation of a ship" refers to animal mortalities in excess of those described in paragraph 2.12.2. While this could be a number of animals dying at the same time or within a short period of time, the number of mortalities that exceed those generated during the normal operation of a ship will depend upon the animal species and the total number and/or species carried in the consignment.

2.12.14 Circumstances that may result in mortalities that exceed those generated during the normal operation of the ship, include:

- malfunctioning of ventilation or watering systems;
- weather events such as heat waves or storm systems;
- infectious disease outbreaks; and
- refusal of cargo offloading by authorities at destination, leading to the need to euthanize some or all of the live animal cargo.

2.12.15 The guidance provided above and in the LC-LP/MEPC Circular on guidance on managing spoilt cargoes is not a substitute for any stricter requirements imposed upon a ship by a port State, a flag State or the exporting country, for the management of livestock cargoes.

2.13 Discharge of fish carried as a cargo

2.13.1 Fish, including shellfish, carried on board as cargo that have died or been euthanized on board during the voyage are considered to be animal carcasses and should, to the extent practicable, be treated in the manner set out in section 2.12 of these guidelines. Governments may want to consider additional actions to reduce the risk of spreading parasitic or pathogenic organisms.

3 MANAGEMENT OF CARGO RESIDUES OF SOLID BULK CARGOES

3.1 Cargo residues are included in the definition of garbage within the meaning of Annex V, regulation 1.9 and may be discharged in accordance with regulations 4.1.3 and 6.1.2. However, cargo material contained in the cargo hold bilge water should not be treated as cargo residues if the cargo material is not harmful to the marine environment and the bilge water is discharged from a loaded hold through the ship's fixed piping bilge drainage system.

3.2 Cargo residues are considered harmful to the marine environment and subject to regulations 4.1.3 and 6.1.2.1 of the revised MARPOL Annex V if they are residues of solid bulk substances which are classified according to the criteria of the United Nations Globally Harmonized System for Classification and Labelling of Chemicals (UN GHS) meeting the following parameters¹⁾:

- .1 Acute Aquatic Toxicity Category 1; and/or
- .2 Chronic Aquatic Toxicity Category 1 or 2; and/or
- .3 Carcinogenicity²⁾ Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .4 Mutagenicity²⁾ Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .5 Reproductive Toxicity²⁾ Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .6 Specific Target Organ Toxicity Repeated Exposure²⁾ Category 1 combined with not being rapidly degradable and having high bioaccumulation; and/or
- .7 Solid bulk cargoes containing or consisting of synthetic polymers, rubber, plastics, or plastic feedstock pellets (this includes materials that are shredded, milled, chopped or macerated or similar materials).

Notes:

- 1) The criteria are based on UN GHS, fourth revised edition (2011). For specific products (e.g. metals and inorganic metal compounds) guidance available in UN GHS, annexes 9 and 10 are essential for proper interpretation of the criteria and classification and should be followed.
- 2) Products that are classified for Carcinogenicity, Mutagenicity, Reproductive toxicity or Specific Target Organ Toxicity Repeated Exposure for oral and dermal hazards or without specification of the exposure route in the hazard statement.

3.3 Cargo residues that are harmful to the marine environment may require special handling not normally provided by reception facilities. Ports and terminals receiving such cargoes should have adequate reception facilities for all relevant residues, including when contained in washwater.

3.4 Solid bulk cargoes should be classified and declared by the shipper as to whether or not they are harmful to the marine environment. Such declaration should be included in the information required in section 4.2 of the IMSBC Code.

3.5 Ports, terminals and ship operators should consider cargo loading, unloading and onboard handling practices⁸ in order to minimize production of cargo residues. Cargo residues are created through inefficiencies in loading, unloading, onboard handling. Options that should be considered to decrease the amount of such garbage include the following:

- .1 ensuring ships are suitable to carry the intended cargo and also suitable for unloading the same cargo using conventional unloading methods;
- .2 unloading cargo as efficiently as possible, utilizing all appropriate safety precautions to prevent injury or ship and equipment damage and to avoid or minimize cargo residues; and
- .3 minimizing spillage of the cargo during transfer operations by carefully controlling cargo transfer operations, both on board and from dockside. This should include effective measures to enable immediate communications between relevant ship and shore-based personnel during the transfer operations and when feasible, enclosure of conveyance devices such as conveyor belts. Since this spillage typically occurs in port, it should be completely cleaned up immediately following the loading and unloading event and handled as cargo; delivering it into the intended cargo space or into the appropriate unloading holding area.

3.6 When the master, based on the information received from the relevant port authorities, determines that there are no adequate reception facilities⁹ at either the port of departure or the port of destination in the case where both ports are situated within the same special area, the condition under regulation 6.1.2.3 should be considered satisfied.

3.7 MARPOL Annex V, regulation 6.1.2 also applies when the "port of departure" and the "next port of destination" is the same port. To discharge cargo hold washwater in this situation, the ship must be en route and the discharge must take place not less than 12 miles from the nearest land.

4 TRAINING, EDUCATION AND INFORMATION

4.1 These guidelines are intended to address governments, shipowners, ship operators, ships' crews, cargo owners, port reception facility operators and equipment manufacturers as sources of pollution of the sea by garbage. Accordingly, governments should develop and undertake training, education and public information programmes suited for all seafaring communities under their jurisdiction, prepared and presented in such a way that they communicate with that segment of the community.

⁸ Refer to the International Maritime Solid Bulk Cargoes Code and supplement 2009 Edition (IMSBC Code).

⁹ IMO Circular MEPC.1/Circ.469/Rev.1, Revised Consolidated Format for Reporting Alleged Inadequacy of Port Reception Facilities.

4.2 Governments may exchange and maintain information relevant to compliance, non-compliance and information on legal proceedings for violations with Annex V regulations through the Organization. Governments are encouraged to provide the Organization with the following:

- .1 technical information on shipboard garbage management methods such as minimization, recovery, recycling, reuse, incineration, compaction, separation, sorting and sanitation system, packaging and provisioning methods;
- .2 educational materials developed to raise the level of compliance with Annex V. This includes printed materials (e.g. placards, posters, brochures, etc.), photographs, DVDs, audio and video tapes, and films as well as synopses of training programmes, seminars and formal curricula; and
- .3 information and reports on the nature and extent of garbage from shipping found along beaches and in coastal waters under their respective jurisdictions. In order to assess the effectiveness of Annex V, these studies should provide details on amounts, distribution, sources and impacts of garbage from shipping.

4.3 Governments are encouraged to amend their maritime certification examinations and requirements, as appropriate, to include a knowledge of duties imposed by national and international law regarding the control of pollution of the sea by garbage.

4.4 Placards required by regulation 10.1 should contain a summary declaration stating the prohibition and restrictions for discharging garbage from ships under MARPOL Annex V and the possible penalties for failure to comply. Governments are encouraged to develop appropriate placards for use by every ship of their registry of more than 12 metres in length overall and fixed and floating platforms. (Sample placards targeting crew and shipboard operations; fixed or floating platforms and ships operating within 500 metres of such platforms; and passengers are shown in figures 1, 2 and 3.)

4.4.1 The declaration should be placed on a placard at least 12.5 cm by 20 cm, made of durable material and fixed in conspicuous and prominent places on board the ship. Placards should also be replaced when damage or wear compromises the readability of the declaration.

4.4.2 The placards should also be placed in prominent places where crew will be working and living, and in areas where bins are placed for collection of garbage. These places include galley spaces, mess room(s), wardroom, bridge, main deck and other areas of the ship, as appropriate. The placards should be displayed at line of sight height and be printed in the working language of the crew. Ships which operate internationally will also have placards printed in English, French or Spanish, in accordance with regulation 10.1.2 of MARPOL Annex V.

4.4.3 Where the ship carries passengers, placards also should be placed in prominent places where passengers are accommodated and congregate. These include cabins, all deck areas for recreational purposes open to passengers.

4.5 Governments should ensure that appropriate education and training in respect of MARPOL is included in the training programmes leading to STCW and STCW-F certification.

4.6 Governments are encouraged to have maritime colleges and technical institutes under their jurisdiction develop or augment curricula to include both the legal duties as well as the technical options available to professional seafarers for handling ship-generated garbage. These curricula should also include information on environmental and ecological impacts of garbage. A list of suggested topics to be included in the curriculum is provided below:

- .1 garbage in the marine environment, sources, methods for prevention of release of garbage to the environment and impacts on the environment;
- .2 national and international laws relating to, or impinging upon shipboard waste management;
- .3 health and sanitation considerations related to the storage, handling and transfer of ship-generated garbage;
- .4 current technology for onboard and shoreside¹⁰ processing of ship generated garbage; and
- .5 provisioning options, materials and procedures to minimize the generation of garbage aboard ships.

4.7 Professional associations and societies of ship officers, engineers, naval architects, shipowners and managers, and seafarers are encouraged to ensure their members' competency regarding the handling of ship-generated garbage.

4.8 Ship and reception facility operators should establish detailed training programmes for personnel operating and maintaining ships garbage reception or processing equipment. It is suggested that the programme include instruction on what constitutes garbage and the applicable regulation for handling and disposing of it. Such training should be reviewed annually and updated as appropriate.

4.9 Generalized public information programmes are needed to provide information to non-professional seafarers, and others concerned with the health and stability of the marine environment, regarding the impacts of garbage at sea. Governments and involved commercial organizations are encouraged to utilize the Organization's library and to exchange resources and materials, as appropriate, to initiate internal and external public awareness programmes.

4.9.1 Methods for delivering this information include radio and television, articles in periodicals and trade journals, voluntary public projects such as beach clean-up days and adopt-a-beach programmes, public statements by high government officials, posters, brochures, social media, conferences and symposia, cooperative research and development, voluntary product labelling and teaching materials for public schools.

4.9.2 Audiences include recreational sailors and fishermen, port and terminal operators, coastal communities, ship supply industries, shipbuilders, garbage management industries, plastic manufacturers and fabricators, trade associations, educators and governments.

¹⁰ Reference may also be made to other technical guidance such as, ISO/CD16304 Ships and marine technology – Marine environment protection – Arrangement and management of port waste reception facilities.

4.9.3 The subjects addressed in these programmes are recommended to include the relevant domestic and international law; options for handling garbage at sea and upon return to shore; known sources and types of garbage; impacts of plastics on marine life and ship operations; the accumulation of garbage in the world's oceans and seas impacts on coastal tourist trade; current actions by governments, intergovernmental organizations, non-governmental organizations and sources of further information.

5 PORT RECEPTION FACILITIES FOR GARBAGE

5.1 The methodology for determining the adequacy of a reception facility should be based on the number and types of ships that will call at the port, the waste management requirements of each type of ship as well as the size and location of a port. Emphasis should also be placed on calculating the quantities of garbage, including recyclable material from ships which are not discharged into the sea in accordance with the provisions of Annex V.

5.2 It should be noted that, due to differences in port reception procedures and additional treatment among ports, port reception facilities may require the separation on board of:

- .1 food wastes (e.g. animal derived products and by-products because of risk of animal diseases);
- .2 cooking oil (animal derived products and by-products because of risk of animal diseases);
- .3 plastics;
- .4 domestic waste, operational waste and recyclable or reusable material;
- .5 special items like medical waste, outdated pyrotechnics and fumigation remnants;
- .6 animal wastes, including used bedding from the transport of live animals (due to risk of disease) but excluding drainage from spaces containing living animals; and
- .7 cargo residues.

5.3 Ship, port and terminal operators should consider the following when determining quantities and types of garbage on a per ship basis:

- .1 types of garbage normally generated;
- .2 ship type and design;
- .3 ship operating route;
- .4 number of persons on board;
- .5 duration of voyage;
- .6 time spent in areas where discharge into the sea is prohibited or restricted; and
- .7 time spent in port.

5.4 Governments, in assessing the adequacy of reception facilities, should also consider the technological challenges associated with the recycling, treatment and discharge of garbage received from ships. Governments should take responsible actions within their national programmes to consider garbage management standards. In doing so, relevant international standards should be taken into account.

5.4.1 The type and capacity of equipment for treatment and final disposal of garbage is a significant factor in determining the adequacy of a reception facility. It not only provides a measure of the time required to complete the process, but it also is the primary means for ensuring that ultimate disposal of the garbage is environmentally sound.

5.4.2 Governments should continue to carry out studies into the provision of reception facilities at ports in their respective countries. Governments should carry out the studies in close cooperation with port authorities and other local authorities responsible for garbage handling. Such studies should include information such as a port-by-port listing of available garbage reception facilities, the types of garbage they are equipped to handle their capacities and any special procedures required to use them. Governments should submit data on the availability of port reception facilities to GISIS.

5.4.3 While selecting the most appropriate type of reception facility for a particular port, consideration should be given to several alternative methods available. In this regard, floating plants for collection of garbage, such as barges or self-propelled ships, might be considered more effective in a particular location than land-based facilities.

5.5 These guidelines aim to stimulate governments to develop modern waste reception facilities and continue to improve their garbage management processes. Information on developments in this area should be forwarded to the Organization.

5.6 Governments are encouraged to develop policies and practices that facilitate the reduction, use and recycling of ship-generated garbage. The development of port reception facilities and associated guidance that aids the handling of separated garbage from ships should encourage ships to separate garbage on board.

6 ENHANCEMENT OF COMPLIANCE WITH MARPOL ANNEX V

6.1 Recognizing that direct enforcement of Annex V regulations, particularly at sea, is difficult to accomplish, governments are encouraged to consider not only restrictive and punitive measures consistent with international law, but also the removal of any disincentives, the creation of positive incentives and initiatives to facilitate more effective compliance, and the development of voluntary measures within the regulated community when developing programmes and domestic legislation to ensure compliance with Annex V.

6.2 Compliance Facilitation and Enforcement

6.2.1 Ships should inform their flag State of ports in foreign countries Party to Annex V which do not have adequate port reception facilities for garbage. This can provide a basis for advising responsible governments of possible problems and calling the Organization's attention to possible issues of compliance. An acceptable reporting format is reproduced in MEPC.1/Circ.671, along with the procedure for submitting and handling such reports.

6.2.2 Governments should develop a strategy to assess or audit port reception facilities under their jurisdiction. Detailed guidance in this regard is provided by the Organization. At a minimum, periodic inspection of the reception facilities is recommended and consideration should be given to establishing a documentation system (e.g. letters or certificates) stating that adequate facilities are available for receiving ship-generated garbage.

6.2.2.1 Governments are encouraged to improve the adequacy and efficiency of existing port reception facilities for fishing gear.

6.2.3 Governments should identify appropriate agencies for enforcement and facilitating compliance and provide legal authority, adequate training, funding and equipment to incorporate the goals and objectives under Annex V regulations into their responsibilities. In those cases where customs or agricultural officials are responsible for receiving and inspecting garbage, governments should ensure that the inspections are facilitated.

6.2.4 Governments should consider the use of garbage management reporting systems. Such reporting systems may provide valuable data for measuring and monitoring the impacts of garbage regulations and management and identifying trends over time. A reporting system could be based on the information in garbage record books (where applicable) or ship's log. In addition advance notification forms and garbage reception receipts could provide input into the garbage reporting system.

6.2.5 A garbage management reporting system may also include reporting of discharges of garbage. Particular attention should be given to the reporting of any discharge in special areas; discharge at port reception facilities; and discharge of garbage into the sea. Reports should include the date, time, location by latitude and longitude, or name of port, type of garbage and estimated amount of garbage discharged. Particular attention should be given to the reporting of:

- .1 the loss of fishing gear;
- .2 the discharge of cargo residues;
- .3 any discharge in special areas;
- .4 discharge at port reception facilities; and
- .5 discharge of garbage into the sea, in those limited situations, where permitted.

6.2.6 The issuance of documents or receipts (i.e. IMO standard forms) by port reception facilities might also be used in maintaining a garbage management reporting system.

6.3 Compliance incentive systems

6.3.1 The augmentation of port reception facilities to serve ship traffic without undue delay or inconvenience may call for capital investment from port and terminal operators as well as the garbage management companies serving those ports. Governments are encouraged to evaluate means within their authority to lessen this impact, thereby helping to ensure that garbage delivered to port is actually received and disposed of properly at reasonable cost or without charging special fees to individual ships. Such means could include, but are not limited to:

- .1 tax incentives;
- .2 loan guarantees;
- .3 public vessel business preference;
- .4 special funds to assist in problem situations such as remote ports with no land-based garbage management system in which to deliver ships' garbage;
- .5 government subsidies; and
- .6 special funds to help defray the cost of a bounty programme for lost, abandoned or discarded fishing gear or other persistent garbage. The programme would make appropriate payments to persons who retrieve such fishing gear, or other persistent garbage other than their own, from marine waters under the jurisdiction of government.

6.3.2 The minimization of taking packaging on board and the installation of shipboard garbage management handling and processing equipment would facilitate compliance with Annex V and lessen the burden on port reception facilities to process garbage for discharge. Therefore, governments might consider actions to encourage the reduction of packaging and the installation of certain types of garbage processing equipment on ships operating under its flag. For example, programmes to lessen costs to shipowners for purchasing and installing such equipment, or requirements for installing compactors, incinerators and comminuters during construction of new ships could be very helpful.

6.3.3 Governments are encouraged to consider the economic impacts of domestic regulations intended to ensure compliance with Annex V. Due to the highly variable nature of ship operations and configurations, consideration should be given in domestic regulations to permitting ships the greatest range of options for complying with Annex V. However, any range of options needs to be consistent with Annex V and should facilitate the implementation of and compliance with Annex V.

6.3.4 Governments are encouraged to support research and development of technology that facilitates compliance with Annex V regulations for ships and ports. This research should concentrate on:

- .1 minimization of packaging;
- .2 shipboard garbage handling systems;
- .3 ship provision innovations to minimize garbage generation;
- .4 loading, unloading and cleaning technologies to minimize dunnage, spillage and cargo residues;
- .5 new ship construction design to facilitate garbage management and transfer and to minimize retention of cargo in ship holds; and
- .6 wharf and berth design to facilitate garbage management and transfer.

6.3.5 Governments are encouraged to work within the Organization to develop port reception systems that simplify the transfer of garbage for international vessels.

6.4 Voluntary measures

6.4.1 Governments are encouraged to assist ship operators and seafarers' organizations in developing resolutions, by-laws and other internal mechanisms that encourage compliance with Annex V regulations. Some of these groups include:

- .1 seamen and officer unions;
- .2 associations of shipowners, insurers, classification societies;
- .3 pilot associations; and
- .4 fishermen's organizations.

6.4.2 Governments are encouraged to assist and support, where possible, the development of mechanisms to promote compliance with Annex V among port authorities, terminal operators, stevedores, longshoremen, and land-based garbage management authorities.

Sample placard targeting crew and shipboard operations

Discharge of all garbage into the sea is prohibited except provided otherwise

The MARPOL Convention and domestic law prohibit the discharge of most garbage from ships. Only the following garbage types are allowed to be discharged and under the specified conditions.

Outside Special Areas designated under MARPOL Annex V:

- Comminuted or ground food wastes (capable of passing through a screen with openings no larger than 25 millimetres) may be discharged not less than 3 nautical miles from the nearest land.
- Other food wastes may be discharged not less than 12 nautical miles from the nearest land.
- Cargo residues classified as not harmful to the marine environment may be discharged not less than 12 nautical miles from the nearest land.
- Cleaning agents or additives in cargo hold, deck and external surfaces washing water may be discharged only if they are not harmful to the marine environment.
- With the exception of discharging cleaning agents in washing water, the ship must be en route and as far as practicable from the nearest land.

Inside Special Areas designated under MARPOL Annex V

- More stringent discharge requirements apply for the discharges of food wastes and cargo residues; AND
- Consult Annex V and the shipboard garbage management plan for details.

For all areas of the sea, ships carrying specialized cargoes such as live animals or solid bulk cargoes should consult Annex V and the associated Guidelines for the implementation of Annex V.

Discharge of any type of garbage must be entered in the Garbage Record Book
Violation of these requirements may result in penalties.

Sample placard targeting fixed or floating platforms and ships operating within 500 metres of such platforms

Discharge of all garbage into the sea is prohibited except provided otherwise

The MARPOL Convention and domestic law prohibit the discharge of all garbage into the sea from fixed or floating platforms and from all other ships when alongside or within 500 metres of such platforms.

Exception: Comminuted or ground food wastes may be discharge from fixed or floating platforms located more than 12 miles from the nearest land and from all other ships when alongside or within 500 metres of such platforms. Comminuted or ground food wastes must be capable of passing through a screen no larger than 25 millimetres.

Discharge of any type of garbage must be entered in the Garbage Record Book

Violation of these requirements may result in penalties.

Sample placard targeting passengers

Discharge of all garbage into the sea is prohibited except provided otherwise

The MARPOL Convention and domestic law generally prohibit the discharge of most forms of garbage from ships into the sea.

Violation of these requirements may result in penalties.

All garbage is to be retained on board and placed in the bins provided.

ANNEX 25

**RESOLUTION MEPC.220(63)
Adopted on 2 March 2012**

**2012 GUIDELINES FOR THE DEVELOPMENT OF
GARBAGE MANAGEMENT PLANS**

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 (the Committee) conferred upon it by the international conventions for the prevention and control of marine pollution,

RECALLING ALSO that Annex V of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto provides regulations for the prevention of pollution by garbage from ships,

NOTING that the Committee, at its thirty-eighth session, adopted the Guidelines for the Development of Garbage Management Plans by resolution MEPC.71(38),

NOTING ALSO that the Committee, at its sixty-second session, adopted the revised MARPOL Annex V by resolution MEPC.201(62), which is expected to enter into force on 1 January 2013,

NOTING FURTHER that regulation 10.2 of the revised MARPOL Annex V provides that every ship of 100 gross tonnage and above, and every ship which is certified to carry 15 or more persons and fixed or floating platforms shall carry a Garbage Management Plan based on the guidelines developed by the Organization,

RECOGNIZING the need to review the Guidelines for the Development of Garbage Management Plans, in light of the revised MARPOL Annex V,

HAVING CONSIDERED, at its sixty-third session, the draft 2012 Guidelines for the Development of Garbage Management Plans,

1. ADOPTS the 2012 Guidelines for the Development of Garbage Management Plans, the text of which is set out in the annex to this resolution;
2. INVITES Governments to apply the 2012 Guidelines for the Development of Garbage Management Plans, upon the entry into force of the revised MARPOL Annex V; and
3. REVOKES the Guidelines for the Development of Garbage Management Plans (resolution MEPC.71(38)), upon the entry into force of the revised MARPOL Annex V.

ANNEX

2012 GUIDELINES FOR THE DEVELOPMENT OF GARBAGE MANAGEMENT PLANS

For compliance with regulation 10 of the revised MARPOL Annex V

1 INTRODUCTION

1.1 In 2011, IMO adopted amendments to MARPOL Annex V which require that:

- .1 every ship of 100 gross tonnage and above, and every ship certified to carry 15 or more persons, and fixed or floating platforms shall carry a garbage management plan;
- .2 every ship of 400 gross tonnage and above, and every ship certified to carry 15 or more persons engaged in voyages to ports or offshore terminals of another Party, and every fixed or floating platform shall be provided with a Garbage Record Book; and
- .3 every ship of 12 metres or more in length overall, and fixed or floating platforms shall display placards which notify the crew and passengers of the ship's disposal requirements of regulations 3, 4, 5 and 6 of the Annex as applicable.

These provisions are included in regulation 10 to the revised MARPOL Annex V with an entry into force date of 1 January 2013.

1.2 These Guidelines provide direction on complying with the requirements for a ship's garbage management plan, and are intended to assist the shipowner/operator in the implementation of regulation 10.2 of the revised MARPOL Annex V. It is assumed that the author of the garbage management plan is familiar with the requirements of the revised MARPOL Annex V and the IMO Guidelines for the Implementation of MARPOL Annex V.

1.3 Shipowners and operators should also consult other available technical guidance on shipboard garbage handling such as, ISO 21070 "Standard for the Management and handling of shipboard garbage" which outlines best management practices for shipboard garbage management and, to the extent it is consistent with the revised MARPOL Annex V, should be incorporated in any garbage management plan.

1.4 A ship's garbage management plan should detail the specific ship's equipment, arrangements and procedures for the handling of garbage. The plan may contain extracts and/or references to existing company instructions.

2 REGULATORY REQUIREMENTS

2.1 Regulation 10.2 of MARPOL Annex V reads as follows:

"Every ship of 100 gross tonnage and above, and every ship which is certified to carry 15 or more persons, and fixed or floating platforms, shall carry a garbage management plan which the crew shall follow. This plan shall provide written procedures for minimizing, collecting, storing, processing and disposing of garbage, including the use of the equipment on board. It shall also designate the person or

persons in charge of carrying out the plan. Such a plan shall be based on the guidelines developed by the Organization and written in the working language of the crew."

3 PREVENTION OF POLLUTION FROM GARBAGE

3.1 To achieve cost-effective and environmentally sound results, many garbage management planners use a combination of complementary techniques to manage garbage, such as the following:

- .1 reduction at source;
- .2 reusing or recycling;
- .3 onboard processing (treatment);
- .4 discharge into the sea in those limited situations where it is permitted; and
- .5 discharge to a port reception facility.

3.2 When requisitioning stores and provisions, shipping companies should encourage their suppliers to remove, reduce, all packaging, at an early stage, to limit the generation of garbage on board ships.

3.3 When garbage is generated aboard a ship, procedures should be defined to enable the crew to sort the material that can be reused onboard the ship or recycled at an appropriate port reception facility.

3.4 Ship's garbage is made up of distinct components, some of which are regulated in MARPOL Annex V, while others may be regulated locally, nationally or regionally. Each component of the garbage should be evaluated separately to determine the best management practice for that type of garbage.

4 MATTERS WHICH SHOULD BE ADDRESSED IN THE GARBAGE MANAGEMENT PLAN

4.1 Designated person in charge of carrying out the plan

4.1.1 In accordance with regulation 10.2 of the revised MARPOL Annex V, the plan shall designate a person in charge of carrying out the plan. The person should ensure the garbage management plan is followed.

4.1.2 This person should be assisted by ship's crew to ensure that the minimization, collection, separation and processing of garbage is appropriate and efficient in all areas of the ship.

4.2 Procedures for collecting garbage

4.2.1 Identify suitable receptacles for collection and separation¹.

¹ Separation of garbage for the purposes of these Guidelines is considered part of the collection process. Separation may take place at the source or at a separate designated station.

- 4.2.2 Identify the locations of receptacles and collection and separation stations.
- 4.2.3 Describe the process of how garbage is transported from the source of generation to the collection and separation stations.
- 4.2.4 Describe how garbage is to be handled between primary collection and separation stations and other handling methods relating to the following:
- .1 needs of reception facilities, taking into account possible local recycling arrangements;
 - .2 onboard processing and potential reuse of garbage aboard the ship;
 - .3 storage; and
 - .4 discharge into the sea in those limited situations where it is permitted.
- 4.2.5 Describe the training or education programmes to facilitate collection of garbage and sorting of reusable or recyclable material.

4.3 Procedures for processing garbage

- 4.3.1 Identify personnel responsible for the operation of the processing equipment.
- 4.3.2 Identify available processing devices and their capacities.
- 4.3.3 Identify the locations of processing devices and processing stations.
- 4.3.4 Identify the categories of garbage that are to be processed by each of the available processing devices.
- 4.3.5 Describe how material that can be reused or recycled is to be handled between primary processing stations and the storage or transfer stations.
- 4.3.6 Describe processing procedures used for the following:
- .1 needs of reception facilities, taking into account available recycling arrangements;
 - .2 storage; and
 - .3 discharge into the sea in those limited situations where it is permitted.
- 4.3.7 Describe the training or education programmes to facilitate the processing of garbage and reuse or recycling of material.
- 4.3.8 Identify standard operating procedures for the operation and maintenance of the equipment used to manage garbage. This may be done by reference to documents available on board.

4.4 Procedures for storing garbage or reusable or recyclable material

4.4.1 Identify the locations, the intended use, and the capacities of available storage stations for each category of garbage or reusable or recyclable material.

4.4.2 Describe the condition of how the garbage will be stored (for example, "food – frozen"; "cans – compacted and stacked"; "paper – compacted and should remain dry", etc.).

4.4.3 Describe how garbage, including reusable and recyclable material, is to be handled between storage stations and discharge with regard to the following:

- .1 discharge to reception facilities, taking into account available recycling arrangements; and
- .2 discharge into the sea in those limited situations where it is allowed.

4.4.4 Describe the training or education programmes to facilitate the storing of garbage and options for reusing and recycling components of the waste stream.

4.5 Procedures for discharging of garbage

4.5.1 Describe the ship's procedures to ensure and demonstrate compliance with the requirements of the revised MARPOL Annex V for the discharge of garbage.

ANNEX 26

**RESOLUTION MEPC.221(63)
Adopted on 2 March 2012**

**2012 GUIDELINES FOR THE DEVELOPMENT OF A
REGIONAL RECEPTION FACILITIES PLAN**

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,

REAFFIRMING the importance of providing adequate facilities for the reception of ship generated wastes and cargo residues in compliance with the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the 1978 and 1997 Protocols,

RECOGNIZING that the burden of providing port reception facilities in all ports has been a barrier to some States' ratification of MARPOL,

RECOGNIZING FURTHER that the unique circumstances of Small Island Developing States pose unique challenges for these States in meeting international shipping's needs for discharging ship generated wastes and cargo residues,

RECALLING the recognition by the Committee at its forty-ninth session that in certain areas regional arrangements are an acceptable way to satisfy MARPOL obligations to provide port reception facilities,

RECALLING ALSO the adoption of amendments to MARPOL Annexes I, II, IV, V and VI by resolutions MEPC.216(63) and MEPC.217(63), respectively, to provide for regional arrangements for Small Island Developing States where a Regional Reception Facilities Plan has been developed in accordance with the Guidelines to be developed by the Organization,

HAVING CONSIDERED the draft 2012 Guidelines for the Development of a Regional Reception Facilities Plan,

1. ADOPTS the 2012 Guidelines for the Development of a Regional Reception Facilities Plan, as set out in the annex to this resolution; and
2. INVITES Governments to apply the Guidelines, when considering the development of a Regional Reception Facilities Plan, upon the entry into force of the amendments to MARPOL Annexes I, II, IV, V and VI on regional arrangements for port reception facilities.

ANNEX

2012 GUIDELINES FOR THE DEVELOPMENT OF A REGIONAL RECEPTION FACILITIES PLAN

Objectives of the Guidelines

1 The Guidelines provide guidance for the development of a Regional Reception Facilities Plan (RRFP) to assist Member States in specific geographic regions of the world in the appropriate and effective implementation of regulation 38 of Annex I, regulation 18 of Annex II, regulation 12 of Annex IV, regulation 8 of Annex V and regulation 17 of Annex VI of MARPOL.

Application of the Guidelines

2 The Guidelines are provided to assist Governments to develop appropriate and effective regional port reception facilities' arrangements that meet the needs of international ships calling at ports and terminals within an identified geographical region. Detailed proposals for regional arrangements (RA) for port reception facilities should be submitted to the Marine Environment Protection Committee (MEPC) for consultation, in accordance with the Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC-MEPC.1/Circ.4, as amended) . Submissions should be co-sponsored by all Member States whose ports and terminals will participate in the proposed RRFP. Before finalizing and implementing the RRFP, the proposing Parties should take into account the comments received as a result of the Committee's review.

Definitions

3.1 *Regional Reception Facilities Plan (RRFP)* – a document developed in accordance with Part 1 of these Guidelines.

3.2 *Regional Ships Waste Reception Centre (RSWRC)* – a port identified in the RRFP where adequate port reception facilities for ship generated wastes and cargo residues regulated under MARPOL are available.

3.3 *Period of review* – time in years after which an RRFP is to be reviewed, with a view to ensuring that the RA for port reception facilities in place under the RRFP continue to meet the needs of stakeholders and the objectives of MARPOL.

Part 1 – Development of a Regional Reception Facilities Plan (RRFP)

4 *Identification of the region to be covered by a RRFP* – For the purposes of an RRFP, a region should include the participating States and the ports that will be covered by the plan. A map should be provided, clearly showing the participating States and all ports within the region. The majority of States participating in an RRFP should be Small Island Developing States (SIDS). Although non-SIDS may participate, they should do so only so far as their ports may be Regional Waste Reception Centres. The obligations of non-SIDS to provide adequate reception facilities in all ports and terminals will not be satisfied by RA.

5 *Identification of the nature of the unique circumstances that impact on the ability to provide adequate port reception facilities* – A clear understanding of such unique circumstances will lead to a logical approach to designing RA that most efficiently address those circumstances. Generally, such circumstances will include practical difficulties on the part of a State to manage its own domestic waste, or a disproportionate additional burden from ships to the domestic waste stream. Distances between ports and suitable waste processing facilities may result in unacceptable costs for transport which may increase the risk of inappropriate treatment. A State's small geographical size may limit the space available to process or dispose of ship generated wastes and cargo residues, as may geomorphology (for example high water table or unstable land areas on low lying islands). A small population may limit the ability to provide staff to receive and process ship generated wastes and cargo residues at times convenient to ships. In addition to these examples, other unique circumstances may be present and should be fully described in the RRFP.

6 In demonstrating a compelling need for RA, alternatives should be explored, costed and assessed in terms of their environmental risk. For example, it may be relatively efficient to receive ship generated wastes and cargo residues in every port, temporarily store it and transport it to a central treatment plant for processing, while being sure to comply with applicable international law on the transboundary movement of hazardous wastes. The cost of such storage, transport and central processing may be less than providing comprehensive processing of ship generated wastes and cargo residues in the vicinity of every port, and may be more easily funded and/or recovered from port users. However, in some regions, the cost of transport may still be prohibitive and the environmental risk associated with the transport of the ship generated wastes and cargo residues may be unacceptable.

7 Note that RA are not intended as a quick solution for short-term problems (e.g. where an individual port has a temporary inability to provide adequate port reception facilities due to equipment breakdown, industrial action, severe weather etc.). RA is intended for ports where the practicality of providing port reception facilities is likely to be challenging for the foreseeable future. A clear understanding of the unique circumstances will also help to identify the areas or issues that may be able to be tackled in the long term to enhance the provision of port reception facilities throughout the region.

8 *Context for RA within a broader approach to waste management and implementation of MARPOL* – RA should be designed to complement other strategies to improving management of ship generated wastes and cargo residues within a region. It should be clearly understood and documented how RA will contribute to efforts to improve the ability of a State to effectively fulfil its obligations under MARPOL, or to accede to MARPOL where a State is not already a Party. Parties proposing RA should ensure that such arrangements would be suited to the vessels calling at ports within the region and would not encourage any illegal discharge into the sea.

9 *International and domestic shipping and the needs of ships operating in the region to discharge ship generated wastes and cargo residues* – Understanding shipping patterns is important to assessing the demand for port reception facilities in a region and in individual ports. The ships calling at each port within a region should be quantified, as well as the existing number of requests for reception of various types of ship generated wastes and cargo residues. Advice on how to approach this task is given in several IMO documents and publications.¹

¹ Refer to resolution MEPC.83(44) on Guidelines for Ensuring the Adequacy of Port Reception Facilities; the Comprehensive Manual on Port Reception Facilities (IMO, 1999); and Circular MEPC.1/Circ.671, Guide to Good Practice for Port Reception Facility Providers and Users.

10 The types of ships operating in a region should be carefully identified as certain ship types generate particular waste streams and/or are subject to specific ship generated wastes and cargo residues management requirements. For example:

- oil and chemical tankers – cargo slops from tankers can reach large volumes with high water content compared to other types of ships' generated wastes which is generally more concentrated;
- oil tankers of less than 150 gross tonnage – in most cases these ships are required to retain all oil on board;
- fishing vessels – damaged or otherwise decommissioned fishing gear can be bulky and contaminated with target and non-target species, including invasive aquatic species and fouling organisms;
- passenger vessels – these generally have larger volumes of garbage and sewage compared to the general merchant fleet; and
- recreational vessels – may lack or have limited pollution prevention equipment, for example smaller holding tanks and garbage storage areas, basic or no sewage treatment, no bilge water treatment.

11 For a successful regional approach, it is also important to understand the overall voyage pattern of ships calling at ports in the region. Therefore, an RRFP should take account of routes and ports of call, including origin and destination outside the region. A ship should not need to deviate from its route for the sole purpose of accessing port reception facilities. Aspects of routing and voyage planning that might affect the amount of ship generated wastes and cargo residues on board ships arriving in a particular region or port, and/or the need to clear ship generated wastes and cargo residues storage spaces prior to the onward journey, include:

- voyage through a Special Area where certain ship generated wastes and cargo residues may not be allowed to be discharged into the sea;
- voyage through a Particularly Sensitive Sea Area where associated protective measures include additional discharge restrictions;
- periods of anchorage prior to entering a port, during which ship generated wastes and cargo residues may accumulate on board; and
- average times spent in each port, which may provide greater or lesser opportunities to discharge ship generated wastes and cargo residues.

12 *Additional considerations* – There may be other factors that influence the demand for port reception facilities in a region or a particular port. For example, quarantine requirements within a region, in a particular port, or at the onward destination, may necessitate particular means of waste handling on board and/or in port (e.g. compulsory discharge to shore, incineration requirements, cleaning or disinfection, fumigation). Increased shipboard collection and segregation of recyclable and reusable materials may also influence demand for port reception facilities.

13 *All ports in the region, including type and available facilities* – The RRFP should contain a thorough assessment of the port reception facilities at all ports and terminals within the region. Several IMO documents and publications provide detailed information on what constitutes adequate facilities and how adequacy can be assessed. An assessment should also be made of any opportunities to provide adequate port reception facilities where such facilities are not already available.

14 *Identification of the selected Regional Ships Waste Reception Centres (RSWRC)* – Based on the foregoing assessments and considerations, an RRFP should identify which ports would be Regional Ships Waste Reception Centres (RSWRC). In general, these should be the ports where facilities are adequate to receive all types of ship generated wastes and cargo residues, including any ship generated wastes and cargo residues remaining on board a ship that has visited a port within the region where ship generated wastes and cargo residues cannot be delivered. RSWRCs should be located so as to be convenient according to the prevailing shipping patterns. This means that ships should not be forced to deviate from their voyage for the sole purpose of delivering ship generated wastes and cargo residues to shore. RSWRCs should be located so that ships can deliver ship generated wastes and cargo residues during normal port visits – that is, where the ship would otherwise have visited for the purposes of unloading, loading, provisioning or lay-up.

15 *Identification of ports with limited facilities (PLF)* – Based on the foregoing assessments, an RRFP should identify which ports have limited facilities (PLF).

16 *Identification of a central point of contact* – A central point of contact should be identified in an RRFP whose role should include:

- maintaining a current version of the RRFP;
- receiving and, where appropriate responding to or redirecting, inquiries about an RRFP;
- facilitating discussions between government, shipping and waste industry stakeholders regarding an RRFP;
- providing consistent information to government, shipping and waste industry stakeholders regarding an RRFP; and
- instigating periodic reviews of an RRFP.

17 Other functions could also be assigned to the central point of contact, depending on the size and complexity of an RRFP.

18 It is suggested that a government agency or authority, rather than an individual person, is nominated as the central point of contact to encourage continuity through any staff changes. The central point of contact should also be able to respond to enquiries in a timely manner. Hours of contact should be at least the business hours of the agency or authority.

19 *Identification of stakeholder roles and responsibilities* – this should list stakeholders and describe their roles and responsibilities in implementing or operating in a region covered by an RRFP. A generic example is provided below, but should be modified and/or expanded upon to address specific arrangements within a region.

Stakeholder	Examples of roles/responsibilities
Regulators (e.g. environment protection agencies, quarantine authorities, maritime authorities)	<ul style="list-style-type: none"> - Enforcing legislation related to the prevention of pollution from ships, management of ship generated wastes and cargo residues. - Licensing waste service providers. - Providing current information to the Organization, including updating GISIS, with respect to port reception facilities.
Port users (e.g. ships agents, masters)	<ul style="list-style-type: none"> - Maintaining an awareness of how to access information on RSWRCs, PLFs and individual port reception facilities in ports. - Providing timely advance notification of the need to access port reception facilities. - Submitting formal reports of alleged inadequacies of port reception facilities where appropriate.
Waste service providers	<ul style="list-style-type: none"> - Operating in accordance with relevant legislation. - Collecting ship generated wastes and cargo residues from vessels and transporting it to storage or disposal point. - Treating, reusing, recycling, destroying or otherwise managing ship generated wastes and cargo residues collected by waste transporters. - Providing current contact details to RRFP point of contact and other stakeholders as necessary.

20 *Period of review* – an RRFP should include a schedule for regular review by the participating States to take into account changing shipping patterns, types of ship generated wastes and cargo residues, local waste infrastructure and capacity improvements and other relevant circumstances. The aim of such a review process is to ensure that the objectives of the Convention and the needs of ships using ports covered by a RRFP continue to be met.

21 *Description of consultations undertaken with stakeholders in developing an RRFP* – this will assist in demonstrating to MEPC and stakeholders that the full range of stakeholder needs, roles and points of view have been thoroughly considered in developing an RRFP.

Part 2 – Consultation with MEPC on a Regional Reception Facilities Plan

22 *Submission to MEPC* – A proposal for a RRFP should be submitted to MEPC, at least twelve months before it is expected to come into effect, for review and comment by the Committee at its next regular session. The proposal should clearly state the date the RA comes into effect. Each submission should be coordinated by the central point of contact and sponsored by all States whose ports are included in the region.

- 23 MEPC should consider the submission according to the following criteria:
- .1 the region of application is clearly defined:
 - all States and ports participating in the RA are identified; and
 - a map of the region is provided;
 - .2 a compelling need for RA has been demonstrated through explanation of the unique circumstances that impact on the Parties' abilities to provide port reception facilities in every port within the region. It has also been clearly demonstrated that RA are the only practical means to meet the requirements of MARPOL. The submission should address the following considerations with respect to compelling need:
 - demonstrated difficulty in managing ship generated wastes and cargo residues in PLFs caused by physical, geographical or logistical circumstances; and
 - satisfactory explanation of alternative options that have been considered and why they are impractical or less efficient than RA;
 - .3 the RRF contributes positively to the ability of the States involved to effectively implement their obligations under MARPOL, or to accede to if not already Party to MARPOL;
 - .4 the identified RSWRCs meet the needs of shipping within the region:
 - ships generally call at one or more RSWRCs during a voyage within a region;
 - ships generally have sufficient holding tanks and storage space for ship generated wastes and cargo residues, to retain for discharge to an RSWRC, discharge to sea in accordance with MARPOL, or discharge at a port outside the region;
 - there has been demonstrated consultation with current and expected port users to identify their needs for port reception facilities; and
 - all PLFs are serviced by one or more RSWRCs;
 - .5 the stakeholder roles are clear and evidence is presented showing that they have been defined in consultation with the stakeholders;
 - .6 a suitable central point of contact has been nominated:
 - appropriate administrative arrangements exist for the central point of contact to effectively carry out the role;
 - consultation with stakeholders on suitability of central point of contact has been demonstrated; and
 - telephone, fax and e-mail contact details are provided; and
 - .7 the specified period of review, as outlined in the proposal, is appropriate given anticipated changes in shipping patterns during the period.

24 All substantive comments on the proposed RRFP should be reflected in the report of the Committee.

25 When finalizing the RRFP, the Parties proposing the RRFP should take the MEPC comments into account to enhance the ability of the RA to meet the needs of shipping. In addressing the comments, the Parties proposing the RRFP may consider actions including, but not limited to, providing additional details in the RRFP, coordinating further with stakeholders, reconfiguring RSWRCs and/or administrative arrangements, and identifying future upgrades to existing facilities. The final RRFP should describe how the MEPC comments have been taken into account.

Part 3 – Communication of information

26 Article 11(1)(d) of MARPOL requires Parties to communicate to the Organization a list of port reception facilities including their location, capacity and available waste management services and other characteristics. In addition, there are requirements to notify the Organization how a RRFP takes into account these Guidelines and the particulars of the RSWRCs. Accordingly, a copy of the finalized RRFP should be forwarded to the Organization so that the Organization can notify Parties of the receipt of such information and circulate it to all Parties as required by Article 11(2).

27 In addition, all port reception facility contact details for each port should be kept up to date in GISIS, and a link to a website where the RRFP may be accessed should be provided in GISIS. Contact details for the central point of contact for the RRFP should be included. The primary responsibility for updating port reception facility details in GISIS remains with the port State, however, it may be prudent to assign a role to the central point of contact to monitor currency and encourage regular updates.

Part 4 – Alleged inadequate port reception facilities and regional arrangements

28 A regional system based on MEPC/Circ.470 "Waste reception facility reporting requirements" should be established among port States within a region for handling formal reports of alleged inadequate port reception facilities received in the format set out in MEPC/Circ.469/Rev.1 – "Revised consolidated format for reporting alleged inadequacies of port reception facilities". The primary responsibility for responding to formal reports of alleged inadequate port reception facilities remains with the port State, however, a regional system may include providing a copy of all relevant correspondence to the RRFP central point of contact, or may include more proactive involvement of the RRFP central point of contact in monitoring the progress of any reports to ensure that reports of inadequacy are addressed by both the port State and the flag State where notifications and responses are required.

ANNEX 27

**DRAFT ASSEMBLY RESOLUTION ON THE
2013 GUIDELINES FOR THE DESIGNATION OF SPECIAL AREAS
UNDER MARPOL 73/78**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety, the prevention and control of marine pollution from ships and other matters concerning the effect of shipping on the marine environment,

RECALLING ALSO resolution A.720(17) by which the Assembly adopted the Guidelines for the Designation of Special Areas, as set out in chapter 2 of the Annex to that resolution,

RECALLING FURTHER resolution A.927(22), by which it adopted revised Guidelines for the Designation of Special Areas under MARPOL 73/78, as set out in Annex 1 to that resolution, which superseded chapter 2 of the Annex to resolution A.720(17),

NOTING resolution A.982(24) by which it revoked Annex 2 of resolution A.927(22),

NOTING ALSO that the Marine Environment Protection Committee adopted, by resolution MEPC.200(62), amendments to MARPOL Annex IV on Prevention of Pollution by Sewage from Ships, to include the possibility of establishing "Special Areas" for the prevention of such pollution from passenger ships,

NOTING FURTHER that, as a result of the amendments to MARPOL Annex IV, consequential amendments are necessary to the revised Guidelines for the Designation of Special Areas under MARPOL 73/78 as adopted by resolution A.927(22),

HAVING CONSIDERED the recommendations made by the Marine Environment Protection Committee at its sixty-third session:

1. ADOPTS the 2013 Guidelines for the Designation of Special Areas under MARPOL 73/78, as set out in the annex, which supersede annex 1 to resolution A.927(22);
2. INVITES Governments to apply the 2013 Guidelines when proposing the designation of a Special Area under MARPOL 73/78;
3. REVOKES resolution A.927(22).

ANNEX

2013 GUIDELINES FOR THE DESIGNATION OF SPECIAL AREAS UNDER MARPOL 73/78

1 INTRODUCTION

1.1 The purpose of these Guidelines is to provide guidance to Contracting Parties to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78) in the formulation and submission of applications for the designation of Special Areas under Annexes I, II, IV and V to the Convention. These Guidelines also ensure that all interests – those of the coastal State, flag State, and the environmental and shipping communities – are thoroughly considered on the basis of relevant scientific, technical, economic, and environmental information and provide for the assessment of such applications by IMO. Contracting Parties should also review and comply with the applicable provisions of Annexes I, II, IV and V to the Convention in addition to these Guidelines.

2 ENVIRONMENTAL PROTECTION FOR SPECIAL AREAS UNDER MARPOL 73/78

General

2.1 MARPOL 73/78, in Annexes I, II, IV and V, defines certain sea areas as Special Areas in relation to the type of pollution covered by each Annex. A Special Area is defined as "a sea area where for recognized technical reasons in relation to its oceanographical and ecological conditions and to the particular character of its traffic, the adoption of special mandatory methods for the prevention of sea pollution by oil, noxious liquid substances, sewage, or garbage, as applicable, is required." Under the Convention, these Special Areas are provided with a higher level of protection than other areas of the sea.

2.2 A Special Area may encompass the maritime zones of several States, or even an entire enclosed or semi-enclosed area. Special Area designation should be made on the basis of the criteria and characteristics listed in paragraphs 2.3 to 2.6 to avoid the proliferation of such areas.

Criteria for the designation of a Special Area

2.3 The criteria which must be satisfied for an area to be given Special Area status are grouped into the following categories:

- oceanographic conditions;
- ecological conditions; and
- vessel traffic characteristics.

Generally, information on each category should be provided in a proposal for designation. Additional information that does not fall within these categories may also be considered.

Oceanographic conditions

2.4 The area possesses oceanographic conditions which may cause the concentration or retention of harmful substances in the waters or sediments of the area, including:

- .1 particular circulation patterns (e.g. convergence zones and gyres) or temperature and salinity stratification;
- .2 long residence time caused by low flushing rates;
- .3 extreme ice state; and
- .4 adverse wind conditions.

Ecological conditions

2.5 Conditions indicating that protection of the area from harmful substances is needed to preserve:

- .1 depleted, threatened or endangered marine species;
- .2 areas of high natural productivity (such as fronts, upwelling areas, gyres);
- .3 spawning, breeding and nursery areas for important marine species and areas representing migratory routes for sea-birds and marine mammals;
- .4 rare or fragile ecosystems such as coral reefs, mangroves, seagrass beds and wetlands; and
- .5 critical habitats for marine resources including fish stocks and/or areas of critical importance for the support of large marine ecosystems.

Vessel traffic characteristics

2.6 The sea area is used by ships to an extent that the discharge of harmful substances by ships when operating in accordance with the requirements of MARPOL 73/78 for areas other than Special Areas would be unacceptable in the light of the existing oceanographic and ecological conditions in the area.

Implementation

2.7 The requirements of a Special Area designation can only become effective when adequate reception facilities are provided for ships in accordance with the provisions of MARPOL 73/78.

Other considerations

2.8 The threat to amenities posed by the discharge of harmful substances from ships operating in accordance with the MARPOL 73/78 requirements for areas other than Special Areas may strengthen the argument for designating an area a Special Area.

2.9 The extent to which the condition of a sea area is influenced by other sources of pollution such as pollution from land-based sources, dumping of wastes and dredged materials, as well as atmospheric deposition should be taken into account. Proposals would be strengthened if measures are being, or will be, taken to prevent, reduce and control pollution of the marine environment by these sources of pollution.

2.10 Consideration should be given to the extent to which a management regime is used in managing the area. Proposals for designation of a Special Area would be strengthened if measures are being taken to manage the area's resources.

3 PROCEDURES FOR THE DESIGNATION OF A SPECIAL AREA

3.1 A proposal to designate a given sea area as a Special Area should be submitted to the Marine Environment Protection Committee (MEPC) for its consideration in accordance with the rules adopted by the IMO for submission of papers.

3.2 A proposal to designate a sea area as a Special Area should contain:

- .1 a draft amendment to MARPOL 73/78 as the formal basis for the designation; and
- .2 a background document setting forth all the relevant information to explain the need for the designation.

3.3 The background document should contain the following information:

- .1 a definition of the area proposed for designation, including its precise geographical coordinates. A reference chart is essential.
- .2 an indication of the type of Special Area proposed. Proposals may be made simultaneously with respect to Annexes I, II, IV and V of MARPOL 73/78, but proposals for each Annex should be presented and evaluated separately.
- .3 a general description of the area, including information regarding:
 - oceanography
 - ecological characteristics
 - social and economic value
 - scientific and cultural significance
 - environmental pressures from ship-generated pollution
 - other environmental pressures
 - measures already taken to protect the area.

This general description may be supported by annexes containing more detailed material, or by references to readily available documentation.

- .1 an analysis of how the sea area in question fulfils the criteria for the designation of Special Areas set out in paragraphs 2.3 to 2.6;
- .2 information on the availability of adequate reception facilities in the proposed Special Area.

3.4 The formal amendment procedure applicable to proposals for the designation of Special Areas is set out in article 16 of MARPOL 73/78.

Detailed discharge requirements

3.5 For detailed requirements relating to discharges under Annexes I, II, IV and V to MARPOL 73/78, please refer to the latest version of the Convention in force.

ANNEX 28

DRAFT AMENDMENTS TO THE IBC CODE

The existing text of chapters 17, 18 and 19 of the IBC Code is replaced by the following:

Chapter 17

Summary of minimum requirements

Mixtures of noxious liquid substances presenting pollution hazards only, and which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II, may be carried under the requirements of the Code applicable to the appropriate position of the entry in this chapter for Noxious Liquid Substances, not otherwise specified (n.o.s.).

EXPLANATORY NOTES

Product name (column a)	The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code.
UN Number (column b)	Deleted
Pollution Category (column c)	The letter X, Y, Z means the Pollution Category assigned to each product under MARPOL Annex II
Hazards (column d)	"S" means that the product is included in the Code because of its safety hazards; "P" means that the product is included in the Code because of its pollution hazards; and "S/P" means that the product is included in the Code because of both its safety and pollution hazards.
Ship type (column e)	1: ship type 1 (2.1.2.1) 2: ship type 2 (2.1.2.2) 3: ship type 3 (2.1.2.3)
Tank type (column f)	1: independent tank (4.1.1) 2: integral tank (4.1.2) G: gravity tank (4.1.3) P: pressure tank (4.1.4)
Tank vents (column g)	Cont.: controlled venting Open: open venting
Tank environmental control (column h)	Inert: inerting (9.1.2.1) Pad: liquid or gas padding (9.1.2.2) Dry: drying (9.1.2.3) Vent: natural or forced ventilation (9.1.2.4) No: no special requirements under this Code
Electrical equipment (column i)	Temperature classes (i') T1 to T6 - indicates no requirements blank no information Apparatus group (ii') IIA, IIB or IIC: - indicates no requirements blank no information Flashpoint (iii') Yes: flashpoint exceeding 60°C (10.1.6) No: flashpoint not exceeding 60°C (10.1.6) NF: non-flammable product (10.1.6)

Gauging (column j)	O: open gauging (13.1.1.1) R: restricted gauging (13.1.1.2) C: closed gauging (13.1.1.3)
Vapour detection (column k)	F: flammable vapours T: toxic vapours No: indicates no special requirements under this Code
Fire protection (column l)	A: alcohol-resistant foam or multi-purpose foam B: regular foam; encompasses all foams that are not of an alcohol-resistant type, including fluoro-protein and aqueous-film-forming foam (AFFF) C: water-spray D: dry chemical No: no special requirements under this Code
Materials of construction (column m)	Deleted
Emergency equipment (column n)	Yes: see 14.3.1 No: no special requirements under this Code
Specific and operational requirements (column o)	When specific reference is made to chapters 15 and/or 16, these requirements shall be additional to the requirements in any other column

Note: The following pages are numbered according to the database generation.

Chapter 17 of the IBC Code

a	c	d	e	f	g	h	i'	i''	i'''	j	k	l	n	o
Acetic acid	Z	S/P	3	2G	Cont	No	T1	IIA	No	R	F	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9
Acetic anhydride	Z	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6
Acetochlor	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Acetone cyanohydrin	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	A	Yes	15.12, 15.13, 15.17, 15.18, 15.19, 16.6.1, 16.6.2, 16.6.3
Acetonitrile	Z	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.12, 15.19.6
Acetonitrile (Low purity grade)	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	FT	AC	No	15.12.3, 15.12.4, 15.19.6
Acid oil mixture from soyabean, corn (maize) and sunflower oil refining	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Acrylamide solution (50% or less)	Y	S/P	2	2G	Open	No			NF	C	No	No	No	15.12.3, 15.13, 15.19.6, 16.2.9, 16.6.1
Acrylic acid	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.13, 15.17, 15.19, 16.2.9, 16.6.1
Acrylonitrile	Y	S/P	2	2G	Cont	No	T1	IIB	No	C	FT	A	Yes	15.12, 15.13, 15.17, 15.19
Acrylonitrile-Styrene copolymer dispersion in polyether polyol	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Adiponitrile	Z	S/P	3	2G	Cont	No		IIB	Yes	R	T	A	No	16.2.9
Alachlor technical (90% or more)	X	S/P	2	2G	Open	No			Yes	O	No	AC	No	15.19.6, 16.2.9
Alcohol (C9-C11) poly (2.5-9) ethoxylate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C6-C17) (secondary) poly(3-6)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C6-C17) (secondary) poly(7-12)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Alcohol (C12-C16) poly(1-6)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C12-C16) poly(20+)ethoxylates	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohol (C12-C16) poly(7-19)ethoxylates	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Alcohols (C13+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Alcohols (C12+), primary, linear	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Alcohols (C8-C11), primary, linear and essentially linear	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Alcohols (C12-C13), primary, linear and essentially linear	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Alcohols (C14-C18), primary, linear and essentially linear	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Alkanes (C6-C9)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Iso- and cyclo-alkanes (C10-C11)	Y	P	3	2G	Cont	No	-	-	No	R	F	A	No	15.19.6
Iso- and cyclo-alkanes (C12+)	Y	P	3	2G	Cont	No	-	-	No	R	F	A	No	
Alkanes(C10-C26), linear and branched, (flashpoint >60°C)	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6

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n-Alkanes (C10+)	Y	P	3	2G	Cont	No	-	-	No	R	F	A	No	15.19.6
Alkaryl polyethers (C9-C20)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Alkenoic acid, polyhydroxy ester borated	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6
Alkenyl (C11+) amide	X	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Alkenyl (C16-C20) succinic anhydride	Z	S/P	3	2G	Cont	No			Yes	C	T	No	Yes	15.12, 15.17, 15.19
Alkyl acrylate-vinylpyridine copolymer in toluene	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.9
Alkylaryl phosphate mixtures (more than 40% Diphenyl tolyl phosphate, less than 0.02% ortho-isomers)	X	S/P	1	2G	Cont	No	T1	IIA	Yes	C	T	ABC	No	15.12, 15.17, 15.19
Alkylated (C4-C9) hindered phenols	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	BD	No	15.19.6, 16.2.6, 16.2.9
Alkylbenzene, alkylindane, alkylindene mixture (each C12-C17)	Z	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Alkyl benzene distillation bottoms	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Alkylbenzene mixtures (containing at least 50% of toluene)	Y	S/P	3	2G	Cont	No	T1	IIA	No	C	FT	ABC	No	15.12, 15.17, 15.19.6
Alkyl (C3-C4) benzenes	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Alkyl (C5-C8) benzenes	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Alkyl(C9+)benzenes	Y	P	3	2G	Open	No	-	-	Yes	O	No	AB	No	
Alkyl (C11-C17) benzene sulphonic acid	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Alkylbenzene sulphonic acid, sodium salt solution	Y	S/P	2	2G	Open	No	-	-	NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Alkyl (C12+) dimethylamine	X	S/P	1	2G	Cont	No	-	-	Yes	C	T	BCD	Yes	15.12, 15.17, 15.19
Alkyl dithiocarbamate (C19-C35)	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Alkyldithiothiadiazole (C6-C24)	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Alkyl ester copolymer (C4-C20)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Alkyl (C8-C10)/(C12-C14):(40% or less/60% or more) polyglucoside solution (55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Alkyl (C8-C10)/(C12-C14):(60% or more/40% or less) polyglucoside solution(55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	16.2.6, 16.2.9
Alkyl (C7-C9) nitrates	Y	S/P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 15.20, 16.6.1, 16.6.2, 16.6.3
Alkyl(C7-C11)phenol poly(4-12) ethoxylate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Alkyl (C8-C40) phenol sulphide	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Alkyl (C8-C9) phenylamine in aromatic solvents	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6
Alkyl (C9-C15) phenyl propoxylate	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Alkyl (C8-C10) polyglucoside solution (65% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	16.2.6
Alkyl (C8-C10)/(C12-C14):(50%/50%) polyglucoside solution (55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	16.2.6, 16.2.9

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Alkyl (C12-C14) polyglucoside solution (55% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.9
Alkyl(C12-C16) propoxyamine ethoxylate	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	AC	Yes	15.12, 15.17, 15.19, 16.2.6
Alkyl(C10-C20, saturated and unsaturated) phosphite	Y	P	2	2G	Open	No			Yes	O	No	A	No	16.2.9
Alkyl sulphonic acid ester of phenol	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Alkyl (C18+) toluenes	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.9
Alkyl(C18-C28)toluenesulfonic acid	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.17, 15.19, 16.2.6, 16.2.9
Alkyl(C18-C28)toluenesulfonic acid, calcium salts, borated	Y	S/P	3	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6
Alkyl (C18-C28) toluenesulfonic acid, calcium salts, low overbase	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6
Alkyl (C18-C28) toluenesulphonic acid, calcium salts, high overbase	Y	S/P	3	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6
Allyl alcohol	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	A	Yes	15.12, 15.17, 15.19
Allyl chloride	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	A	Yes	15.12, 15.17, 15.19
Aluminium chloride/Hydrogen chloride solution	Y	S/P	2	2G	Cont	No	-	-	NF	C	T	No	Yes	15.11, 15.12, 15.17, 15.19
Aluminium sulphate solution	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
2-(2-Aminoethoxy) ethanol	Z	S/P	3	2G	Open	No			Yes	O	No	AD	No	15.19.6
Aminoethyldiethanolamine/Aminoethylethanolamine solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Aminoethyl ethanolamine	Z	S/P	3	2G	Open	No	T2	IIA	Yes	O	No	A	No	
N-Aminoethylpiperazine	Z	S/P	3	2G	Cont	No			Yes	R	T	A	No	15.19.6, 16.2.9
2-Amino-2-methyl-1-propanol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ammonia aqueous (28% or less)	Y	S/P	2	2G	Cont	No			NF	R	T	ABC	Yes	15.19.6
Ammonium chloride solution (less than 25%) (*)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	
Ammonium hydrogen phosphate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ammonium lignosulphonate solutions	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Ammonium nitrate solution (93% or less)	Z	S/P	2	1G	Open	No			NF	O	No	No	No	15.2, 15.11.4, 15.11.6, 15.18, 15.19.6, 16.2.9
Ammonium polyphosphate solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Ammonium sulphate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ammonium sulphide solution (45% or less)	Y	S/P	2	2G	Cont	No	T4	IIB	No	C	FT	A	Yes	15.12, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3
Ammonium thiosulphate solution (60% or less)	Z	P	3	2G	Open	No			NF	O	No	No	No	16.2.9
Amyl acetate (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
n-Amyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
Amyl alcohol, primary	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	

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sec-Amyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
tert-Amyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	
tert-Amyl methyl ether	X	P	2	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6
Aniline	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	A	No	15.12, 15.17, 15.19
Aryl polyolefins (C11-C50)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Aviation alkylates (C8 paraffins and iso-paraffins BPT 95 - 120°C)	X	P	2	2G	Cont	No	T4	IIA	No	R	F	B	No	15.19.6
Barium long chain (C11-C50) alkaryl sulphonate	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.12.3, 15.19, 16.2.6, 16.2.9
Benzene and mixtures having 10% benzene or more (i)	Y	S/P	3	2G	Cont	No	T1	IIA	No	C	FT	AB	No	15.12.1, 15.17, 15.19.6, 16.2.9
Benzene sulphonyl chloride	Z	S/P	3	2G	Cont	No			Yes	R	T	AD	No	15.19.6, 16.2.9
Benzenetricarboxylic acid, trioctyl ester	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Benzyl acetate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Benzyl alcohol	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Benzyl chloride	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	AB	Yes	15.12, 15.13, 15.17, 15.19
Bio-fuel blends of Diesel/gas oil and Alkanes (C10-C26), linear and branched with a flashpoint >60°C (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and FAME (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Diesel/gas oil and vegetable oil (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	No	15.12, 15.17, 15.19.6
Bio-fuel blends of Gasoline and Ethyl alcohol (>25% but <99% by volume)	X	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	A	No	15.12, 15.17, 15.19.6
Brake fluid base mix: Poly(2-8)alkylene (C2-C3) glycols/Polyalkylene (C2-C10) glycols monoalkyl (C1-C4) ethers and their borate esters	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Bromochloromethane	Z	S/P	3	2G	Cont	No			NF	R	T	No	No	
Butene oligomer	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Butyl acetate (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Butyl acrylate (all isomers)	Y	S/P	2	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
tert-Butyl alcohol	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
Butylamine (all isomers)	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.12, 15.17, 15.19.6
Butylbenzene (all isomers)	X	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Butyl benzyl phthalate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Butyl butyrate (all isomers)	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Butyl/Decyl/Cetyl/Eicosyl methacrylate mixture	Y	S/P	2	2G	Cont	No			Yes	R	No	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2

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Butylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
1,2-Butylene oxide	Y	S/P	3	2G	Cont	Inert	T2	IIB	No	R	F	AC	No	15.8.1 to 15.8.7, 15.8.12, 15.8.13, 15.8.16, 15.8.17, 15.8.18, 15.8.19, 15.8.21, 15.8.25, 15.8.27, 15.8.29, 15.19.6
n-Butyl ether	Y	S/P	3	2G	Cont	Inert	T4	IIB	No	R	FT	A	No	15.4.6, 15.12, 15.19.6
Butyl methacrylate	Z	S/P	3	2G	Cont	No		IIA	No	R	FT	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2
n-Butyl propionate	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Butyraldehyde (all isomers)	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	A	No	15.19.6
Butyric acid	Y	S/P	3	2G	Cont	No			Yes	R	No	A	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6
gamma-Butyrolactone	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
Calcium alkaryl sulphonate (C11-C50)	Z	S/P	3	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19
Calcium alkyl (C10-C28) salicylate	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Calcium hydroxide slurry	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Calcium hypochlorite solution (15% or less)	Y	S/P	2	2G	Cont	No			NF	R	No	No	No	15.19.6
Calcium hypochlorite solution (more than 15%)	X	S/P	1	2G	Cont	No			NF	R	No	No	No	15.19, 16.2.9
Calcium lignosulphonate solutions	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Calcium long-chain alkyl(C5-C10) phenate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Calcium long-chain alkyl(C11-C40) phenate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Calcium long-chain alkyl phenate sulphide (C8-C40)	Y	S/P	2	2G	Open	No			Yes	O	No	ABC	No	15.19.6, 16.2.6
Calcium long-chain alkyl salicylate (C13+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Calcium long-chain alkyl (C18-C28) salicylate	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Calcium nitrate/Magnesium nitrate/Potassium chloride solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
epsilon-Caprolactam (molten or aqueous solutions)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Carbolic oil	Y	S/P	2	2G	Cont	No			Yes	C	FT	A	No	15.12, 15.19.6, 16.2.9
Carbon disulphide	Y	S/P	2	1G	Cont	Pad+ine rt	T6	IIC	No	C	FT	C	Yes	15.3, 15.12, 15.19
Carbon tetrachloride	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.12, 15.17, 15.19.6
Cashew nut shell oil (untreated)	Y	S/P	2	2G	Cont	No			Yes	R	T	AB	No	15.19.6, 16.2.6, 16.2.9
Castor oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Cesium formate solution (*)	Y	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	15.19.6
Cetyl/Eicosyl methacrylate mixture	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.13, 15.19.6, 16.2.9, 16.6.1, 16.6.2
Chlorinated paraffins (C10-C13)	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6

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Chlorinated paraffins (C14-C17) (with 50% chlorine or more, and less than 1% C13 or shorter chains)	X	P	1	2G	Open	No	-	-	Yes	O	No	A	No	15.19
Chloroacetic acid (80% or less)	Y	S/P	2	2G	Cont	No			NF	C	No	No	No	15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.19, 16.2.9
Chlorobenzene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.19.6
Chloroform	Y	S/P	3	2G	Cont	No			NF	R	T	No	Yes	15.12, 15.19.6
Chlorohydrins (crude)	Y	S/P	2	2G	Cont	No		IIA	No	C	FT	A	No	15.12, 15.19
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt solution	Y	P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
o-Chloronitrobenzene	Y	S/P	2	2G	Cont	No			Yes	C	T	ABD	No	15.12, 15.17, 15.18, 15.19, 16.2.6, 16.2.9
1-(4-Chlorophenyl)-4,4- dimethyl-pentan-3-one	Y	P	2	2G	Open	No			Yes	O	No	ABD	No	15.19.6, 16.2.6, 16.2.9
2- or 3-Chloropropionic acid	Z	S/P	3	2G	Open	No			Yes	O	No	A	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 16.2.9
Chlorosulphonic acid	Y	S/P	1	2G	Cont	No			NF	C	T	No	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.12, 15.16.2, 15.19
m-Chlorotoluene	Y	S/P	2	2G	Cont	No	T4	IIA	No	R	FT	AB	No	15.19.6
o-Chlorotoluene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.19.6
p-Chlorotoluene	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.19.6, 16.2.9
Chlorotoluenes (mixed isomers)	Y	S/P	2	2G	Cont	No	T4	IIA	No	R	FT	AB	No	15.19.6
Choline chloride solutions	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Citric acid (70% or less)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Coal tar	X	S/P	2	2G	Cont	No	T2	IIA	Yes	R	No	BD	No	15.19.6, 16.2.6, 16.2.9
Coal tar naphtha solvent	Y	S/P	2	2G	Cont	No	T3	IIA	No	R	FT	AD	No	15.19.6, 16.2.9
Coal tar pitch (molten)	X	S/P	2	1G	Cont	No	T2	IIA	Yes	R	No	BD	No	15.19.6, 16.2.6, 16.2.9
Cocoa butter	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Coconut oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Coconut oil fatty acid	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Coconut oil fatty acid methyl ester	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Copper salt of long chain (C17+) alkanolic acid	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Corn Oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Cotton seed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Creosote (coal tar)	X	S/P	2	2G	Cont	No	T2	IIA	Yes	R	T	AD	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Cresols (all isomers)	Y	S/P	2	2G	Open	No	T1	IIA	Yes	O	No	AB	No	15.19.6, 16.2.9
Cresylic acid, dephenolized	Y	S/P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6

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Cresylic acid, sodium salt solution	Y	S/P	2	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.9
Crotonaldehyde	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	A	Yes	15.12, 15.17, 15.19.6
1,5,9-Cyclododecatriene	X	S/P	1	2G	Cont	No			Yes	R	T	A	No	15.13, 15.19, 16.6.1, 16.6.2
Cycloheptane	X	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Cyclohexane	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9
Cyclohexanol	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Cyclohexanone	Z	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.19.6
Cyclohexanone, Cyclohexanol mixture	Y	S/P	3	2G	Cont	No			Yes	R	FT	A	No	15.19.6
Cyclohexyl acetate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Cyclohexylamine	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	AC	No	15.19.6
1,3-Cyclopentadiene dimer (molten)	Y	P	2	2G	Cont	No	T1	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Cyclopentane	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Cyclopentene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
p-Cymene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Decahydronaphthalene	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	AB	No	15.19.6
Decanoic acid	X	P	2	2G	Open	No			Yes	O	No	A	No	16.2.9
Decene	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Decyl acrylate	X	S/P	1	2G	Open	No	T3	IIA	Yes	O	No	ACD	No	15.13, 15.19, 16.6.1, 16.6.2
Decyl alcohol (all isomers)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9(e)
Decyl/Dodecyl/Tetradecyl alcohol mixture	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Decyloxytetrahydrothiophene dioxide	X	S/P	2	2G	Cont	No			Yes	R	T	A	No	15.19.6, 16.2.9
Diacetone alcohol	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
Dialkyl (C8-C9) diphenylamines	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Dialkyl (C7-C13) phthalates	X	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Dialkyl (C9 - C10) phthalates	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Dialkyl thiophosphates sodium salts solution	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	AC	No	15.12.3, 15.12.4, 15.19.6, 16.2.9
Dibromomethane	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12.3, 15.19
Dibutylamine	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	ACD	No	15.19.6
Dibutyl hydrogen phosphonate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
2,6-Di-tert-butylphenol	X	P	1	2G	Open	No	-	-	Yes	O	No	ABC D	No	15.19, 16.2.9

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Dibutyl phthalate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Dibutyl terephthalate	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.9
Dichlorobenzene (all isomers)	X	S/P	2	2G	Cont	No	T1	IIA	Yes	R	T	ABD	No	15.19.6
3,4-Dichloro-1-butene	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	ABC	Yes	15.12.3, 15.17, 15.19.6
1,1-Dichloroethane	Z	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.19.6
Dichloroethyl ether	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.19.6
1,6-Dichlorohexane	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	AB	No	15.19.6
2,2'-Dichloroisopropyl ether	Y	S/P	2	2G	Cont	No			Yes	R	T	ACD	No	15.12, 15.17, 15.19
Dichloromethane	Y	S/P	3	2G	Cont	No	T1	IIA	Yes	R	T	No	No	15.19.6
2,4-Dichlorophenol	Y	S/P	2	2G	Cont	Dry			Yes	R	T	A	No	15.19.6, 16.2.6, 16.2.9
2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution (70% or less)	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
1,1-Dichloropropane	Y	S/P	2	2G	Cont	No	T4	IIA	No	R	FT	AB	No	15.12, 15.19.6
1,2-Dichloropropane	Y	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.12, 15.19.6
1,3-Dichloropropene	X	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	AB	Yes	15.12, 15.17, 15.18, 15.19
Dichloropropene/Dichloropropane mixtures	X	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	ABD	Yes	15.12, 15.17, 15.18, 15.19
2,2-Dichloropropionic acid	Y	S/P	3	2G	Cont	Dry			Yes	R	No	A	No	15.11.2, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9
Dicyclopentadiene, Resin Grade, 81-89%	Y	S/P	2	2G	Cont	Inert	T2	IIB	No	C	FT	ABC	Yes	15.12, 15.13, 15.17, 15.19
Diethanolamine	Y	S/P	3	2G	Open	No	T1	IIA	Yes	O	No	A	No	16.2.6, 16.2.9
Diethylamine	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	A	Yes	15.12, 15.19.6
Diethylaminoethanol	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AC	No	15.19.6
2,6-Diethylaniline	Y	S/P	3	2G	Open	No			Yes	O	No	BCD	No	15.19.6, 16.2.9
Diethylbenzene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Diethylene glycol dibutyl ether	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Diethylene glycol diethyl ether	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Diethylene glycol phthalate	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Diethylenetriamine	Y	S/P	3	2G	Open	No	T2	IIA	Yes	O	No	A	No	15.19.6
Diethylenetriaminepentaacetic acid, pentasodium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Diethyl ether	Z	S/P	2	1G	Cont	Inert	T4	IIB	No	C	FT	A	Yes	15.4, 15.14, 15.19

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Di-(2-ethylhexyl) adipate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
Di-(2-ethylhexyl) phosphoric acid	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.19.6
Diethyl phthalate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Diethyl sulphate	Y	S/P	2	2G	Cont	No			Yes	C	T	A	No	15.19.6
Diglycidyl ether of bisphenol A	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Diglycidyl ether of bisphenol F	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Diheptyl phthalate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
Di-n-hexyl adipate	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19
Dihexyl phthalate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
Diisobutylamine	Y	S/P	2	2G	Cont	No	T4	IIB	No	R	FT	ACD	No	15.12.3, 15.19.6
Diisobutylene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Diisobutyl ketone	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Diisobutyl phthalate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Diisononyl adipate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Diisooctyl phthalate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Diisopropanolamine	Z	S/P	3	2G	Open	No	T2	IIA	Yes	O	No	A	No	16.2.9
Diisopropylamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	A	Yes	15.12, 15.19
Diisopropylbenzene (all isomers)	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Diisopropyl-naphthalene	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
N,N-Dimethylacetamide	Z	S/P	3	2G	Cont	No	-	-	Yes	C	T	ACD	No	15.12, 15.17
N,N-Dimethylacetamide solution (40% or less)	Z	S/P	3	2G	Cont	No			Yes	R	T	B	No	15.12.1, 15.17
Dimethyl adipate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Dimethylamine solution (45% or less)	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	ACD	No	15.12, 15.19.6
Dimethylamine solution (greater than 45% but not greater than 55%)	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	ACD	Yes	15.12, 15.17, 15.19
Dimethylamine solution (greater than 55% but not greater than 65%)	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	ACD	Yes	15.12, 15.14, 15.17, 15.19
N,N-Dimethylcyclohexylamine	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	AC	No	15.12, 15.17, 15.19.6
Dimethyl disulphide	Y	S/P	2	2G	Cont	No	T3	IIA	No	R	FT	B	No	15.12.3, 15.12.4, 15.19.6
N,N-Dimethyldodecylamine	X	S/P	1	2G	Open	No			Yes	O	No	B	No	15.19
Dimethylethanolamine	Y	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	AD	No	15.19.6
Dimethylformamide	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	AD	No	15.19.6
Dimethyl glutarate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6

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Dimethyl hydrogen phosphite	Y	S/P	3	2G	Cont	No			Yes	R	T	AD	No	15.12.1, 15.19.6
Dimethyl octanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Dimethyl phthalate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Dimethylpolysiloxane	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
2,2-Dimethylpropane-1,3-diol (molten or solution)	Z	P	3	2G	Open	No	-	-	Yes	O	No	AB	No	16.2.9
Dimethyl succinate	Y	P	3	2G	Open	No			Yes	O	No	A	No	16.2.9
Dinitrotoluene (molten)	X	S/P	2	2G	Cont	No			Yes	C	T	A	No	15.12, 15.17, 15.19, 15.21, 16.2.6, 16.2.9, 16.6.4
Dinonyl phthalate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Diocetyl phthalate	X	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
1,4-Dioxane	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	FT	A	No	15.12, 15.19, 16.2.9
Dipentene	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Diphenyl	X	P	2	2G	Open	No			Yes	O	No	B	No	15.19.6, 16.2.6, 16.2.9
Diphenylamine (molten)	Y	P	2	2G	Open	No	-	-	Yes	O	No	BD	No	15.19.6, 16.2.6, 16.2.9
Diphenylamine, reaction product with 2,2,4-Trimethylpentene	Y	S/P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6
Diphenylamines, alkylated	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Diphenyl/Diphenyl ether mixtures	X	P	2	2G	Open	No			Yes	O	No	B	No	15.19.6, 16.2.9
Diphenyl ether	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Diphenyl ether/Diphenyl phenyl ether mixture	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Diphenylmethane diisocyanate	Y	S/P	2	2G	Cont	Dry	-	-	Yes (a)	C	T(a)	ABC (b)D	No	15.12, 15.16.2, 15.17, 15.19.6, 16.2.6, 16.2.9
Diphenylol propane-epichlorohydrin resins	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Di-n-propylamine	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	A	No	15.12.3, 15.19.6
Dipropylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Dithiocarbamate ester (C7-C35)	X	P	2	2G	Open	No			Yes	O	No	AD	No	15.19.6, 16.2.9
Ditridecyl adipate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Ditridecyl phthalate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Diundecyl phthalate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Dodecane (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	AB	No	15.19.6
tert-Dodecanethiol	X	S/P	1	2G	Cont	No	-	-	Yes	C	T	ABD	Yes	15.12, 15.17, 15.19
Dodecene (all isomers)	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Dodecyl alcohol	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9

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Dodecylamine/Tetradecylamine mixture	Y	S/P	2	2G	Cont	No			Yes	R	T	AD	No	15.19.6, 16.2.9
Dodecylbenzene	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	AB	No	15.12.3, 15.12.4, 15.19.6
Dodecyl diphenyl ether disulphonate solution	X	S/P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6
Dodecyl hydroxypropyl sulphide	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Dodecyl methacrylate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.13, 15.19.6
Dodecyl/Octadecyl methacrylate mixture	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.13, 15.19.6, 16.2.6, 16.6.1, 16.6.2
Dodecyl/Pentadecyl methacrylate mixture	Y	S/P	2	2G	Open	No			Yes	O	No	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2
Dodecyl phenol	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Dodecyl Xylene	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Drilling brines (containing zinc salts)	X	P	2	2G	Open	No			Yes	O	No	No	No	15.19.6
Drilling brines, including:calcium bromide solution, calcium chloride solution and sodium chloride solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Epichlorohydrin	Y	S/P	2	2G	Cont	No		IIB	No	C	FT	A	Yes	15.12, 15.17, 15.19
Ethanolamine	Y	S/P	3	2G	Open	No	T2	IIA	Yes	O	FT	A	No	16.2.9
2-Ethoxyethyl acetate	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Ethoxylated long chain (C16+) alkyloxyalkylamine	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	AB	No	15.19.6, 16.2.9
Ethoxylated tallow amine (> 95%)	X	S/P	2	2G	Cont	Inert	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Ethyl acetate	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	
Ethyl acetoacetate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Ethyl acrylate	Y	S/P	2	2G	Cont	No	T2	IIB	No	R	FT	A	Yes	15.13, 15.19.6, 16.6.1, 16.6.2
Ethylamine	Y	S/P	2	1G	Cont	No	T2	IIA	No	C	FT	CD	Yes	15.12, 15.14, 15.19.6
Ethylamine solutions (72% or less)	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	AC	Yes	15.12, 15.14, 15.17, 15.19
Ethyl amyl ketone	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Ethylbenzene	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Ethyl tert-butyl ether	Y	P	3	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6
Ethyl butyrate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Ethylcyclohexane	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
N-Ethylcyclohexylamine	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	A	No	15.19.6
S-Ethyl dipropylthiocarbamate	Y	P	2	2G	Open	No			Yes	O	No	A	No	16.2.9
Ethylene chlorohydrin	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	AD	Yes	15.12, 15.17, 15.19
Ethylene cyanohydrin	Y	S/P	3	2G	Open	No		IIB	Yes	O	No	A	No	15.19.6

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Ethylenediamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.19.6, 16.2.9
Ethylenediaminetetraacetic acid, tetrasodium salt solution	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Ethylene dibromide	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.12, 15.19.6, 16.2.9
Ethylene dichloride	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AB	No	15.19
Ethylene glycol	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol acetate	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Ethylene glycol butyl ether acetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol diacetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol methyl ether acetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Ethylene glycol monoalkyl ethers	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	F	A	No	15.19.6, 16.2.9
Ethylene glycol phenyl ether	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Ethylene glycol phenyl ether/Diethylene glycol phenyl ether mixture	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Ethylene oxide/Propylene oxide mixture with an ethylene oxide content of not more than 30% by mass	Y	S/P	2	1G	Cont	Inert	T2	IIB	No	C	FT	AC	No	15.8, 15.12, 15.14, 15.19
Ethylene-vinyl acetate copolymer (emulsion)	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Ethyl-3-ethoxypropionate	Y	P	3	2G	Cont	No	T2	IIA	No	R	No	A	No	15.19.6
2-Ethylhexanoic acid	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
2-Ethylhexyl acrylate	Y	S/P	3	2G	Open	No	T3	IIB	Yes	O	No	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
2-Ethylhexylamine	Y	S/P	2	2G	Cont	No	T3	IIA	No	R	FT	A	No	15.12, 15.19.6
2-Ethyl-2-(hydroxymethyl) propane-1,3-diol (C8-C10) ester	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Ethylidene norbornene	Y	S/P	2	2G	Cont	No	T3	IIB	No	R	FT	AD	No	15.12.1, 15.19.6
Ethyl methacrylate	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	FT	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2
N-Ethylmethylallylamine	Y	S/P	2	2G	Cont	No	T2	IIB	No	C	F	AC	Yes	15.12.3, 15.17, 15.19
Ethyl propionate	Y	P	3	2G	Open	No	T1	IIA	No	R	F	A	No	15.19.6
2-Ethyl-3-propylacrolein	Y	S/P	3	2G	Cont	No		IIA	No	R	FT	A	No	15.19.6, 16.2.9
Ethyl toluene	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Fatty acid (saturated C13+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Fatty acid methyl esters (m)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Fatty acids, (C8-C10)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19, 16.2.6, 16.2.9
Fatty acids, (C12+)	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Fatty acids, (C16+)	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6

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Fatty acids, essentially linear (C6-C18) 2-ethylhexyl ester	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6
Ferric chloride solutions	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.11, 15.19.6, 16.2.9
Ferric nitrate/Nitric acid solution	Y	S/P	2	2G	Cont	No			NF	R	T	No	Yes	15.11, 15.19
Fish oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Fluosilicic acid (20-30%) in water solution	Y	S/P	3	1G	Cont	No	-	-	NF	R	T	No	Yes	15.11, 15.19.6
Formaldehyde solutions (45% or less)	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	Yes	15.19.6, 16.2.9
Formamide	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Formic acid (85% or less)	Y	S/P	3	2G	Cont	No	-	-	Yes	R	T(g)	A	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6, 16.2.9
Formic acid mixture (containing up to 18% propionic acid and up to 25% sodium formate)	Z	S/P	3	2G	Cont	No	-	-	Yes	R	T(g)	AC	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.12.4, 15.19.6
Furfural	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.19.6
Furfuryl alcohol	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6
Glucitol/glycerol blend propoxylated (containing less than 10% amines)	Z	S/P	3	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6
Glutaraldehyde solutions (50% or less)	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6
Glycerol monooleate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Glycerol propoxylated	Z	S/P	3	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6
Glycerol, propoxylated and ethoxylated	Z	P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
Glycerol/sucrose blend propoxylated and ethoxylated	Z	P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
Glyceryl triacetate	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Glycidyl ester of C10 trialkylacetic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Glycine, sodium salt solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Glycolic acid solution (70% or less)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	15.19.6, 16.2.9
Glyoxal solution (40% or less)	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Glyoxylic acid solution (50 % or less)	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	ACD	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.9, 16.6.1, 16.6.2, 16.6.3
Glyphosate solution (not containing surfactant)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Groundnut oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Heptane (all isomers)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9
n-Heptanoic acid	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Heptanol (all isomers) (d)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Heptene (all isomers)	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6

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Heptyl acetate	Y	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
1-Hexadecyl naphthalene / 1,4-bis(hexadecyl)naphthalene mixture	Y	P	2	2G	Open	No				Yes	O	No	AB	No	15.19.6, 16.2.6
Hexamethylenediamine (molten)	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	AC	Yes	15.12, 15.17, 15.18, 15.19, 16.2.9	
Hexamethylenediamine adipate (50% in water)	Z	P	3	2G	Open	No				Yes	O	No	A	No	
Hexamethylenediamine solution	Y	S/P	3	2G	Cont	No				Yes	R	T	A	No	15.19.6
Hexamethylene diisocyanate	Y	S/P	2	1G	Cont	Dry	T1	IIB	Yes	C	T	AC (b)D	Yes	15.12, 15.16.2, 15.17, 15.18, 15.19	
Hexamethylene glycol	Z	P	3	2G	Open	No				Yes	O	No	A	No	
Hexamethyleneimine	Y	S/P	2	2G	Cont	No	T4	IIB	No	R	FT	AC	No	15.19.6	
Hexane (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6	
1,6-Hexanediol, distillation overheads	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.12.3, 15.12.4, 15.19.6, 16.2.9	
Hexanoic acid	Y	P	3	2G	Open	No				Yes	O	No	AB	No	15.19.6
Hexanol	Y	P	3	2G	Open	No				Yes	O	No	AB	No	15.19.6
Hexene (all isomers)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6	
Hexyl acetate	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6	
Hydrochloric acid	Z	S/P	3	1G	Cont	No				NF	R	T	No	Yes	15.11
Hydrogen peroxide solutions (over 60% but not over 70% by mass)	Y	S/P	2	2G	Cont	No				NF	C	No	No	No	15.5.1, 15.19.6
Hydrogen peroxide solutions (over 8% but not over 60% by mass)	Y	S/P	3	2G	Cont	No				NF	C	No	No	No	15.5.2, 15.18, 15.19.6
2-Hydroxyethyl acrylate	Y	S/P	2	2G	Cont	No				Yes	C	T	A	No	15.12, 15.13, 15.19.6, 16.6.1, 16.6.2
N-(Hydroxyethyl)ethylenediaminetriacetic acid, trisodium salt solution	Y	P	3	2G	Open	No				Yes	O	No	A	No	15.19.6
2-Hydroxy-4-(methylthio)butanoic acid	Z	P	3	2G	Open	No				Yes	O	No	A	No	
Illipe oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9	
Isoamyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No		
Isobutyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No		
Isobutyl formate	Z	P	3	2G	Cont	No	T4	IIA	No	R	F	AB	No		
Isobutyl methacrylate	Z	P	3	2G	Cont	No	-	-	No	R	F	A	No	15.12, 15.13, 15.17, 16.6.1, 16.6.2	
Isophorone	Y	S/P	3	2G	Cont	No				Yes	R	No	A	No	15.19.6
Isophoronediamine	Y	S/P	3	2G	Cont	No				Yes	R	T	A	No	16.2.9
Isophorone diisocyanate	X	S/P	2	2G	Cont	Dry				Yes	C	T	ABD	No	15.12, 15.16.2, 15.17, 15.19.6
Isoprene	Y	S/P	3	2G	Cont	No	T3	IIB	No	R	F	B	No	15.13, 15.14, 15.19.6, 16.6.1, 16.6.2	
Isopropanolamine	Y	S/P	3	2G	Open	No	T2	IIA	Yes	O	FT	A	No	15.19.6, 16.2.6, 16.2.9	

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Isopropyl acetate	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	
Isopropylamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	CD	Yes	15.12, 15.14, 15.19
Isopropylamine (70% or less) solution	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	CD	Yes	15.12, 15.19.6, 16.2.9
Isopropylcyclohexane	Y	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6, 16.2.9
Isopropyl ether	Y	S/P	3	2G	Cont	Inert	T2	IIA	No	R	F	A	No	15.4.6, 15.13.3, 15.19.6
Jatropha oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Lactic acid	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Lactonitrile solution (80% or less)	Y	S/P	2	1G	Cont	No			Yes	C	T	ACD	Yes	15.12, 15.13, 15.17, 15.18, 15.19, 16.6.1, 16.6.2, 16.6.3
Lard	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Latex, ammonia (1% or less)- inhibited	Y	S/P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Latex: Carboxylated styrene-Butadiene copolymer; Styrene-Butadiene rubber	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Lauric acid	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Ligninsulphonic acid, magnesium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	AC	No	
Ligninsulphonic acid, sodium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Linseed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Liquid chemical wastes	X	S/P	2	2G	Cont	No			No	C	FT	A	Yes	15.12, 15.19.6, 20.5.1
Long-chain alkaryl polyether (C11-C20)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Long-chain alkaryl sulphonic acid (C16-C60)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Long-chain alkylphenate/Phenol sulphide mixture	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
L-Lysine solution (60% or less)	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Magnesium chloride solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Magnesium long-chain alkaryl sulphonate (C11-C50)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Magnesium long-chain alkyl salicylate (C11+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Maleic anhydride	Y	S/P	3	2G	Cont	No			Yes	R	No	AC (f)	No	16.2.9
Mango kernel oil	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Mercaptobenzothiazol, sodium salt solution	X	S/P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
Mesityl oxide	Z	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.19.6
Metam sodium solution	X	S/P	2	2G	Cont	No	-	-	NF	C	T	No	Yes	15.12, 15.17, 15.19
Methacrylic acid	Y	S/P	3	2G	Cont	No			Yes	R	T	A	No	15.13, 15.19.6, 16.2.9, 16.6.1

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Methacrylic acid - alkoxy poly (alkylene oxide) methacrylate copolymer, sodium salt aqueous solution (45% or less)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	AC	No	16.2.9
Methacrylic resin in ethylene dichloride	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AB	No	15.19, 16.2.9
Methacrylonitrile	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	A	Yes	15.12, 15.13, 15.17, 15.19
3-Methoxy-1-butanol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	
3-Methoxybutyl acetate	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
N-(2-Methoxy-1-methyl ethyl)-2-ethyl-6-methyl chloroacetanilide	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6
Methyl acetate	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
Methyl acetoacetate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Methyl acrylate	Y	S/P	2	2G	Cont	No	T1	IIB	No	R	FT	A	Yes	15.13, 15.19.6, 16.6.1, 16.6.2
Methyl alcohol	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Methylamine solutions (42% or less)	Y	S/P	2	2G	Cont	No	T2	IIA	No	C	FT	ACD	Yes	15.12, 15.17, 15.19
Methylamyl acetate	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Methylamyl alcohol	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Methyl amyl ketone	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
N-Methylaniline	Y	S/P	2	2G	Cont	No	-	-	Yes	R	T	ABC	No	15.12.3, 15.12.4, 15.19.6
alpha-Methylbenzyl alcohol with acetophenone (15% or less)	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Methylbutenol	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6, 16.2.9
Methyl tert-butyl ether	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	
Methyl butyl ketone	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	AB	No	15.19.6
Methylbutynol	Z	P	3	2G	Cont	No	T4	IIB	No	R	F	A	No	
Methyl butyrate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Methylcyclohexane	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Methylcyclopentadiene dimer	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	B	No	15.19.6
Methylcyclopentadienyl manganese tricarbonyl	X	S/P	1	1G	Cont	No	-	-	Yes	C	T	ABC D	Yes	15.12, 15.18, 15.19, 16.2.9
Methyl diethanolamine	Y	S/P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
2-Methyl-6-ethyl aniline	Y	S/P	3	2G	Open	No			Yes	O	No	AD	No	15.19.6
Methyl ethyl ketone	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	
2-Methyl-5-ethyl pyridine	Y	S/P	3	2G	Open	No		IIA	Yes	O	No	AD	No	15.19.6
Methyl formate	Z	S/P	2	2G	Cont	No	T1	IIA	No	R	FT	A	Yes	15.12, 15.14, 15.19
2-Methylglutaronitrile with 2-Ethylsuccinonitrile (12% or less)	Z	S	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19

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2-Methyl-2-hydroxy-3-butyne	Z	S/P	3	2G	Cont	No		IIA	No	R	FT	ABD	No	15.19.6, 16.2.9	
Methyl isobutyl ketone	Z	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No		
Methyl methacrylate	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	A	No	15.13, 15.19.6, 16.6.1, 16.6.2	
3-Methyl-3-methoxybutanol	Z	P	3	2G	Open	No			Yes	O	No	A	No		
Methyl naphthalene (molten)	X	S/P	2	2G	Cont	No			Yes	R	No	AD	No	15.19.6	
2-Methyl-1,3-propanediol	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No		
2-Methylpyridine	Z	S/P	2	2G	Cont	No	T1	IIA	No	C	F	A	No	15.12.3, 15.19.6	
3-Methylpyridine	Z	S/P	2	2G	Cont	No	T1	IIA	No	C	F	AC	No	15.12.3, 15.19	
4-Methylpyridine	Z	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	A	No	15.12.3, 15.19, 16.2.9	
N-Methyl-2-pyrrolidone	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6	
Methyl salicylate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6	
alpha-Methylstyrene	Y	S/P	2	2G	Cont	No	T1	IIB	No	R	FT	AD	No	15.13, 15.19.6, 16.6.1, 16.6.2 (j)	
3-(methylthio)propionaldehyde	Y	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	BC	Yes	15.12, 15.17, 15.19	
Molybdenum polysulfide long chain alkyl dithiocarbamide complex	Y	S/P	2	2G	Cont	No	-	-	Yes	C	T	ABC	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9	
Morpholine	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6	
Motor fuel anti-knock compound (containing lead alkyls)	X	S/P	1	1G	Cont	No	T4	IIA	No	C	FT	AC	Yes	15.6, 15.12, 15.18, 15.19	
Myrcene	X	P	2	2G	Cont	No	-	-	No	R	F	A	No	15.19.6, 16.2.9	
Naphthalene (molten)	X	S/P	2	2G	Cont	No	T1	IIA	Yes	R	No	AD	No	15.19.6, 16.2.9	
Naphthalenesulphonic acid-Formaldehyde copolymer, sodium salt solution	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9	
Neodecanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6	
Nitrating acid (mixture of sulphuric and nitric acids)	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.11, 15.16.2, 15.17, 15.19	
Nitric acid (70% and over)	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.11, 15.19	
Nitric acid (less than 70%)	Y	S/P	2	2G	Cont	No			NF	R	T	No	Yes	15.11, 15.19	
Nitrilotriacetic acid, trisodium salt solution	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6	
Nitrobenzene	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	AD	No	15.12, 15.17, 15.18, 15.19, 16.2.9	
Nitroethane	Y	S/P	3	2G	Cont	No			IIB	No	R	FT	A(f)	No	15.19.6, 16.6.1, 16.6.2, 16.6.4
Nitroethane(80%)/ Nitropropane(20%)	Y	S/P	3	2G	Cont	No			IIB	No	R	FT	A(f)	No	15.19.6, 16.6.1, 16.6.2, 16.6.3
Nitroethane, 1-Nitropropane (each 15% or more) mixture	Y	S/P	3	2G	Cont	No	-	-	No	R	F	A	No	15.19.6, 16.2.6, 16.6.1, 16.6.2, 16.6.3	
o-Nitrophenol (molten)	Y	S/P	2	2G	Cont	No			Yes	C	T	AD	No	15.12, 15.19.6, 16.2.6, 16.2.9	
1- or 2-Nitropropane	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	FT	A	No	15.19.6	

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Nitropropane (60%)/Nitroethane (40%) mixture	Y	S/P	3	2G	Cont	No	T4	IIB	No	R	FT	A(f)	No	15.19.6
o- or p-Nitrotoluenes	Y	S/P	2	2G	Cont	No		IIB	Yes	C	T	AB	No	15.12, 15.17, 15.19.6
Nonane (all isomers)	X	P	2	2G	Cont	No	T4	IIA	No	R	F	BC	No	15.19.6
Nonanoic acid (all isomers)	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Non-edible industrial grade palm oil	Y	S/P	2	2G	Cont	No	-	-	Yes	R	No	ABC	No	15.12.3, 15.12.4, 15.19.6, 16.2.6, 16.2.9
Nonene (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Nonyl alcohol (all isomers)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Nonyl methacrylate monomer	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Nonylphenol	X	P	1	2G	Open	No			Yes	O	No	A	No	15.19, 16.2.6, 16.2.9
Nonylphenol poly(4+)ethoxylate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Noxious liquid, NF, (1) n.o.s. (trade name, contains) ST1, Cat. X	X	P	1	2G	Open	No	-	-	Yes	O	No	A	No	15.19, 16.2.6
Noxious liquid, F, (2) n.o.s. (trade name, contains) ST1, Cat. X	X	P	1	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6
Noxious liquid, NF, (3) n.o.s. (trade name, contains) ST2, Cat. X	X	P	2	2G	Open	No	-		Yes	O	No	A	No	15.19, 16.2.6
Noxious liquid, F, (4) n.o.s. (trade name, contains) ST2, Cat. X	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6
Noxious liquid, NF, (5) n.o.s. (trade name, contains) ST2, Cat. Y	Y	P	2	2G	Open	No	-		Yes	O	No	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, F, (6) n.o.s. (trade name, contains) ST2, Cat. Y	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, NF, (7) n.o.s. (trade name, contains) ST3, Cat. Y	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, F, (8) n.o.s. (trade name, contains) ST3, Cat. Y	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19, 16.2.6, 16.2.9(l)
Noxious liquid, NF, (9) n.o.s. (trade name, contains) ST3, Cat. Z	Z	P	3	2G	Open	No	-		Yes	O	No	A	No	
Noxious liquid, F, (10) n.o.s. (trade name, contains) ST3, Cat. Z	Z	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	
Octamethylcyclotetrasiloxane	Y	P	2	2G	Cont	No	T2	IIA	No	R	F	AC	No	15.19.6, 16.2.9
Octane (all isomers)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Octanoic acid (all isomers)	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Octanol (all isomers)	Y	P	2	2G	Open	No			Yes	O	No	A	No	
Octene (all isomers)	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
n-Octyl acetate	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Octyl aldehydes	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.9
Octyl decyl adipate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Olefin-Alkyl ester copolymer (molecular weight 2000+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Olefin Mixture (C7-C9) C8 rich, stabilised	X	S/P	2	2G	Cont	No	T3	IIB	No	R	F	ABC	No	15.13, 15.19.6
Olefin mixtures (C5-C7)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6

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Olefin mixtures (C5-C15)	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Olefins (C13+, all isomers)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
alpha-Olefins (C6-C18) mixtures	X	P	2	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6, 16.2.9
Oleic acid	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Oleum	Y	S/P	2	2G	Cont	No			NF	C	T	No	Yes	15.11.2 to 15.11.8, 15.12.1, 15.16.2, 15.17, 15.19, 16.2.6
Oleylamine	X	S/P	2	2G	Cont	No			Yes	R	T	A	No	15.19.6, 16.2.9
Olive oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Oxygenated aliphatic hydrocarbon mixture	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
Palm acid oil	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm fatty acid distillate	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel acid oil	Y	S/P	2	2G	Open	No			Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel olein	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm kernel stearin	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm mid-fraction	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm oil fatty acid methyl ester	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Palm olein	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Palm stearin	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Paraffin wax	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Paraldehyde	Z	S/P	3	2G	Cont	No	T3	IIB	No	R	F	A	No	15.19.6, 16.2.9
Paraldehyde-ammonia reaction product	Y	S/P	2	2G	Cont	No	T4	IIB	No	C	FT	A	No	15.12.3, 15.19
Pentachloroethane	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12, 15.17, 15.19.6
1,3-Pentadiene	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	FT	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2, 16.6.3
1,3-Pentadiene (greater than 50%), cyclopentene and isomers, mixtures	Y	S/P	2	2G	Cont	Inert	T3	IIB	No	C	FT	ABC	Yes	15.12, 15.13, 15.17, 15.19
Pentaethylenhexamine	X	S/P	2	2G	Open	No			Yes	O	No	B	Yes	15.19
Pentane (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.14, 15.19.6
Pentanoic acid	Y	P	3	2G	Open	No			Yes	O	No	AB	No	15.19.6
n-Pentanoic acid (64%)/2-Methyl butyric acid (36%) mixture	Y	S/P	2	2G	Open	No	T2		Yes	C	No	AD	No	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.12.3, 15.19
Pentene (all isomers)	Y	P	3	2G	Cont	No	T3	IIA	No	R	F	A	No	15.14, 15.19.6

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n-Pentyl propionate	Y	P	3	2G	Cont	No	T4	IIA	No	R	F	A	No	15.19.6
Perchloroethylene	Y	S/P	2	2G	Cont	No			NF	R	T	No	No	15.12.1, 15.12.2, 15.19.6
Petrolatum	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Phenol	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	C	T	A	No	15.12, 15.19, 16.2.9
1-Phenyl-1-xylyl ethane	Y	P	3	2G	Open	No			Yes	O	No	AB	No	
Phosphate esters, alkyl (C12-C14) amine	Y	P	2	2G	Cont	No	-	-	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Phosphoric acid	Z	S/P	3	2G	Open	No			NF	O	No	No	No	15.11.1, 15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 16.2.9
Phosphorus, yellow or white	X	S/P	1	1G	Cont	Pad+ (vent or inert)			No (c)	C	No	C	Yes	15.7, 15.19, 16.2.9
Phthalic anhydride (molten)	Y	S/P	2	2G	Cont	No	T1	IIA	Yes	R	No	AD	No	15.19.6, 16.2.6, 16.2.9
alpha-Pinene	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
beta-Pinene	X	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6
Pine oil	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Polyacrylic acid solution (40% or less)	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	AC	No	
Polyalkyl (C18-C22) acrylate in xylene	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	AB	No	15.19.6, 16.2.6, 16.2.9
Polyalkylalkenaminesuccinimide, molybdenum oxysulphide	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Poly(2-8)alkylene glycol monoalkyl(C1-C6) ether	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Poly(2-8)alkylene glycol monoalkyl (C1-C6) ether acetate	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Polyalkyl (C10-C20) methacrylate	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyalkyl (C10-C18) methacrylate/ethylene-propylene copolymer mixture	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polybutene	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Polybutenyl succinimide	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Poly(2+)cyclic aromatics	X	P	1	2G	Cont	No			Yes	R	No	AD	No	15.19, 16.2.6, 16.2.9
Polyether (molecular weight 1350+)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6
Polyethylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Polyethylene glycol dimethyl ether	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Poly(ethylene glycol) methylbutenyl ether (MW>1000)	Z	P	3	2G	Open	No	-	-	Yes	O	No	AC	No	16.2.9
Polyethylene polyamines	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Polyethylene polyamines (more than 50% C5 -C20 paraffin oil)	Y	S/P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Polyferric sulphate solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6

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Poly(iminoethylene)-graft-N-poly(ethyleneoxy) solution (90% or less)	Z	S/P	3	2G	Open	No	-	-	NF	O	No	AC	No	16.2.9
Polyisobutenamine in aliphatic (C10-C14) solvent	Y	P	3	2G	Open	No	T3	IIA	Yes	O	No	A	No	15.19.6
Polyisobutenyl anhydride adduct	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Poly(4+)isobutylene	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.9
Polymethylene polyphenyl isocyanate	Y	S/P	2	2G	Cont	Dry			Yes	C	T(a)	A	No	15.12, 15.16.2, 15.19.6, 16.2.9
Polyolefin (molecular weight 300+)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefin amide alkeneamine (C17+)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Polyolefin amide alkeneamine borate (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin amide alkeneamine polyol	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Polyolefinamine (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Polyolefinamine in alkyl (C2-C4) benzenes	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefinamine in aromatic solvent	Y	P	2	2G	Cont	No	T4	IIB	No	R	F	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefin aminoester salts (molecular weight 2000+)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Polyolefin anhydride	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin ester (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin phenolic amine (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Polyolefin phosphorusulphide, barium derivative (C28-C250)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Poly(20)oxyethylene sorbitan monooleate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Poly(5+)propylene	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.9
Polypropylene glycol	Z	S/P	3	2G	Cont	No			Yes	O	No	ABC	No	15.19.6
Polysiloxane	Y	P	3	2G	Cont	No	T4	IIB	No	R	F	AB	No	15.19.6, 16.2.9
Potassium chloride solution	Z	S/P	3	2G	Open	No	-	-	NF	O	No	A	No	16.2.9
Potassium hydroxide solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6
Potassium oleate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Potassium thiosulphate (50% or less)	Y	P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
n-Propanolamine	Y	S/P	3	2G	Open	No			Yes	O	No	AD	No	15.19.6, 16.2.9
2-Propene-1-aminium, N,N-dimethyl-N-2-propenyl-, chloride, homopolymer solution	Y	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	15.19.6
beta-Propiolactone	Y	S/P	2	2G	Cont	No		IIA	Yes	R	T	A	No	15.19.6
Propionaldehyde	Y	S/P	3	2G	Cont	No	T4	IIB	No	R	FT	A	Yes	15.17, 15.19.6
Propionic acid	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	F	A	Yes	15.11.2, 15.11.3, 15.11.4, 15.11.6, 15.11.7, 15.11.8, 15.19.6

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Propionic anhydride	Y	S/P	3	2G	Cont	No	T2	IIA	Yes	R	T	A	No	15.19.6
Propionitrile	Y	S/P	2	1G	Cont	No	T1	IIB	No	C	FT	AD	Yes	15.12, 15.17, 15.18, 15.19
n-Propyl acetate	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	15.19.6
n-Propyl alcohol	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
n-Propylamine	Z	S/P	2	2G	Cont	Inert	T2	IIA	No	C	FT	AD	Yes	15.12, 15.19
Propylbenzene (all isomers)	Y	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.19.6
Propylene glycol methyl ether acetate	Z	P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	
Propylene glycol monoalkyl ether	Z	P	3	2G	Cont	No	T3	IIA	No	R	F	AB	No	
Propylene glycol phenyl ether	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Propylene oxide	Y	S/P	2	2G	Cont	Inert	T2	IIB	No	C	FT	AC	No	15.8, 15.12.1, 15.14, 15.19
Propylene tetramer	X	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Propylene trimer	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6
Pyridine	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Pyrolysis gasoline (containing benzene)	Y	S/P	2	2G	Cont	No	T3	IIA	No	C	FT	AB	No	15.12, 15.17, 15.19.6
Rapeseed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Rapeseed oil (low erucic acid containing less than 4% free fatty acids)	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Rape seed oil fatty acid methyl esters	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6
Resin oil, distilled	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	ABC	No	15.12, 15.17, 15.19.6
Rice bran oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Rosin	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Safflower oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Shea butter	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Sodium alkyl (C14-C17) sulphonates (60-65% solution)	Y	P	2	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Sodium aluminosilicate slurry	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Sodium benzoate	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Sodium borohydride (15% or less)/Sodium hydroxide solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Sodium bromide solution (less than 50%) (*)	Y	S/P	3	2G	Open	No	-	-	NF	R	No	No	No	15.19.6
Sodium carbonate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Sodium chlorate solution (50% or less)	Z	S/P	3	2G	Open	No			NF	O	No	No	No	15.9, 15.19.6, 16.2.9
Sodium dichromate solution (70% or less)	Y	S/P	2	2G	Open	No			NF	C	No	No	No	15.12.3, 15.19
Sodium hydrogen sulphide (6% or less)/Sodium carbonate (3% or less) solution	Z	P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9

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Sodium hydrogen sulphite solution (45% or less)	Z	S/P	3	2G	Open	No			NF	O	No	No	No	16.2.9
Sodium hydrosulphide/Ammonium sulphide solution	Y	S/P	2	2G	Cont	No	T4	IIB	No	C	FT	A	Yes	15.12, 15.14, 15.17, 15.19, 16.6.1, 16.6.2, 16.6.3
Sodium hydrosulphide solution (45% or less)	Z	S/P	3	2G	Cont	Vent or pad (gas)			NF	R	T	No	No	15.19.6, 16.2.9
Sodium hydroxide solution	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.6, 16.2.9
Sodium hypochlorite solution (15% or less)	Y	S/P	2	2G	Cont	No	-	-	NF	R	No	No	No	15.19.6
Sodium methylate 21-30% in methanol	Y	S/P	2	2G	Cont	No	T1	IIA	No	C	FT	AC	Yes	15.12, 15.17, 15.19, 16.2.6(only if >28%), 16.2.9
Sodium nitrite solution	Y	S/P	2	2G	Open	No			NF	O	No	No	No	15.12.3.1, 15.12.3.2, 15.19, 16.2.9
Sodium petroleum sulphonate	Y	S/P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Sodium poly(4+)acrylate solutions	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	16.2.9
Sodium silicate solution	Y	P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
Sodium sulphide solution (15% or less)	Y	S/P	3	2G	Cont	No			NF	C	T	No	No	15.19.6, 16.2.9
Sodium sulphite solution (25% or less)	Y	P	3	2G	Open	No			NF	O	No	No	No	15.19.6, 16.2.9
Sodium thiocyanate solution (56% or less)	Y	P	3	2G	Open	No			Yes	O	No	No	No	15.19.6, 16.2.9
Soyabean oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Styrene monomer	Y	S/P	3	2G	Cont	No	T1	IIA	No	R	F	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2
Sulphohydrocarbon (C3-C88)	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Sulpholane	Y	P	3	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Sulphur (molten)	Z	S	3	1G	Open	Vent or pad (gas)	T3		Yes	O	FT	No	No	15.10, 16.2.9
Sulphuric acid	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.11, 15.16.2, 15.19.6
Sulphuric acid, spent	Y	S/P	3	2G	Open	No			NF	O	No	No	No	15.11, 15.16.2, 15.19.6
Sulphurized fat (C14-C20)	Z	P	3	2G	Open	No			Yes	O	No	AB	No	
Sulphurized polyolefinamide alkene (C28-C250) amine	Z	P	3	2G	Open	No	-	-	Yes	O	No	A	No	
Sunflower seed oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Tall oil, crude	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Tall oil, distilled	Y	P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Tall oil fatty acid (resin acids less than 20%)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6
Tall oil pitch	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6
Tallow	Y	P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Tallow fatty acid	Y	P	2	2G	Open	No	-	-	Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9

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Tetrachloroethane	Y	S/P	2	2G	Cont	No				NF	R	T	No	No	15.12, 15.17, 15.19.6
Tetraethylene glycol	Z	P	3	2G	Open	No				Yes	O	No	A	No	
Tetraethylene pentamine	Y	S/P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
Tetrahydrofuran	Z	S	3	2G	Cont	No	T3	IIB	No	R	FT	A	No	No	15.19.6
Tetrahydronaphthalene	Y	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
Tetramethylbenzene (all isomers)	X	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.9
Titanium dioxide slurry	Z	P	3	2G	Open	No				Yes	O	No	AB	No	
Toluene	Y	P	3	2G	Cont	No	T1	IIA	No	R	F	A	No	No	15.19.6
Toluenediamine	Y	S/P	2	2G	Cont	No				Yes	C	T	AD	Yes	15.12, 15.17, 15.19, 16.2.6, 16.2.9
Toluene diisocyanate	Y	S/P	2	2G	Cont	Dry	T1	IIA	Yes	C	FT	AC	Yes	Yes	15.12, 15.16.2, 15.17, 15.19, 16.2.9
													(b)D		
o-Toluidine	Y	S/P	2	2G	Cont	No				Yes	C	T	A	No	15.12, 15.17, 15.19
Tributyl phosphate	Y	P	3	2G	Open	No				Yes	O	No	A	No	15.19.6
1,2,3-Trichlorobenzene (molten)	X	S/P	1	2G	Cont	No				Yes	C	T	ACD	Yes	15.12.1, 15.17, 15.19, 16.2.6, 16.2.9
1,2,4-Trichlorobenzene	X	S/P	1	2G	Cont	No				Yes	R	T	AB	No	15.19, 16.2.9
1,1,1-Trichloroethane	Y	P	3	2G	Open	No				Yes	O	No	A	No	15.19.6
1,1,2-Trichloroethane	Y	S/P	3	2G	Cont	No				NF	R	T	No	No	15.12.1, 15.19.6
Trichloroethylene	Y	S/P	2	2G	Cont	No	T2	IIA	Yes	R	T	No	No	No	15.12, 15.17, 15.19.6
1,2,3-Trichloropropane	Y	S/P	2	2G	Cont	No				Yes	C	T	ABD	No	15.12, 15.17, 15.19
1,1,2-Trichloro-1,2,2-Trifluoroethane	Y	P	2	2G	Open	No				NF	O	No	No	No	15.19.6
Tricresyl phosphate (containing 1% or more ortho-isomer)	Y	S/P	1	2G	Cont	No	T2	IIA	Yes	C	No	AB	No	No	15.12.3, 15.19, 16.2.6
Tricresyl phosphate (containing less than 1% ortho-isomer)	Y	S/P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.6
Tridecane	Y	P	2	2G	Open	No				Yes	O	No	AB	No	15.19.6
Tridecanoic acid	Y	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6, 16.2.6, 16.2.9
Tridecyl acetate	Y	P	3	2G	Open	No	-	-	Yes	O	No	A	No	No	15.19.6
Triethanolamine	Z	S/P	3	2G	Open	No			IIA	Yes	O	No	A	No	16.2.9
Triethylamine	Y	S/P	2	2G	Cont	No	T2	IIA	No	R	FT	AC	Yes	Yes	15.12, 15.19.6
Triethylbenzene	X	P	2	2G	Open	No				Yes	O	No	A	No	15.19.6
Triethylenetetramine	Y	S/P	2	2G	Open	No	T2	IIA	Yes	O	No	A	No	No	15.19.6
Triethyl phosphate	Z	P	3	2G	Open	No				Yes	O	No	A	No	
Triethyl phosphite	Z	S/P	3	2G	Cont	No	T3	IIA	No	R	FT	AB	No	No	15.12.1, 15.19.6, 16.2.9

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Triisopropanolamine	Z	P	3	2G	Open	No				Yes	O	No	A	No
Triisopropylated phenyl phosphates	X	P	2	2G	Open	No				Yes	O	No	A	No 15.19.6, 16.2.6
Trimethylacetic acid	Y	S/P	2	2G	Cont	No				Yes	R	No	A	No 15.11.2, 15.11.3, 15.11.4, 15.11.5, 15.11.6, 15.11.7, 15.11.8, 15.19.6, 16.2.6, 16.2.9
Trimethylamine solution (30% or less)	Z	S/P	2	2G	Cont	No	T3	IIB	No	C	FT	AC	Yes	15.12, 15.14, 15.19, 16.2.9
Trimethylbenzene (all isomers)	X	P	2	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Trimethylol propane propoxylated	Z	S/P	3	2G	Open	No	-	-	Yes	O	No	ABC	No	
2,2,4-Trimethyl-1,3-pentanediol diisobutyrate	Y	P	3	2G	Open	No	-	-	Yes	O	No	AB	No	15.19.6
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
1,3,5-Trioxane	Y	S/P	3	2G	Cont	No	T2	IIB	No	R	F	AD	No	15.19.6, 16.2.9
Tripropylene glycol	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Trixylyl phosphate	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.6
Tung oil	Y	S/P	2(k)	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Turpentine	X	P	2	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6
Undecanoic acid	Y	P	2	2G	Open	No			Yes	O	No	A	No	16.2.6, 16.2.9
1-Undecene	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Undecyl alcohol	X	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6, 16.2.9
Urea/Ammonium nitrate solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Urea/Ammonium nitrate solution (containing less than 1% free ammonia)	Y	S/P	2	2G	Cont	No			NF	R	T	A	No	15.12.3, 15.12.4, 15.19.6
Urea/Ammonium phosphate solution	Y	P	2	2G	Open	No			Yes	O	No	A	No	15.19.6
Urea solution	Z	P	3	2G	Open	No			Yes	O	No	A	No	
Valeraldehyde (all isomers)	Y	S/P	3	2G	Cont	Inert	T3	IIB	No	R	FT	A	No	15.4.6, 15.19.6
Vegetable acid oils (m)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Vegetable fatty acid distillates (m)	Y	S/P	2	2G	Open	No	-	-	Yes	O	No	ABC	No	15.19.6, 16.2.6, 16.2.9
Vinyl acetate	Y	S/P	3	2G	Cont	No	T2	IIA	No	R	F	A	No	15.13, 15.19.6, 16.6.1, 16.6.2
Vinyl ethyl ether	Z	S/P	2	1G	Cont	Inert	T3	IIB	No	C	FT	A	Yes	15.4, 15.13, 15.14, 15.19.6, 16.6.1, 16.6.2
Vinylidene chloride	Y	S/P	2	2G	Cont	Inert	T2	IIA	No	R	FT	B	Yes	15.13, 15.14, 15.19.6, 16.6.1, 16.6.2
Vinyl neodecanoate	Y	S/P	2	2G	Open	No			Yes	O	No	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2
Vinyltoluene	Y	S/P	2	2G	Cont	No		IIA	No	R	F	AB	No	15.13, 15.19.6, 16.6.1, 16.6.2
Waxes	Y	P	2	2G	Open	No	-	-	Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
White spirit, low (15-20%) aromatic	Y	P	2	2G	Cont	No	T3	IIA	No	R	F	A	No	15.19.6, 16.2.9

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Wood lignin with sodium acetate/oxalate	Z	S/P	3	2G	Open	No	-	-	NF	O	No	No	No	
Xylenes	Y	P	2	2G	Cont	No	T1	IIA	No	R	F	A	No	15.19.6, 16.2.9 (h)
Xylenes/ethylbenzene (10% or more) mixture	Y	P	2	2G	Cont	No	-	-	No	R	F	A	No	15.19.6
Xylenol	Y	S/P	2	2G	Open	No		IIA	Yes	O	No	AB	No	15.19.6, 16.2.9
Zinc alkaryl dithiophosphate (C7-C16)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6, 16.2.9
Zinc alkenyl carboxamide	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6
Zinc alkyl dithiophosphate (C3-C14)	Y	P	2	2G	Open	No			Yes	O	No	AB	No	15.19.6, 16.2.6

Chapter 17

- a If the product to be carried contains flammable solvents such that the flashpoint does not exceed 60°C, then special electrical systems and a flammable-vapour detector shall be provided.
 - b Although water is suitable for extinguishing open-air fires involving chemicals to which this footnote applies, water shall not be allowed to contaminate closed tanks containing these chemicals because of the risk of hazardous gas generation.
 - c Phosphorus, yellow or white is carried above its autoignition temperature and therefore flashpoint is not appropriate. Electrical equipment requirements may be similar to those for substances with a flashpoint above 60°C.
 - d Requirements are based on those isomers having a flashpoint of 60°C, or less; some isomers have a flashpoint greater than 60°C, and therefore the requirements based on flammability would not apply to such isomers.
 - e Applies to n-decyl alcohol only.
 - f Dry chemical shall not be used as fire extinguishing media.
 - g Confined spaces shall be tested for both formic acid vapours and carbon monoxide gas, a decomposition product.
 - h Applies to p-xylene only.
 - i For mixtures containing no other components with safety hazards and where the pollution category is Y or less.
 - j Only certain alcohol-resistant foams are effective.
 - k Requirements for Ship Type identified in *column e* might be subject to regulation 4.1.3 of Annex II of MARPOL 73/78.
 - l Applicable when the melting point is equal to or greater than 0°C.
 - m From vegetable oils specified in the IBC Code.
- * Indicates that with reference to chapter 21 of the IBC Code (paragraph 21.1.3), deviations from the normal assignment criteria used for some carriage requirements have been implemented.

Chapter 18

List of products to which the Code does not apply

18.1 The following are products, which have been reviewed for their safety and pollution hazards and determined not to present hazards to such an extent as to warrant application of the Code.

18.2 Although the products listed in this chapter fall outside the scope of the Code, the attention of Administrations is drawn to the fact that some safety precautions may be needed for their safe transportation. Accordingly, Administrations shall prescribe appropriate safety requirements.

18.3 Some liquid substances are identified as falling into Pollution Category Z and, therefore, subject to certain requirements of Annex II of MARPOL.

18.4 Liquid mixtures which are assessed or provisionally assessed under regulation 6.3 of MARPOL Annex II as falling into Pollution Category Z or OS, and which do not present safety hazards, may be carried under the appropriate entry in this chapter for "Noxious or Non-Noxious Liquid Substances, not otherwise specified (n.o.s.)".

EXPLANATORY NOTES

Product name	The product name shall be used in the shipping document for any cargo offered for bulk shipments. Any additional name may be included in brackets after the product name. In some cases, the product names are not identical with the names given in previous issues of the Code.
Pollution Category	The letter Z means the Pollution Category assigned to each product under Annex II of MARPOL. OS means the product was evaluated and found to fall outside Categories X, Y, or Z.

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Product Name	Pollution Category
Acetone	Z
Alcoholic beverages, n.o.s.	Z
Apple juice	OS
n-Butyl alcohol	Z
sec-Butyl alcohol	Z
Calcium carbonate slurry	OS
Calcium nitrate solutions (50% or less)	Z
Clay slurry	OS
Coal slurry	OS
Diethylene glycol	Z
Ethyl alcohol	Z
Ethylene carbonate	Z
Glucose solution	OS
Glycerine	Z
Glycerol ethoxylated	OS
Hexamethylenetetramine solutions	Z
Hexylene glycol	Z
Hydrogenated starch hydrolysate	OS
Isopropyl alcohol	Z
Kaolin slurry	OS
Lecithin	OS
Magnesium hydroxide slurry	Z
Maltitol solution	OS
N-Methylglucamine solution (70% or less)	Z
Methyl propyl ketone	Z
Microsilica slurry	OS
Molasses	OS
Noxious liquid, (11) n.o.s. (trade name, contains) Cat. Z	Z
Non noxious liquid, (12) n.o.s. (trade name, contains) Cat. OS	OS
Orange juice (concentrated)	OS
Orange juice (not concentrated)	OS
Polyaluminium chloride solution	Z
Polyglycerin, sodium salt solution (containing less than 3% sodium hydroxide)	Z
Potassium chloride solution (less than 26%)	OS
Potassium formate solutions	Z
Propylene carbonate	Z
Propylene glycol	Z
Sodium acetate solutions	Z
Sodium bicarbonate solution (less than 10%)	OS
Sodium sulphate solutions	Z
Sorbitol solution	OS
Sulphonated polyacrylate solution	Z
Tetraethyl silicate monomer/oligomer (20% in ethanol)	Z
Triethylene glycol	Z
Vegetable protein solution (hydrolysed)	OS

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Product Name

Pollution Category

Water

OS

Chapter 19

Index of Products Carried in Bulk

19.1 The first column of the Index of Products Carried in Bulk (hereafter referred to as “the Index”) provides the so called Index Name. Where the Index Name is in capital and in bold, the Index Name is identical to the Product Name in either chapter 17 or chapter 18. The second column listing the relevant Product Name is therefore empty. Where the Index Name is in non-bold lower case it reflects a synonym for which the Product Name in either chapter 17 or chapter 18 is given in the second column. The relevant chapter of the IBC Code is reflected in the third column.

19.2 Following a review of chapter 19, a column listing UN numbers which was previously included has been removed from the Index. Since UN numbers are only available for a limited number of Index Names and there are inconsistencies between some of the names used in chapter 19 and those linked to UN numbers, it was decided to remove UN number references in order to avoid any confusion.

19.3 The Index has been developed for information purposes only. None of the Index Names indicated in non-bold lower case in the first column shall be used as the Product Name on the shipping document.

19.4 Prefixes forming an integral part of the name are shown in ordinary (roman) type and are taken into account in determining the alphabetical order of entries. These include such prefixes as:

Mono Di Tri Tetra Penta Iso Bis Neo Ortho Cyclo

19.5 Prefixes that are disregarded for purposes of alphabetical order are in italics and include the following:

n-	(normal-)
sec-	(secondary-)
tert-	(tertiary-)
o-	(ortho-)
m-	(meta-)
p-	(para-)
N-	
O-	
S-	
sym-	(symmetrical)
uns-	(unsymmetrical)
dl-	
D-	
L-	
cis-	
trans-	
(E)-	
(Z)-	
alpha-	(α -)
beta-	(β -)
gamma-	(γ -)
epsilon-	(ϵ -)
omega-	(ω)

19.6 The Index utilises a note after the index name for some entries (shown as (a) or (b)) which indicates that the following qualifications apply:

- (a) this Index Name represents a subset of the corresponding Product Name.
- (b) the Product Name corresponding to this Index Name contains a carbon chain length qualification. Since the Index Name should always represent a subset or be an exact synonym of the corresponding Product Name, the carbon chain length characteristics should be checked for any product identified by this Index Name.

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ACRYLIC ACID		17
Acrylic acid, 2-hydroxyethyl ester	2-HYDROXYETHYL ACRYLATE	17
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ALKYL (C18-C28) TOLUENESULPHONIC ACID, CALCIUM SALTS, HIGH OVERBASE		17
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Aminobenzene	ANILINE	17
1-Aminobutane (a)	BUTYLAMINE (ALL ISOMERS)	17
2-Aminobutane	BUTYLAMINE (ALL ISOMERS)	17
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N-AMINOETHYLPIPERAZINE		17
2-Aminoisobutane (a)	BUTYLAMINE (ALL ISOMERS)	17
Aminomethane solutions, 42% or less	METHYLAMINE SOLUTIONS (42% OR LESS)	17
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3-Aminomethyl-3,5,5-trimethylcyclohexylamine	ISOPHORONEDIAMINE	17
Aminophen	ANILINE	17
1-Aminopropane	N-PROPYLAMINE	17
2-Aminopropane	ISOPROPYLAMINE	17
2-Aminopropane (70% or less) solution	ISOPROPYLAMINE (70% OR LESS) SOLUTION	17
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1-Amino-2-propanol	ISOPROPANOLAMINE	17
3-Aminopropan-1-ol	N-PROPANOLAMINE	17
2-Aminotoluene	O-TOLUIDINE	17
o-Aminotoluene	O-TOLUIDINE	17
5-Amino-1,3,3-trimethylcyclohexylmethylamine	ISOPHORONEDIAMINE	17
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Ammonia water, 28% or less	AMMONIA AQUEOUS (28% OR LESS)	17
AMMONIUM CHLORIDE SOLUTION (LESS THAN 25%) (*)		17
AMMONIUM HYDROGEN PHOSPHATE SOLUTION		17
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AMMONIUM LIGNOSULPHONATE SOLUTIONS		17
AMMONIUM NITRATE SOLUTION (93% OR LESS)		17
AMMONIUM POLYPHOSPHATE SOLUTION		17
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Amyl ethyl ketone	ETHYL AMYL KETONE	17
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n-Amyl methyl ketone	METHYL AMYL KETONE	17
n-Amyl propionate	N-PENTYL PROPIONATE	17
Anaesthetic ether	DIETHYL ETHER	17
ANILINE		17
Aniline oil	ANILINE	17
Anilinobenzene	DIPHENYLAMINE (MOLTEN)	17
Anthracene oil (coal tar fraction) (a)	COAL TAR	17
Ant oil, artificial	FURFURAL	17
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ARYL POLYOLEFINS (C11-C50)		17
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Azacycloheptane	HEXAMETHYLENEIMINE	17
3-Azapentane-1,5-diamine	DIETHYLENETRIAMINE	17
Azepane	HEXAMETHYLENEIMINE	17
Azotic acid	NITRIC ACID (70% AND OVER)	17
BARIUM LONG CHAIN (C11-C50) ALKARYL SULPHONATE		17
Basic calcium alkyl salicylate in approximately 30% mineral oil (b)	CALCIUM LONG-CHAIN ALKYL SALICYLATE (C13+)	17
Battery acid	SULPHURIC ACID	17
Behenyl alcohol (a)	ALCOHOLS (C13+)	17
Benzenamine	ANILINE	17
1,4-Benzenedicarboxylic acid, butyl ester	DIBUTYL TEREPHTHALATE	17
1,2-Benzenedicarboxylic acid, diethyl ester	DIETHYL PHTHALATE	17
1,2-Benzenedicarboxylic acid, diundecyl ester	DIUNDECYL PHTHALATE	17
BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)		17
BENZENESULPHONYL CHLORIDE	BENZENE SULPHONYL CHLORIDE	17
BENZENE SULPHONYL CHLORIDE		17
BENZENETRICARBOXYLIC ACID, TRIOCTYL ESTER		17
Benzenol	PHENOL	17
Benzol	BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)	17
Benzole	BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)	17
Benzophenol	PHENOL	17
2-Benzothiazolethiol, sodium salt solution	MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION	17

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(2-Benzothiazolythio) sodium solution	MERCAPTOBENZOTHAZOL, SODIUM SALT SOLUTION	17
BENZYL ACETATE		17
BENZYL ALCOHOL		17
Benzyl butyl phthalate	BUTYL BENZYL PHTHALATE	17
BENZYL CHLORIDE		17
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Betula oil	METHYL SALICYLATE	17
Biformyl	GLYOXAL SOLUTION (40% OR LESS)	17
BIO-FUEL BLENDS OF DIESEL/GAS OIL AND ALKANES (C10-C26), LINEAR AND BRANCHED WITH A FLASHPOINT >60°C (>25% BUT <99% BY VOLUME)		17
DKQ/HWGN'DNGPF UQHF KGUGNI CU'QK'CPF CNMCP GU'E32/E48+'NPGCT'CPF'DTCPEJ GF Y K'J 'C'HNCUJ RQRP V'Ö82ÄE '*@47' 'DWW'>; ;' D] 'XQNWOG+		17
BIO-FUEL BLENDS OF DIESEL/GAS OIL AND FAME (>25% BUT <99% BY VOLUME)		17
BIO-FUEL BLENDS OF DIESEL/GAS OIL AND VEGETABLE OIL (>25% BUT <99% BY VOLUME)		17
BIO-FUEL BLENDS OF GASOLINE AND ETHYL ALCOHOL (>25% BUT <99% BY VOLUME)		17
Biphenyl	DIPHENYL	17
Bis(methylcyclopentadiene)	METHYLCYCLOPENTADIENE DIMER	17
2,5-Bis(alkyl(C7+)thio)-1,3,4-thiadiazole	ALKYLDITHIOTHIADIAZOLE (C6-C24)	17
Bis(2-aminoethyl)amine	DIETHYLENETRIAMINE	17
N,N'-Bis(2-aminoethyl)ethane-1,2-diamine	TRIETHYLENETETRAMINE	17
N,N'-Bis(2-aminoethyl)ethylenediamine	TRIETHYLENETETRAMINE	17
N,N-Bis(2-(bis(carboxymethyl)amino)ethyl)glycine, pentasodium salt solution	DIETHYLENETRIAMINEPENTAAACETIC ACID, PENTASODIUM SALT SOLUTION	17
Bis(2-butoxyethyl) ether	DIETHYLENE GLYCOL DIBUTYL ETHER	17
N,N- Bis(carboxymethyl)glycine trisodium salt solution	NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Bis(chloroethyl) ether	DICHLOROETHYL ETHER	17
Bis(2-chloroethyl) ether	DICHLOROETHYL ETHER	17
Bis (2-chloroisopropyl) ether	2,2'-DICHLOROISOPROPYL ETHER	17
Bis(2-chloro-1-methylethyl) ether	2,2'-DICHLOROISOPROPYL ETHER	17
Bis[2-(2,3-epoxypropoxy)phenyl]methane	DIGLYCIDYL ETHER OF BISPHENOL F	17
2,2-Bis[4-(2,3-epoxypropoxy)phenyl]propane	DIGLYCIDYL ETHER OF BISPHENOL A	17
Bis(2-ethoxyethyl) ether	DIETHYLENE GLYCOL DIETHYL ETHER	17
Bis(2-ethylhexyl) adipate	DI-(2-ETHYLHEXYL) ADIPATE	17
Bis(2-ethylhexyl) hydrogen phosphate	DI-(2-ETHYLHEXYL) PHOSPHORIC ACID	17
Bis(2-ethylhexyl) phthalate	DIOCTYL PHTHALATE	17
Bis(2-hydroxyethyl)amine	DIETHANOLAMINE	17
Bis(2-hydroxyethyl)ammonium 2,4-dichlorophenoxyacetate solution	2,4-DICHLOROPHENOXYACETIC ACID, DIETHANOLAMINE SALT SOLUTION	17
Bis(2-hydroxyethyl) ether	DIETHYLENE GLYCOL	18
Bis(2-hydroxypropyl)amine	DIISOPROPANOLAMINE	17
Bis(6-methylheptyl) phthalate	DIOCTYL PHTHALATE	17

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Bolus alba	KAOLIN SLURRY	18
BRAKE FLUID BASE MIX: POLY(2-8)ALKYLENE (C2-C3) GLYCOLS/POLYALKYLENE (C2-C10) GLYCOLS MONOALKYL (C1-C4) ETHERS AND THEIR BORATE ESTERS		17
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Butaldehyde (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
Butanal (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
n-Butanal (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
1,3-Butanediol (a)	BUTYLENE GLYCOL	17
Butane-1,3-diol (a)	BUTYLENE GLYCOL	17
1,4-Butanediol (a)	BUTYLENE GLYCOL	17
Butane -1,4-diol (a)	BUTYLENE GLYCOL	17
2,3-Butanediol (a)	BUTYLENE GLYCOL	17
Butane-2,3-diol (a)	BUTYLENE GLYCOL	17
Butanoic acid	BUTYRIC ACID	17
Butanol	N-BUTYL ALCOHOL	18
1-Butanol	N-BUTYL ALCOHOL	18
Butanol-1	N-BUTYL ALCOHOL	18
Butan-1-ol	N-BUTYL ALCOHOL	18
2-Butanol	SEC-BUTYL ALCOHOL	18
Butan-2-ol	SEC-BUTYL ALCOHOL	18
Butanol acetate (a)	BUTYL ACETATE (ALL ISOMERS)	17
2-Butanol acetate (a)	BUTYL ACETATE (ALL ISOMERS)	17
1,4-Butanolide	GAMMA-BUTYROLACTONE	17
Butan-4-olide	GAMMA-BUTYROLACTONE	17
n-Butanol	N-BUTYL ALCOHOL	18
sec-Butanol	SEC-BUTYL ALCOHOL	18
tert-Butanol	TERT-BUTYL ALCOHOL	17
2-Butanone	METHYL ETHYL KETONE	17
Butan-2-one	METHYL ETHYL KETONE	17
2-Butenal	CROTONALDEHYDE	17
Butene dimer	OCTENE (ALL ISOMERS)	17
BUTENE OLIGOMER		17
1-Butoxybutane	N-BUTYL ETHER	17
2-Butoxyethanol (a)	ETHYLENE GLYCOL MONOALKYL ETHERS	17
2-tert-butoxyethanol (a)	ETHYLENE GLYCOL MONOALKYL ETHERS	17
2-(2-Butoxyethoxy)ethanol (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER	17
2-(2-Butoxyethoxy)ethyl acetate (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE	17
2-Butoxyethyl acetate	ETHYLENE GLYCOL BUTYL ETHER ACETATE	17
1-Butoxypropan-2-ol (a)	PROPYLENE GLYCOL MONOALKYL ETHER	17
Butyl acetate (a)	BUTYL ACETATE (ALL ISOMERS)	17
BUTYL ACETATE (ALL ISOMERS)		17
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tert-Butyl acetate (a)	BUTYL ACETATE (ALL ISOMERS)	17
BUTYL ACRYLATE (ALL ISOMERS)		17
n-Butyl acrylate (a)	BUTYL ACRYLATE (ALL ISOMERS)	17
Butyl alcohol	N-BUTYL ALCOHOL	18
N-BUTYL ALCOHOL		18
SEC-BUTYL ALCOHOL		18
TERT-BUTYL ALCOHOL		17
n-Butyl aldehyde (a)	BUTYRALDEHYDE (ALL ISOMERS)	17
BUTYLAMINE (ALL ISOMERS)		17
n-Butylamine (a)	BUTYLAMINE (ALL ISOMERS)	17
sec-Butylamine (a)	BUTYLAMINE (ALL ISOMERS)	17
tert-Butylamine (a)	BUTYLAMINE (ALL ISOMERS)	17
BUTYLBENZENE (ALL ISOMERS)		17
tert-Butylbenzene (a)	BUTYLBENZENE (ALL ISOMERS)	17
BUTYL BENZYL PHTHALATE		17
Butyl butanoate (a)	BUTYL BUTYRATE (ALL ISOMERS)	17
BUTYL BUTYRATE (ALL ISOMERS)		17
n-Butyl butyrate (a)	BUTYL BUTYRATE (ALL ISOMERS)	17
n-Butylcarbinol	N-AMYL ALCOHOL	17
Butyl carbitol (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER	17
Butyl carbitol acetate (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE	17
Butyl cellosolve acetate	ETHYLENE GLYCOL BUTYL ETHER ACETATE	17
BUTYL/DECYL/CETYL/EICOSYL METHACRYLATE MIXTURE		17
Butyl/decyl/hexadecyl/icosyl methacrylate mixture (a)	BUTYL/DECYL/CETYL/EICOSYL METHACRYLATE MIXTURE	17
Butyl diglycol acetate (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL (C1-C6) ETHER ACETATE	17
BUTYLENE GLYCOL		17
alpha-Butylene glycol (a)	BUTYLENE GLYCOL	17
beta-Butylene glycol (a)	BUTYLENE GLYCOL	17
1,3-Butylene glycol, 3-methyl ether	3-METHOXY-1-BUTANOL	17
1,3-Butylene glycol, 3-methyl ether, 1-acetate	3-METHOXYBUTYL ACETATE	17
Butylene oxide	TETRAHYDROFURAN	17
1,2-BUTYLENE OXIDE		17
Butyl ethanoate	BUTYL ACETATE (ALL ISOMERS)	17
Butyl ether	N-BUTYL ETHER	17
N-BUTYL ETHER		17
Butylethylacetic acid (a)	OCTANOIC ACID (ALL ISOMERS)	17
Butylethylene	HEXENE (ALL ISOMERS)	17
tert-Butyl ethyl ether	ETHYL TERT-BUTYL ETHER	17
iso-Butyl ketone	DIISOBUTYL KETONE	17
BUTYL METHACRYLATE		17
tert-Butyl methyl ether	METHYL TERT-BUTYL ETHER	17
Butyl methyl ketone	METHYL BUTYL KETONE	17
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Polyglycitol syrup	HYDROGENATED STARCH HYDROLYSATE	18
POLY(IMINOETHYLENE)-GRAFT-N-POLY (ETHYLENEOXY) SOLUTION (90% OR LESS)		17
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POLYMETHYLENE POLYPHENYL ISOCYANATE		17
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POLYOLEFIN AMIDE ALKENEAMINE (C17+)		17
POLYOLEFIN AMIDE ALKENEAMINE BORATE (C28-C250)		17
POLYOLEFIN AMIDE ALKENEAMINE POLYOL		17
POLYOLEFINAMINE (C28-C250)		17
POLYOLEFINAMINE IN ALKYL (C2-C4) BENZENES		17
POLYOLEFINAMINE IN AROMATIC SOLVENT		17
POLYOLEFIN AMINOESTER SALTS (MOLECULAR WEIGHT 2000+)		17
POLYOLEFIN ANHYDRIDE		17
POLYOLEFIN ESTER (C28-C250)		17
POLYOLEFIN PHENOLIC AMINE (C28-C250)		17
POLYOLEFIN PHOSPHOROSULPHIDE, BARIUM DERIVATIVE (C28-C250)		17
Poly(oxyalkylene)alkenyl ether (MW>1000)	POLY(ETHYLENE GLYCOL) METHYLBUTENYL ETHER (MW>1000)	17
Poly(oxy-1,2-ethanediyl), alpha-(3-methyl-3-butenyl)-, omega-hydroxy-	POLY(ETHYLENE GLYCOL) METHYLBUTENYL ETHER (MW>1000)	17
POLY(20)OXYETHYLENE SORBITAN MONOOLEATE		17

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poly[(phenyl isocyanate)-alt-formaldehyde] (a)	POLYMETHYLENE POLYPHENYL ISOCYANATE	17
Poly[(phenyl isocyanate)-co-formaldehyde] (a)	POLYMETHYLENE POLYPHENYL ISOCYANATE	17
Poly[propene oxide]	POLYETHER (MOLECULAR WEIGHT 1350+)	17
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POLYPROPYLENE GLYCOL		17
POLYSILOXANE		17
Potash lye solution	POTASSIUM HYDROXIDE SOLUTION	17
Potassium chloride brine (<26%)	POTASSIUM CHLORIDE SOLUTION (LESS THAN 26%)	18
Potassium chloride drilling brine	POTASSIUM CHLORIDE SOLUTION	17
POTASSIUM CHLORIDE SOLUTION		17
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POTASSIUM FORMATE SOLUTIONS		18
POTASSIUM HYDROXIDE SOLUTION		17
POTASSIUM OLEATE		17
POTASSIUM THIOSULPHATE (50% OR LESS)		17
Propanal	PROPIONALDEHYDE	17
Propan-1-amine	N-PROPYLAMINE	17
2-Propanamine	ISOPROPYLAMINE	17
1,2-Propanediol	PROPYLENE GLYCOL	18
Propane-1,2-diol	PROPYLENE GLYCOL	18
1,2-Propanediol cyclic carbonate	PROPYLENE CARBONATE	18
Propanenitrile	PROPIONITRILE	17
1,2,3-Propanetriol	GLYCERINE	18
Propane-1,2,3-triol	GLYCERINE	18
1,2,3-Propanetriol triacetate	GLYCERYL TRIACETATE	17
Propanoic acid	PROPIONIC ACID	17
Propanoic anhydride	PROPIONIC ANHYDRIDE	17
Propanol	N-PROPYL ALCOHOL	17
1-Propanol	N-PROPYL ALCOHOL	17
Propan-1-ol	N-PROPYL ALCOHOL	17
2-Propanol	ISOPROPYL ALCOHOL	18
Propan-2-ol	ISOPROPYL ALCOHOL	18
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3-Propanolide	BETA-PROPIOLACTONE	17
n-Propanol	N-PROPYL ALCOHOL	17
Propanone	ACETONE	18
2-Propanone	ACETONE	18
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Propanamide solution, 50% or less	ACRYLAMIDE SOLUTION (50% OR LESS)	17
2-PROPENE-1-AMINIUM, N,N-DIMETHYL-N-2-PROPENYL-, CHLORIDE, HOMOPOLYMER SOLUTION		17
Propenenitrile	ACRYLONITRILE	17
Propene oxide	PROPYLENE OXIDE	17
Propenoic acid	ACRYLIC ACID	17
2-Propenoic acid, homopolymer solution (40% or less)	POLYACRYLIC ACID SOLUTION (40% OR LESS)	17

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BETA-PROPIOLACTONE		17
PROPIONALDEHYDE		17
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Propionitrile	PROPIONITRILE	17
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1-Propoxypropan-2-ol (a)	PROPYLENE GLYCOL MONOALKYL ETHER	17
Propyl acetate	N-PROPYL ACETATE	17
N-PROPYL ACETATE		17
Propyl acetone	METHYL BUTYL KETONE	17
Propyl alcohol	N-PROPYL ALCOHOL	17
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N-PROPYL ALCOHOL		17
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Propyl aldehyde	PROPIONALDEHYDE	17
Propylamine	N-PROPYLAMINE	17
N-PROPYLAMINE		17
PROPYLBENZENE (ALL ISOMERS)		17
n-Propylbenzene (a)	PROPYLBENZENE (ALL ISOMERS)	17
Propylcarbinol	N-BUTYL ALCOHOL	18
Propylene aldehyde	CROTONALDEHYDE	17
2,2'-[Propylenebis(nitrilomethylene)]diphenol in aromatic solvent	ALKYL (C8-C9) PHENYLAMINE IN AROMATIC SOLVENTS	17
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Propylene chloride	1,2-DICHLOROPROPANE	17
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alpha,alpha'-(Propylenedinitrilo)di-o-cresol in aromatic solvent	ALKYL (C8-C9) PHENYLAMINE IN AROMATIC SOLVENTS	17
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Propylene glycol n-butyl ether (a)	PROPYLENE GLYCOL MONOALKYL ETHER	17
Propylene glycol ethyl ether (a)	PROPYLENE GLYCOL MONOALKYL ETHER	17
Propylene glycol methyl ether (a)	PROPYLENE GLYCOL MONOALKYL ETHER	17
PROPYLENE GLYCOL METHYL ETHER ACETATE		17
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PROPYLENE OXIDE		17
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Propylethylene (a)	PENTENE (ALL ISOMERS)	17
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Pseudobutylene glycol	BUTYLENE GLYCOL	17
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Pygas	PYROLYSIS GASOLINE (CONTAINING BENZENE)	17
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Pyroacetic acid	ACETONE	18
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Pyrolysis gasoline, containing 10% or more benzene	BENZENE AND MIXTURES HAVING 10% BENZENE OR MORE (I)	17
Pyromucic aldehyde	FURFURAL	17
RAPESEED OIL		17
RAPESEED OIL (LOW ERUCIC ACID CONTAINING LESS THAN 4% FREE FATTY ACIDS)		17
RAPE SEED OIL FATTY ACID METHYL ESTERS		17
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Saturated fatty acid (C13 and above) (a)	FATTY ACID (SATURATED C13+)	17
SHEA BUTTER		17
Sludge acid	SULPHURIC ACID, SPENT	17
Soda ash solution	SODIUM CARBONATE SOLUTION	17
Soda lye solution	SODIUM HYDROXIDE SOLUTION	17
SODIUM ACETATE SOLUTIONS		18
Sodium acid sulphite solution (45% or less)	SODIUM HYDROGEN SULPHITE SOLUTION (45% OR LESS)	17
Sodium alkylbenzene sulphonate solution	ALKYLBENZENE SULPHONIC ACID, SODIUM SALT SOLUTION	17
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Sodium bisulphide solution (45% or less)	SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)	17
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SODIUM DICHROMATE SOLUTION (70% OR LESS)		17
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SODIUM HYDROGEN SULPHIDE (6% OR LESS)/SODIUM CARBONATE (3% OR LESS) SOLUTION		17
Sodium hydrogensulphide solution (45% or less)	SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)	17
SODIUM HYDROGEN SULPHITE SOLUTION (45% OR LESS)		17
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SODIUM HYDROSULPHIDE SOLUTION (45% OR LESS)		17
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Sodium lignosulphonate	LIGNINSULPHONIC ACID, SODIUM SALT SOLUTION	17
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Sodium methoxide	SODIUM METHYLATE 21-30% IN METHANOL	17
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Sodium rhodanate solution (56% or less)	SODIUM THIOCYANATE SOLUTION (56% OR LESS)	17
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Sodium salt of sulphonated naphthalene - formaldehyde condensate	NAPHTHALENESULPHONIC ACID-FORMALDEHYDE COPOLYMER, SODIUM SALT SOLUTION	17
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SORBITOL SOLUTION		18
d-Sorbitol solution	SORBITOL SOLUTION	18
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sym-Dimethylethylene glycol	BUTYLENE GLYCOL	17
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TALLOW FATTY ACID		17
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TETRAETHYLENE GLYCOL		17
TETRAETHYLENE PENTAMINE		17
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Tetraethylplumbane	MOTOR FUEL ANTI-KNOCK COMPOUND (CONTAINING LEAD ALKYL)	17
TETRAETHYL SILICATE MONOMER/OLIGOMER (20% IN ETHANOL)		18
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O-TOLUIDINE		17
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2,4,4-Trimethylpent-1-ene	DIISOBUTYLENE	17
2,4,4-Trimethylpentene-2	DIISOBUTYLENE	17
2,4,4-Trimethylpent-2-ene	DIISOBUTYLENE	17
2,4,6-Trimethyl-1,3,5-trioxane	PARALDEHYDE	17
2,4,6-Trimethyl-s-trioxane	PARALDEHYDE	17
Trioxan	1,3,5-TRIOXANE	17
1,3,5-TRIOXANE		17
5,8,11-Trioxapentadecane	DIETHYLENE GLYCOL DIBUTYL ETHER	17
3,6,9-Trioxaundecane	DIETHYLENE GLYCOL DIETHYL ETHER	17

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Index Name	Product Name	Chapter
Trioxymethylene	1,3,5-TRIOXANE	17
Tripropylene	PROPYLENE TRIMER	17
TRIPROPYLENE GLYCOL		17
Tripropylene glycol methyl ether (a)	POLY(2-8)ALKYLENE GLYCOL MONOALKYL(C1-C6) ETHER	17
Tris(dimethylphenyl) phosphate (all isomers)	TRIXYLYL PHOSPHATE	17
Tris(2-hydroxyethyl)amine	TRIETHANOLAMINE	17
2,4-D-tris(2-hydroxy-2-methylethyl)ammonium	2,4-DICHLOROPHENOXYACETIC ACID, TRIISOPROPANOLAMINE SALT SOLUTION	17
Tris(2-hydroxypropyl)amine	TRIISOPROPANOLAMINE	17
Tris(2-hydroxy-1-propyl)amine	TRIISOPROPANOLAMINE	17
Tris(2-hydroxypropyl)ammonium 2,4-dichlorophenoxyacetate solution	2,4-DICHLOROPHENOXYACETIC ACID, TRIISOPROPANOLAMINE SALT SOLUTION	17
Trisodium 2-[carboxylatomethyl(2-hydroxyethyl)amino] ethyliminodi(acetate) solution	N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Trisodium N-(carboxymethyl)-N'-(2-hydroxyethyl)-N,N'-ethylenediglycine solution	N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Trisodium N-(2-hydroxyethyl)ethylenediamine-N,N',N'-triacetate solution	N-(HYDROXYETHYL)ETHYLENEDIAMINETRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Trisodium nitrilotriacetate solution	NITRILOTRIACETIC ACID, TRISODIUM SALT SOLUTION	17
Tritolyl phosphate, containing less than 1% ortho- isomer	TRICRESYL PHOSPHATE (CONTAINING LESS THAN 1% ORTHO-ISOMER)	17
Tritolyl phosphate, containing 1% or more ortho- isomer	TRICRESYL PHOSPHATE (CONTAINING 1% OR MORE ORTHO-ISOMER)	17
Trixylenyl phosphate	TRIXYLYL PHOSPHATE	17
TRIXYLYL PHOSPHATE		17
TUNG OIL		17
TURPENTINE		17
Turpentine oil	TURPENTINE	17
Turps	TURPENTINE	17
Type A Zeolite slurry (a)	SODIUM ALUMINOSILICATE SLURRY	17
1-Undecanecarboxylic acid	LAURIC ACID	17
N-Undecane (a)	N-ALKANES (C10+)	17
UNDECANOIC ACID		17
Undecan-1-ol	UNDECYL ALCOHOL	17
1-UNDECENE		17
Undec-1-ene	1-UNDECENE	17
UNDECYL ALCOHOL		17
Undecylbenzene	ALKYL(C9+)BENZENES	17
Undecylic acid	UNDECANOIC ACID	17
n-Undecylic acid	UNDECANOIC ACID	17
uns-Trimethylbenzene (a)	TRIMETHYLBENZENE (ALL ISOMERS)	17
unsym-Trichlorobenzene	1,2,4-TRICHLOROBENZENE	17
UREA/AMMONIUM NITRATE SOLUTION		17
UREA/AMMONIUM NITRATE SOLUTION (CONTAINING LESS THAN 1% FREE AMMONIA)		17
UREA/AMMONIUM PHOSPHATE SOLUTION		17
UREA SOLUTION		17
Valeral	VALERALDEHYDE (ALL ISOMERS)	17
VALERALDEHYDE (ALL ISOMERS)		17

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n-Valeraldehyde	VALERALDEHYDE (ALL ISOMERS)	17
Valerianic acid	PENTANOIC ACID	17
Valeric acid	PENTANOIC ACID	17
n-Valeric acid	PENTANOIC ACID	17
Valeric aldehyde	VALERALDEHYDE (ALL ISOMERS)	17
Valerone	DIISOBUTYL KETONE	17
VEGETABLE ACID OILS (M)		17
VEGETABLE FATTY ACID DISTILLATES (M)		17
VEGETABLE PROTEIN SOLUTION (HYDROLYSED)		18
Vinegar acid	ACETIC ACID	17
Vinegar naphtha	ETHYL ACETATE	17
VINYL ACETATE		17
Vinylbenzene	STYRENE MONOMER	17
Vinylcarbinol	ALLYL ALCOHOL	17
Vinyl cyanide	ACRYLONITRILE	17
vinyl ethanoate	VINYL ACETATE	17
VINYL ETHYL ETHER		17
Vinylformic acid	ACRYLIC ACID	17
VINYLDENE CHLORIDE		17
VINYL NEODECANOATE		17
VINYLTOLUENE		17
Vinytoluene (all isomers)	VINYLTOLUENE	17
Vinyl trichloride	1,1,2-TRICHLOROETHANE	17
Vitriol brown oil	SULPHURIC ACID	17
WATER		18
Water glass solutions	SODIUM SILICATE SOLUTION	17
WAXES		17
White bole	KAOLIN SLURRY	18
White caustic solution	SODIUM HYDROXIDE SOLUTION	17
WHITE SPIRIT, LOW (15-20%) AROMATIC		17
White tar	NAPHTHALENE (MOLTEN)	17
Wine (a)	ALCOHOLIC BEVERAGES, N.O.S.	18
Wintergreen oil	METHYL SALICYLATE	17
Wood alcohol	METHYL ALCOHOL	17
WOOD LIGNIN WITH SODIUM ACETATE/OXALATE		17
Wood naphtha	METHYL ALCOHOL	17
Wood spirit	METHYL ALCOHOL	17
XYLENES		17
XYLENES/ETHYLBENZENE (10% OR MORE) MIXTURE		17
XYLENOL		17
Xylenol (all isomers)	XYLENOL	17
2,3-Xylenol (a)	XYLENOL	17
2,4-Xylenol (a)	XYLENOL	17
2,5-Xylenol (a)	XYLENOL	17
2,6-Xylenol (a)	XYLENOL	17

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Index Name	Product Name	Chapter
3,4-Xylenol (a)	XYLENOL	17
3,5-Xylenol (a)	XYLENOL	17
Xylols	XYLENES	17
ZINC ALKARYL DITHIOPHOSPHATE (C7-C16)		17
ZINC ALKENYL CARBOXAMIDE		17
ZINC ALKYL DITHIOPHOSPHATE (C3-C14)		17
Zinc bromide drilling brine	DRILLING BRINES (CONTAINING ZINC SALTS)	17
z-Octadec-9-enamine	OLEYLAMINE	17
(Z)-Octadec-9-enoic acid	OLEIC ACID	17
Z-Octadec-9-enoic acid	OLEIC ACID	17
(Z)-Octadec-9-enylamine	OLEYLAMINE	17

ANNEX 29

STATEMENT BY THE OBSERVER OF ITF ON THE ISSUE OF THE HUAMN ELEMENT

The IMO Council has clearly stated that the Human Element should be considered in respect to all review and establishment of current and new conventions and codes. MSC 89 decided that the Human Element Working Group should be convened during sessions of the STW Sub-Committee so that it is given the time it deserves. MEPC 62 did not have the time to decide on this issue. We share the view of the Council that any, and all issues discussed or decided at IMO have the potential of affecting seafarers and, therefore, contain the Human Element.

Our concerns are wide-ranging. The ITF on behalf of all working seafarers feels that the Human Element is not being addressed satisfactorily. Certainly all the important work being done in this Committee has a major impact on the workload, administrative burden, health, safety and potential liability of seafarers attempting to comply with all new regulations. These concerns have not been discussed and certainly not addressed. ITF will not add to the burden of this Committee by addressing all the concerns we have, for the list is long. Many delegations in their submissions allude to the increased workload and administrative burden of administrations, however, few take into consideration the same concerns related to seafarers who will bear the brunt of this.

The delegation of China, in its submission, MEPC 63/5/11, requests the Committee, among other things, to take into consideration certain assessment criteria within the feasibility study and impact assessment of MBMs on developing economies. In particular, we would like to highlight the technical and operational feasibility, the potential added workload and the potential additional administrative burden on board, and possible legal and liability aspects to be assessed in relation to seafarers as well as administrations. However, we believe this to apply to a much wider range of issues than merely MBMs.

ITF, therefore, requests that this Committee, and the IMO in general, seriously consider the concerns we have expressed. ITF also seeks clarification on how this Committee, which is and will continue to be the originator of many decisions affecting seafarers, will address these issues, take responsibility for the consequences of decisions made by this Committee and that it continues to have the Human Element as a working item on the agenda of the Committee. If the Human Element Working Group is the place where this will be discussed, ITF would like to know how the Committee intends to forward important work from this Committee to a working group in STW Sub-Committee, taking an active responsibility and interest in the terms of reference and outcomes of the WG, which may or may not be convened depending on the priorities of that Sub-Committee. We appeal to this Committee to continue to take responsibility for the Human Element and ensure that it is given the consideration and attention it deserves.

ANNEX 30

ITEMS IN BIENNIAL AGENDAS OF DE, DSC AND NAV SUB-COMMITTEES RELATING TO ENVIRONMENTAL ISSUES

SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT (DE)					
PLANNED OUTPUTS 2012-2013 (resolution A.1038(27))		Parent organ	Coordinating organ	Associated organ	Target completion year
Number	Description				
1.1.2.2	Cooperation with IACS: consideration of unified interpretation	MSC/MEPC	All sub-committees		Continuous
2.0.1.18	Unified interpretation of the MARPOL regulations	MEPC	All sub-committees		Continuous
2.0.1.10	Revision of the Standard specification for shipboard incinerators (resolution MEPC.76(40))	MEPC	DE		2013
5.2.1.17	Mandatory instruments: development of a mandatory Code for ships operating in polar waters	MSC/MEPC	DE		2014
7.1.2.3	Provisions for the reduction of noise from commercial shipping and its adverse impacts on marine life	MEPC	DE		2013
7.1.2.16	Development of guidance on the safe operation and performance standards of oil pollution combating equipment	MEPC	DE		2013
1.1.2.2	Cooperation with IACS: consideration of unified interpretation	MSC/MEPC	All sub-committees		Continuous
1.3.5.1	Harmonized provisions relating to the safe, secure and efficient carriage of dangerous goods following participation in the activities of UNCOE TDG, GHS and IAEA	MSC/MEPC	DSC	SEC	Continuous

SUB-COMMITTEE ON SHIP DESIGN AND EQUIPMENT (DE)					
PLANNED OUTPUTS 2012-2013 (resolution A.1038(27))		Parent organ	Coordinating organ	Associated organ	Target completion year
Number	Description				
2.0.1.18	Unified interpretation of the MARPOL regulations	MEPC	All sub-committees		Continuous
5.2.3.3	Mandatory instruments; development of amendments to the IMSBC Code, including evaluation of properties of solid bulk cargoes	MSC/MEPC	DSC		Continuous
5.2.3.8	Mandatory instruments: amendments to MARPOL Annex III, as required	MEPC	DSC		Continuous
12.3.1.3	Consideration of reports of incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	MSC/MEPC	DSC	FSI	Continuous

SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV)					
PLANNED OUTPUTS 2012-2013 (resolution A.1038(27))		Parent organ	Coordinating organ	Associated organ	Target completion year
Number	Description				
1.1.2.2	Cooperation with IACS: consideration of unified interpretation	MSC/MEPC	All sub-committees		Continuous
1.3.1.3	Identification of PSSAs, taking into account article 211 and other related articles of UNCLOS	MEPC	NAV		Continuous
2.0.1.18	Unified interpretation of the MARPOL regulations	MEPC	All sub-committees		Continuous
7.1.2.2	Mandatory instruments: designation of Special Areas and PSSAs and adoption of their associated protective measures	MEPC	NAV		Continuous

ANNEX 31

BIENNIAL AGENDA FOR THE BLG SUB-COMMITTEE AND PROVISIONAL AGENDA FOR BLG 17

SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG)*					
PLANNED OUTPUTS 2012-2013 (resolution A.1038(27))		Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year
Number**	Description				
1.1.2.2	Consideration of IACS unified interpretations	MSC MEPC		BLG	Continuous
2.0.1.8	Additional guidelines for implementation of the BWM Convention, including port State control	MEPC	BLG FSI		2013
2.0.1.9	Development of guidelines for replacement engines not required to meet the Tier III limit (MARPOL Annex VI)	MEPC	BLG		2013
2.0.1.11	Development of guidelines pertaining to equivalent set forth in regulation 4 of MARPOL Annex VI and not covered by other guidelines	MEPC	BLG		2013
2.0.1.12	Development of guidelines called for under paragraph 2.2.5.6 of the NO_x Technical Code	MEPC	BLG		2013
5.2.1.3	Development of international code of safety for ships using gases or other low-flashpoint fuels	MSC	BLG	DE	2013
5.2.1.4	Development of a revised IGC Code	MSC	BLG	FP/DE/SLF/ STW	2013

* Items printed in bold have been selected for the provisional agenda for BLG 17. Struck-out text indicates proposed deletions and shaded text indicates proposed changes. Deleted outputs will be maintained in the report on the status of planned outputs.

** Numbers refer to the planned outputs for the 2012-2013 biennium, as set out in resolution A.1038(27).

SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG)*					
PLANNED OUTPUTS 2012-2013 (resolution A.1038(27))		Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year
Number**	Description				
[5.2.1 [†]	Development of amendments to the provisions of SOLAS chapter II-2 relating to the secondary means of venting cargo tanks	MSC	BLG	FP	2013]
7.1.2.5	Production of a manual entitled "Ballast Water Management – How to do it"	MEPC	BLG		2013
[7.1.2.14 ^{***}	Development of international measures for minimizing the transfer of invasive aquatic species through biofouling of ships	MSC MEPC	BLG	DE	2013]
7.1.2.15	Development of a Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels	MSC MEPC	BLG	DE	2013
7.2.2.3	Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments	MEPC	BLG		Continuous
7.3.1.1	Review of relevant non-mandatory instruments as a consequence of the amended MARPOL Annex VI and the NO_x Technical Code	MEPC	BLG		2013

[†] Subject to approval by MSC 90 and endorsement by C 108.

^{***} Output number refers to resolution A.1016(26) as this output has not been included in this biennium's High-level Action Plan, as adopted by resolution A.1038(27). The Council will assign a new number for this item in due course.

SUB-COMMITTEE ON BULK LIQUIDS AND GASES (BLG)*					
PLANNED OUTPUTS 2012-2013 (resolution A.1038(27))		Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Target completion year
Number**	Description				
7.3.2.2	Keep under review IMO measures and contributions to international climate mitigation initiatives and agreements – (including CO₂ sequestration and ocean fertilization as well as consideration of the impact on the Arctic of emissions of Black Carbon from international shipping)	MEPC		BLG	Annual
12.1.1	Casualty analysis	MSC	FSI	BLG	Continuous
13.0.3	Consideration of improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution	MSC	BLG		Continuous

* Items printed in bold have been selected for the provisional agenda for BLG 17. Struck-out text indicates proposed deletions and shaded text indicates proposed changes. Deleted outputs will be maintained in the report on the status of planned outputs.

** Numbers refer to the planned outputs for the 2012-2013 biennium, as set out in resolution A.1038(27).

ITEMS TO BE PLACED ON THE COMMITTEES' POST-BIENNIAL AGENDAS THAT FALL UNDER THE PURVIEW OF THE SUB-COMMITTEE

MARITIME SAFETY COMMITTEE AND MARINE ENVIRONMENT PROTECTION COMMITTEE								
ACCEPTED POST-BIENNIAL OUTPUTS				Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Timescale (sessions)	References
No.	Reference to Strategic Directions	Reference to High-level Actions	Description					
1	5.2.1	5.2.1.3	Finalization of international code of safety for ships using gases or other low-flashpoint fuels	MSC	BLG	DE	2014	BLG 15/19, paragraph 6.15
2	7.1.2	7.1.2.5	Finalization of production of a manual entitled "Ballast Water Management – How to do it"	MEPC	BLG		Ongoing	BLG 16/16, Section 13
3	7.2.2	7.2.2.1	Safety aspects of alternative tanker designs assessed	MSC	BLG		Ongoing	BLG 3/18, paragraph 15.7
4	7.2.2	7.2.2.2	Environmental aspects of alternative tanker designs	MEPC	BLG		Ongoing	BLG 3/18, paragraph 15.7

DRAFT PROVISIONAL AGENDA FOR BLG 17

- Opening of the session
- 1 Adoption of the agenda
 - 2 Decisions of other IMO bodies
 - 3 Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments
 - 4 Additional guidelines for implementation of the BWM Convention
 - 5 Production of a manual entitled "Ballast Water Management – How to do it"
 - 6 Consideration of improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution
 - 7 Development of international measures for minimizing the transfer of invasive aquatic species through biofouling of ships
 - 8 Development of international code of safety for ships using gases or other low-flashpoint fuels
 - 9 Development of a revised IGC Code
 - 10 Consideration of the impact on the Arctic of emissions of Black Carbon from international shipping
 - 11 Review of relevant non-mandatory instruments as a consequence of the amended MARPOL Annex VI and the NO_x Technical Code
 - .1 Development of guidelines for replacement engines not required to meet the Tier III limit (MARPOL Annex VI)
 - .2 Development of guidelines pertaining to equivalents set forth in regulation 4 of MARPOL Annex VI and not covered by other guidelines
 - .3 Development of guidelines called for under paragraph 2.2.5.6 of the NO_x Technical Code
 - 12 Development of a Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels
 - [13 Development of amendments to the provisions of SOLAS chapter II-2 relating to the secondary means of venting cargo tanks]*
 - 14 Consideration of IACS unified interpretations
 - 15 Casualty analysis

* Subject to approval by MSC 90 and C 108.

- 16 Biennial agenda and provisional agenda for BLG 18
- 17 Election of Chairman and Vice-Chairman for 2014
- 18 Any other business
- 19 Report to the Committees

ANNEX 32

BIENNIAL AGENDA FOR THE FSI SUB-COMMITTEE

SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI)*					
PLANNED OUTPUTS 2012-2013 (RESOLUTION A.1038(27))		Parent organ	Coordinating organ	Associated organs	Target completion year
Number**	Description				
1.1.2.1	<u>Cooperation with FAO: Preparation and holding of the third meeting of the Joint FAO/IMO Working Group on IUU Fishing and related matters, including the adoption of a new treaty to facilitate the implementation of the technical provisions to the 1993 Torremolinos Protocol</u>	MSC/MEPC	FSI/SLF		2013
1.1.2.2	<u>Cooperation with IACS: Consideration of unified interpretations</u>	MSC/MEPC	All sub-committees		Continuous
1.1.2.5	<u>Cooperation with ILO: Development of PSC guidelines on seafarers' hours of rest taking into account the Maritime Labour Convention, 2006</u>	MSC	FSI		2013
1.1.2.23	<u>Policy input/guidance to ILO: Development of PSC guidelines in the context of the Maritime Labour Convention, 2006</u>	MSC	FSI		Continuous
1.1.2.24	<u>Policy input/guidance to ILO/FAO: Preparation and holding of the third meeting of the Joint FAO/IMO ad hoc Working Group on IUU Fishing and related matters (JWG)</u>	MSC	FSI	SLF	2013

* Items underlined have been selected for the draft provisional agenda for FSI 20.

** Numbers refer to the planned outputs for the 2012-2013 biennium, as set out in resolution A.1038(27).

Note: Underlined texts are items from resolution A.1038(27).

SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI)*					
PLANNED OUTPUTS 2012-2013 (RESOLUTION A.1038(27))		Parent organ	Coordinating organ	Associated organ	Target completion year
Number	Description				
1.1.2.26	Policy input/guidance to PSC regimes: Related to IMO developments	MSC/MEPC	FSI		Continuous
2.0.1.8	Non-mandatory Instruments: Additional guidelines for implementation of the BWM Convention, including port State control	MEPC	BLG/FSI		2013
2.0.1.13	Development of a Code for Recognized Organizations	MSC/MEPC	FSI		2012
2.0.1.19	Comprehensive review of issues related to the responsibilities of Governments and development of measures to encourage flag State compliance	MSC/MEPC		FSI	2013
2.0.1.21	Summary reports and analyses of mandatory reports under MARPOL	MEPC	SEC	FSI	Continuous
	Review of the Code for implementation of mandatory IMO instruments and consolidated audit summary reports, adoption of the new IMO Instruments Implementation (III) Code and making the III Code and auditing mandatory	ASSEMBLY MSC/MEPC		MSC/MEPC/FSI	2013
4.0.2.2	Development and management of mandatory IMO number schemes	MSC		SEC	Continuous
4.0.2.3	Protocols on data exchange with other international, regional and national data providers	Committees	FSI	SEC	Continuous

SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI)*					
PLANNED OUTPUTS 2012-2013 (RESOLUTION A.1038(27))		Parent organ	Coordinating organ	Associated organ	Target completion year
Number	Description				
5.2.1.18	Mandatory instruments: Development of a non-mandatory instrument on regulations for non-convention ships	MSC	FSI		2013
5.2.1.19	Non-mandatory instruments: Review and update of the Survey Guidelines under the Harmonized System of Survey and Certification and the annexes to the Code for the Implementation of Mandatory IMO Instruments	MSC/MEPC	FSI		Continuous
	Non-mandatory instruments: Review of procedures for PSC	MSC/MEPC	FSI		2013
	Promote the harmonization of port State control activities and collect PSC data	MSC/MEPC	FSI		Continuous
	Methodology for the in-depth analysis of annual PSC reports	MSC/MEPC	FSI		2013
5.3.1.6	A risk assessment comparison between marine casualties and incidents and PSC inspections	MSC/MEPC	FSI		Continuous
7.1.3.1	Reports on inadequacy of port reception facilities	MEPC	FSI		Annual
7.1.3.2	Follow-up to the implementation of the Action Plan on port reception facilities	MEPC	FSI		2013
12.1.2.1	Collection and analysis of casualty and PSC data to identify study trends and develop knowledge and risk-based recommendations	MSC	FSI		Continuous

SUB-COMMITTEE ON FLAG STATE IMPLEMENTATION (FSI)*					
PLANNED OUTPUTS 2012-2013 (RESOLUTION A.1038(27))		Parent organ	Coordinating organ	Associated organ	Target completion year
Number	Description				
12.3.1.1	Guidance on the development of GISIS and on access to information	MSC/MEPC	FSI		Continuous
12.3.1.2	PSC data collected and disseminated in cooperation with PSC regimes	MSC	FSI		Annual
13.0.2.1	Guidance for the Secretariat on the development of GISIS and on access of information	MEPC	FSI		Continuous

ANNEX 33

**ITEMS TO BE INCLUDED IN THE AGENDAS
FOR MEPC 64, MEPC 65 AND MEPC 66**

No.	Item	MEPC 64 October 2012	MEPC 65 [May] 2013	MEPC 66 [March] 2014
1	Harmful aquatic organisms in ballast water	RG X	[RG] X	[RG] X
2	Recycling of ships	WG X	WG X	[DG] X
3	Air pollution and energy efficiency	WG X	[WG] X	[WG] X
4	Reduction of GHG emissions from ships	X	[WG] X	[WG] X
5	Consideration and adoption of amendments to mandatory instruments	DG X	[X]	[X]
6	Interpretations of, and amendments to, MARPOL and related instruments	X	X	X
7	Implementation of the OPRC Convention and the OPRC-HNS Protocol and relevant Conference resolutions	X	X	X
8	Identification and protection of Special Areas and PSSAs	X	X	X
9	Inadequacy of reception facilities	X	X	X
10	Reports of sub-committees	X	X	X
11	Work of other bodies	X	X	X

No.	Item	MEPC 64 October 2012	MEPC 65 [May] 2013	MEPC 66 [March] 2014
12	Status of conventions	X	X	X
13	Harmful anti-fouling systems for ships	X	X	X
14	Promotion of implementation and enforcement of MARPOL and related instruments	X	X	X
15	Technical co-operation activities for the protection of the marine environment	X	X	X
16	Role of the human element	X		
17	Noise from commercial shipping and its adverse impacts on marine life	X	[X]	[X]
18	Work programme of the Committee and subsidiary bodies	X	X	X
19	Application of the Committees' Guidelines	X	X	X
20	Election of the Chairman and Vice-Chairman	X	X	
21	Any other business	X	X	X

ANNEX 34

**REPORT ON THE STATUS OF PLANNED OUTPUTS FOR THE MEPC FOR THE 2012-2013 BIENNIUM
As contained in resolution A.1038(27)**

Planned output number in the High-level Action Plan for 2012-2013 ^a	Description	Target Completion Year ^b	Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Status of output for Year 1 ^c	Status of output for Year 2 ^c	References ^d
1.1.2.1	Cooperation with FAO: preparation and holding of the third meeting of the Joint IMO/FAO Working Group on IUU fishing and related matters, including the adoption of a new treaty to facilitate the implementation of the technical provisions to the 1993 Torremolinos Protocol	2013	MSC/MEPC	FSI/SLF		In progress		

Notes:

- ^a When individual output contains multiple deliverables, the format should be to report on each individual deliverables.
- ^b The target completion year should not be indicated by the number of sessions. It should be specified by year, or indicate that the item is continuous.
- ^c The entries under the "Status of output" columns are categorized as follows:
- "completed" if it signifies that the output in question has been duly finalized;
 - "in progress" if it signifies that the expected output has been progressed, often with interim outputs (for example, draft amendments or guidelines) which are expected to be approved later in the same biennium;
 - "ongoing" if it signifies that the output relate to work of the respective IO organs that is a permanent or continuous tasks; and
 - "postponed" if it signifies that the respective IMO organ has decided to defer the production of relevant outputs to another time (for example, until the receipt of corresponding submissions).
- ^d If the output consists of the adoption/approval of an instrument (e.g. resolution, circular, etc.), that instrument should be clearly referenced in this column.

Planned output number in the High-level Action Plan for 2012-2013 ^a	Description	Target Completion Year ^b	Parent organ(s)	Coordinating organ(s)	Associated organ(s)	Status of output for Year 1 ^c	Status of output for Year 2 ^c	References ^d
1.1.2.2	Cooperation with IACS: consideration of unified interpretations	Continuous	MSC/MEPC	All sub-committees		Ongoing		
1.1.2.4	Cooperation with IAEA: formalized emergency arrangements for response to nuclear/radiological emergencies from ships, including IMO contribution to the next version of the "Joint Radiation Emergency Management Plan of the International Organizations"	Continuous	MSC/MEPC	SEC		Ongoing		
1.1.2.8	Cooperation with data providers: protocols on data exchange with international, regional and national entities	Continuous	Committees	SEC		Ongoing		
1.1.2.25	Policy input/guidance to ISO TC 8: development of industry consensus standards	Continuous	MSC/MEPC	SEC		Ongoing		
1.1.2.26	Policy input/guidance to PSC regimes: related IMO developments	Continuous	MSC/MEPC	FSI		Ongoing		
1.1.2.28	Policy input/guidance to Environment Management Group (established by UN General Assembly resolution 53/242): inter-agency sharing of information and agreement on priorities	Continuous	MEPC	SEC		Ongoing		
1.1.2.29	Policy input/guidance on GESAMP-related IMO developments	Continuous	MEPC	BLG		Ongoing		
1.1.2.30	Policy input/guidance to GESAMP-BW Working Group: evaluation of active substances used by ballast water management systems	Annual	MEPC	BLG		In progress		

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1.1.2.31	Policy input/guidance to GESAMP-EHS Working Group: evaluation of bulk chemicals	Annual	MEPC	BLG		In progress		
1.1.2.32	Policy input/guidance to UNFCCC: greenhouse gas emissions from ships	Continuous	MEPC	BLG		Ongoing		
1.1.2.33	Policy input/guidance to UN Globally Harmonized System: classification and labelling of products	Continuous	MEPC	BLG		Ongoing		
1.1.2.34	Policy input/guidance to UN-Oceans: inter-agency coordination on oceans and coastal issues	Continuous	MEPC	SEC		Ongoing		
1.1.2.35	Policy input/guidance to UN Regular Process: assessment of the state of the marine environment	Continuous	MEPC	SEC		Ongoing		
1.1.2.44	Follow up to the 3rd meeting of the Joint ILO/IMO/BC Working Group on Ship Scrapping	2013	MEPC			In progress		
1.3.1.3	Identification of PSSAs, taking into account article 211 and other related articles of UNCLOS	Continuous	MEPC	NAV		Ongoing		
1.3.2.1	Contributions to UNCSD 2012 (Rio +20) and its preparatory meetings to showcase relevant work and follow-up to decisions of the Conference	2013	MEPC	SEC		In progress		
1.3.2.2	Capacity-building follow-up action to UNCSD reflected in the ITCP	Continuous	TCC/MEPC			Ongoing		
1.3.3.1	Hazard profiles and evaluation of newly submitted substances to be incorporated into the IBC Code	Continuous	MEPC	BLG		Ongoing		

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1.3.3.2	Approval of ballast water management systems	Continuous	MEPC			Ongoing		
1.3.5.1	Harmonized provisions relating to the safe, secure and efficient carriage of dangerous goods following participation in the activities of UNCOE TDG, GHS and IAEA	Continuous	MSC/MEPC	DSC	SEC	Ongoing		
2.0.1.1	Amendments to relevant MARPOL Annexes I, II, IV, V and VI on regional arrangements for port reception facilities	2012	MEPC			Completed		Resolution MEPC.216(63) and MEPC.217(63)
2.0.1.7	Non-mandatory instruments: clarified boundaries between MARPOL and the London Convention 1972	2013	MEPC			In progress		
2.0.1.8	Non-mandatory instruments: additional guidelines for implementation of the BWM Convention, including port State control	2013	MEPC	BLG/FSI		In progress		
2.0.1.9	Non-mandatory instruments: guidelines for replacement engines not required to meet the Tier III limit (MARPOL Annex VI)	2013	MEPC	BLG		In progress		
2.0.1.10	Revision of the standard specification for shipboard incinerators (resolution MEPC.76(40))	2013	MEPC	DE		In progress		
2.0.1.11	Non-mandatory instruments: other relevant guidelines pertaining to equivalents set forth in regulation 4 of MARPOL Annex VI and not covered by other guidelines	2013	MEPC	BLG		In progress		
2.0.1.12	Non-mandatory instruments: guidelines called for under paragraph 2.2.5.6 of the NO _x Technical Code	2013	MEPC	BLG		In progress		

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2.0.1.13	Development of a Code for Recognized Organizations	2012	MSC/MEPC	FSI		In progress		
2.0.1.18	Unified interpretations of the MARPOL regulations	Continuous	MEPC	All sub-committees		Ongoing		
2.0.1.19	Comprehensive review of issues related to the responsibilities of Governments and development of measures to encourage flag State compliance	Continuous	MSC/MEPC		FSI	Ongoing		
2.0.1.20	Reports on the average sulphur content of residual fuel oil supplied for use on board ships	Continuous	MEPC	SEC		Ongoing		
2.0.1.21	Summary reports and analyses of mandatory reports under MARPOL	Continuous	MEPC	SEC	FSI	Ongoing		
2.0.1.22	GISIS module on mandatory and non-mandatory requirements	Annual	Committees	SEC	FSI	In progress		
3.1.1.1	Guidance for the Secretariat concerning the environmental programmes and projects to which the Organization contributes or executes, such as GEF, UNDP, UNEP and World Bank projects or programmes, and the IMO/UNEP forum on regional cooperation to address marine pollution	Annual	MEPC			In progress		
3.1.1.2	Reports on partnership arrangements for, and on implementation of, environmental programmes	Annual	MEPC/TCC	SEC		In progress		

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3.1.2.1	Guidance for the Secretariat concerning partnerships with the industry (Global Initiative) aiming at promoting implementation of the OPRC Convention and the OPRC-HNS Protocol	Annual	MEPC			In progress		
3.4.1.1	Guidance on identifying the emerging needs of developing countries, in particular SIDS and LDCs	Continuous	Committees			Ongoing		
3.5.1.3	Input to the ITCP on environmental protection	Continuous	MEPC			Ongoing		
4.0.2.1	Guidance on the establishment or further development of information systems (databases, websites, etc.) as part of GISIS	Continuous	Committees		FSI	Ongoing		
4.0.2.3	Protocols on data exchange with other international, regional and national data providers	Continuous	Committees	FSI	SEC	Ongoing		
4.0.2.9	Electronic publications on preparedness for and response to accidental marine pollution produced jointly with the oil industry	2013	MEPC	SEC		In progress		
4.0.5.1	Revised guidelines on organization and method of work, as appropriate	Continuous	MSC/MEPC SEC			Ongoing		
5.2.1.17	Mandatory instruments: development of a mandatory Code of ships operating in polar waters	2014	MSC/MEPC	DE		In progress		

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5.2.1.19	Non-mandatory instruments: review and update of the Survey Guidelines under the Harmonized System of Survey and Certification and the annexes to the Code for the Implementation of Mandatory IMO Instruments	2013	MSC/MEPC	FSI		In progress		
5.2.2.2	Mandatory instruments: input regarding MARPOL, BWM and other environmental conventions	2013	MEPC			In progress		
5.2.3.3	Mandatory instruments: development of amendments to the IMSBC Code, including evaluation of properties of solid bulk cargoes	Continuous	MSC/MEPC	DSC		Ongoing		
5.2.3.7	Mandatory instruments: input regarding MARPOL Annexes I and II and the IBC Code	Continuous	MEPC			Ongoing		
5.2.3.8	Mandatory instruments: amendments to MARPOL Annex III, as required	Continuous	MEPC	DSC		Ongoing		
5.3.1.2	Non-mandatory instruments: review of procedures for PSC	2013	MSC/MEPC	FSI		In progress		
5.3.1.4	Promote the harmonization of PSC activities	Continuous	MSC/MEPC	FSI		Ongoing		
5.3.1.5	Methodology for the in-depth analysis of annual PSC reports	2013	MSC/MEPC	FSI		In progress		
5.3.1.6	A risk assessment comparison between marine casualties and incidents and PSC inspections	Continuous	MSC/MEPC	FSI		Ongoing		

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7.1.1.1	Follow-up to the GESAMP study on "Estimates of Oil Entering the Marine Environment from Sea-based Activities"	2013	MEPC			In progress		
7.1.1.2	Technical guidance for the Secretariat for the development, on the basis of reporting requirements under MARPOL, OPRC and the OPRC-HNS Protocol, as well as other relevant sources of information, of a pollution incident information structure for regular reporting to the FSI and BLG Sub-Committees, and/or the MEPC	2013	MEPC			In progress		
7.1.2.1	Mandatory instruments: follow-up to the Hong Kong Convention on Ship Recycling, including development and adoption of associated guidelines	2013	MEPC			In progress		
7.1.2.2	Mandatory instruments: designation of Special Areas and PSSAs and adoption of their associated protective measures	Continuous	MEPC	NAV		Ongoing		
7.1.2.3	Provisions for the reduction of noise from commercial shipping and its adverse impacts on marine life	2013	MEPC	DE		In progress		
7.1.2.4	Approved ballast water management systems	Continuous	MEPC			Ongoing		
7.1.2.5	Production of a manual entitled "Ballast Water Management – How to do it"	Ongoing	MEPC	BLG		In progress		
7.1.2.6	Measures to promote the AFS Convention	2013	MEPC		FSI	In progress		
7.1.2.7	Manual on chemical pollution to address legal and administrative aspects of HNS incidents	2013	MEPC			In progress		

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7.1.2.8	Development of international measures for minimizing the transfer of invasive aquatic species through biofouling of ships	2013	MEPC	BLG	DE	In progress		
7.1.2.9	Technical guidelines on sunken oil assessment and removal techniques	2013	MEPC			In progress		
7.1.2.10	Guide on Oil Spill Response in Ice and Snow Conditions	2013	MEPC			In progress		
7.1.2.11	Updated IMO Dispersant Guidelines	2013	MEPC			In progress		
7.1.2.12	Guideline for oil spill response – offshore in situ burning	2013	MEPC			In progress		
7.1.2.13	Guidance on obligations and actions required by States to prepare for implementation of the OPRC-HNS Protocol	2012	MEPC			In progress		
7.1.2.14	Revision of the revised guidelines on implementation of effluent standards and performance tests for sewage treatment plants (resolution MEPC.159(55))	2012	MEPC	DE		In progress		
7.1.2.15	Development of a Code for the transport and handling of limited amounts of hazardous and noxious liquid substances in bulk on offshore support vessels	2013	MSC/MEPC	BLG	DE	In progress		
7.1.2.16	Development of guidance on the safe operation and performance standards of oil pollution combating equipment	2013	MEPC		DE	In progress		
7.1.2.17	Development of guidance for international offers of assistance in response to a marine oil pollution incident	2012	MEPC			In progress		Para 20.6 MEPC 62/24

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7.1.2.18	Method to undertake environmental risk and response benefit assessments	2013	MEPC			In progress		
7.1.2.19	Development of criteria for the evaluation of environmentally hazardous solid bulk cargoes in relation to the revised MARPOL Annex V	2012	MEPC	DSC		Completed		Resolution MEPC.219(63)
7.1.3.1	Reports on inadequacy of port reception facilities	Annual	MEPC	FSI		In progress		
7.1.3.2	Follow-up to the implementation of the Action Plan on port reception facilities	2013	MEPC	FSI		In progress		
7.1.4.1	Action Plan, as required, on prevention and control of marine pollution from small craft, including development of appropriate measures	Continuous	MEPC			Ongoing		
7.2.1.2	Input to the review of the guidelines on the identification of places of refuge with regard to marine environment protection	Continuous	MEPC			Ongoing		
7.2.2.2	Environmental aspects of alternative tanker designs	Continuous	MEPC	BLG		Ongoing		
7.2.2.3	Evaluation of safety and pollution hazards of chemicals and preparation of consequential amendments	Continuous	MEPC	BLG		Ongoing		
7.2.3.1	Increased activities within the ITCP regarding the OPRC Convention and the OPRC-HNS Protocol	Annual	MEPC/TCC	SEC		In progress		
7.3.1.1	Review of relevant non-mandatory instruments as a consequence of the amended MARPOL Annex VI and the NO _x Technical Code	2013	MEPC	BLG		In progress		

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7.3.2.1	Further development of mechanisms needed to achieve the limitation or reduction of CO ₂ emissions from international shipping	Annual	MEPC			In progress		
7.3.2.2	Keep under review IMO measures and contributions to international climate mitigation initiatives and agreements (including CO ₂ sequestration and ocean fertilization)	Annual	MEPC		BLG	In progress		
7.4.1.1	Follow up to the updated Action Plan on the Organization's strategy to address human element (MSC-MEPC.7/Circ.4)	Continuous	MEPC			Ongoing		
8.0.3.2	Electronic access to, or electronic versions of, certificates and documents required to be carried on ships	2013	FAL/MSC/MEPC/LEG			In progress		
9.0.1.3	Provision of reception facilities under MARPOL in SIDS	Continuous	MEPC			Ongoing		
10.0.1.2	Mandatory instruments: development of goal-based ship construction standards for all types of ships, including safety, security and protection of the marine environment	2013	MSC/MEPC			In progress		
11.1.1.6	Measures to promote the "IMO Children's Ambassador" concept, in collaboration with junior marine environment protection associations worldwide	2013	MEPC			In progress		
12.2.1.1	Non-mandatory instruments: guidelines and associated training to assist companies and seafarers in improving the implementation of the ISM Code	2012	MSC/MEPC			In progress		

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12.2.1.2	Non-mandatory instruments: revised guidelines for Administrations (resolution A.913(22)) to make them more effective and user-friendly	2012	MSC/MEPC			In progress		
12.2.1.3	Mandatory instrument: enhancing the efficiency and user-friendliness of ISM Code	2013	MSC/MEPC	STW		In progress		
12.3.1.1	Guidance on the development of GISIS and on access to information	Continuous	MSC/MEPC	FSI		Ongoing		
12.3.1.3	Consideration of reports of incidents involving dangerous goods or marine pollutants in packaged form on board ships or in port areas	Continuous	MSC/MEPC	DSC	FSI	Ongoing		
12.3.1.4	Maintain an updated web-based inventory of OPRC/HNS related information, including R&D projects and best practices	Continuous	MEPC			Ongoing		
12.4.1.1	Guidelines and MEPC circulars	Continuous	MEPC			Ongoing		
13.0.2.1	Guidance for the Secretariat on the development of GISIS and on access to information	Continuous	MEPC	FSI		Ongoing		
13.0.2.2	Databases as part of GISIS and other means, including electronic ones	Continuous	Committees	SEC		Ongoing		
13.0.3.1	Improved and new technologies approved for ballast water management systems and reduction of atmospheric pollution	Annual	MEPC	BLG		In progress		