

GUIDELINES FOR THE PROVISIONAL ASSESSMENT OF LIQUIDS TRANSPORTED IN BULK



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Foreword

The Guidelines for the provisional assessment of liquids transported in bulk (hereafter referred to as “the Guidelines”) were approved by the Organization’s Marine Environment Protection Committee (MEPC) at its thirtieth session. The Guidelines were originally circulated under MEPC/Circ.238 in March 1991 and were incorporated into the 1991 Consolidated Edition of MARPOL 73/78 (International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto).

The Guidelines were approved in conjunction with the extension of the unified interpretation of regulation 3(4) of Annex II of MARPOL 73/78, which made it possible for the Administrations of the States producing or shipping mixtures of pollution hazard-only substances already assessed by IMO to authorize the manufacturer to carry out the assessment of the mixture on its behalf. Also, the Guidelines provided the step-by-step procedures for ascertaining the carriage requirements of all liquids offered for bulk carriage.

Having taken into consideration the reformatting of the 1991 Consolidated Edition of MARPOL 73/78 into the 1997 Consolidated Edition (whereby non-mandatory information, such as the Guidelines, was removed), the Secretariat decided to publish the Guidelines as a separate, stand-alone IMO publication.

This publication includes the amendments to the Guidelines adopted by the MEPC at its thirty-third session on 30 October 1992.

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Guidelines for the provisional assessment of liquids transported in bulk

Section 1

Introduction

1.1 The carriage of liquid substances in bulk is regulated by SOLAS 74 and MARPOL 73/78 for safety and pollution prevention purposes.

1.2 Liquid cargoes which may be offered for shipment in bulk can be divided into the following groups:

- .1 liquefied gases;
- .2 oils; and
- .3 noxious and non-noxious liquid substances, hereafter referred to as “chemicals”.

1.3 Liquefied gases are listed in chapter 19 of the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code) and their shipment is subject to the provisions of that Code.

1.4 The notion of “oil” includes petroleum in any form (crude oil, fuel oil, sludge, oil refuse and refined products, other than petrochemicals which are included in 1.2.3 above). The shipment of oil is regulated by Annex I to MARPOL 73/78.

1.5 A number of cargoes can be shipped either on gas or chemical tankers. They are included both in chapter 19 of the IGC Code and in chapter 17 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code).

1.6 Each liquid offered for carriage in bulk should be identified as either a gas or an oil or a chemical. These Guidelines apply only to liquids identified as chemicals.

1.7 The requirements for the carriage of chemicals in bulk are defined in the IBC Code and the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH Code). The IBC Code applies to chemical tankers built on or after 1 July 1986 and is mandatory under both SOLAS 74 and MARPOL 73/78. The BCH Code applies to those built before 1 July 1986. The latter is mandatory under MARPOL 73/78 and recommended under SOLAS 74.

1.8 In the present Guidelines reference is made to the IBC Code only, for the sake of brevity; however, it implies reference to the BCH Code as well, as applicable.

1.9 The procedures described in the present Guidelines are presented in diagram form in annex 1.

Section 2

Assessed substances

2.1 If the liquid is to be shipped as a chemical, the shipper should first check whether it is listed in chapter 17 or 18 of the IBC Code, excluding “Noxious (or non-noxious) liquid, n.o.s.” generic entries.

2.2 The liquids listed in the IBC Code are mainly pure or technically pure chemicals, including their aqueous solutions.

2.3 The list of substances in chapters 17 and 18 of the IBC Code is expected to be updated every two years.

2.4 The Index of Dangerous Chemicals Carried in Bulk, issued by IMO, gives most of the commonly used synonyms of the chemicals listed in the IBC Code. This Index is also expected to be expanded every two years in line with the IBC Code.

2.5 It is important that a chemical listed in the IBC Code is shipped under the name listed in the Code, instead of under a synonym, for ease of identification by all those involved in its transport.

2.6 If the chemical is not listed in the IBC Code, the next step is to check the agreed and proposed amendments to chapters 17 and 18 of the IBC Code and the list of chemicals provisionally assessed by IMO. Such a list is issued periodically under the cover of an MEPC circular.

2.7 If the chemical is neither listed in the IBC Code, nor provisionally assessed by IMO, it is necessary to check whether it has already been provisionally assessed by tripartite agreement by the shipping or producing country, flag States and receiving countries for the intended shipment.

2.8 A list of chemicals provisionally assessed by tripartite agreement is issued periodically under cover of an MEPC circular different from that mentioned in 2.6. The same circular also includes a separate list of pollutant-only mixtures of assessed substances, covered later in section 5.

2.9 If the shipping or producing country is already a Party to a provisional assessment of the chemical in question, of which one or more of the flag States and/or receiving countries are not Parties, the shipping or producing country will ask them to join in the existing agreement.

2.10 If the chemical has already been assessed by tripartite agreement by other Parties, the shipping or producing country should review the basis of the precedent assessment, with a view to concurring with it, unless new data are available or a more accurate assimilation is proposed. In this case, the chemical should be reassessed (see 4.5 to 4.7).

2.11 If the chemical proposed for shipment is found in the list referred to in 2.8, the shipping or producing country should inform those among the flag States and the receiving countries which have not yet been informed that the chemical has already been assigned to a generic entry in the IBC Code.

Section 3

Unassessed substances

3.1 The chemicals to be assessed can be divided into the following groups:

- .1 pure or technically pure chemicals (see section 4);
- .2 mixtures, presenting no safety hazard, containing at least 97% by weight of components already assessed by IMO (see section 5);
- .3 mixtures containing at least 97% by weight of components already assessed by IMO, presenting safety hazards (see section 6);
- .4 mixtures containing one or more components, forming more than 3% by weight of the mixture, which have not yet been assessed by IMO (see section 7).

3.2 The chemicals or mixtures referred to in 3.1.1, 3.1.3 and 3.1.4 will be provisionally assessed by tripartite agreement, in accordance with regulation 3(4) of Annex II to MARPOL 73/78 and paragraph 2A.1 of its Unified Interpretation (see annex 2).

3.3 These tripartite agreements will expire after three years. It is intended that during this period the chemical will be assessed by IMO (see section 8), with the exception of mixtures presenting safety hazards which have been classified by IMO.

3.4 It is in the best interest of the manufacturer/shipper to submit the data necessary for a provisional assessment to the shipping or producing country Administration well in advance of the shipment. The Administration should avoid unnecessary delays.

3.5 After the provisional assessment of the chemicals in 3.1.1, 3.1.3 and 3.1.4 is completed, an amendment sheet to the ship's Certificate of Fitness and to the P & A Manual must be issued by the Administration of the flag State of the ship before the ship sails. An example of the amendment sheet is given in annex 3.

3.6 Mixtures in 3.1.2 will be assessed in a simplified manner in accordance with paragraph 2A.3 of the Unified Interpretation. Due to the purely mechanical nature of such an assessment, it is not necessary for the shipping or producing country to seek the concurrence of the flag States and receiving countries. These mixtures will be shipped under the applicable generic entry to the IBC Code (i.e. “Noxious liquid not otherwise specified” or “non-noxious liquid, n.o.s.”).

3.7 Until the mixture is included in the MEPC circular referred to in 2.8 above, it is still necessary to inform the flag States and receiving countries.

Section 4

Provisional assessment of pure or technically pure chemicals

4.1 In case of pure or technically pure chemicals, the Administration of the shipping or producing country will provisionally assess the pollution category, the ship type and the carriage requirements, on the basis of the pollution and safety data supplied by the manufacturer/shipper.

4.2 The following reference documents provide guidance for the Administration to assess the new chemical’s pollution hazard:

- .1 Guidelines for the categorization of noxious liquid substances (MARPOL 73/78, Annex II, appendix I);
- .2 Interpretation of the Guidelines for the categorization of noxious liquid substances (see annex 4);
- .3 Abbreviated legend to the hazard profiles (see annex 5);
- .4 Criteria for establishing ship type requirements from the marine pollution point of view (annex 6); and
- .5 Part B – “Marine pollution hazard” of the Criteria for hazard evaluation of bulk chemicals, attached to the IBC Code.

4.3 The first step for the Administration is to check the latest composite list of hazard profiles of substances carried by ship, issued periodically by IMO under cover of a BCH circular.

4.4 If a hazard profile can be found for the chemical in question, its pollution category should be derived from it in accordance with references 4.2.1 and 4.2.2. The ship type and carriage requirements, in so far as the pollution hazard is concerned, should be derived from reference 4.2.5.

4.5 If no hazard profile exists, all the available data to establish one should be reviewed.

4.6 When adequate data are available, a provisional hazard profile should be derived, following the criteria developed by GESAMP (see reference 4.2.3). The pollution category should be derived from this provisional

hazard profile in accordance with 4.2.1 and 4.2.2. The ship type and carriage requirements, based upon its pollution hazard, should be derived in accordance with 4.2.5.

4.7 When sufficient data are not available, the Administration should make an assessment by assimilation to chemically similar substances from the following sources:

- .1 the IBC Code and Index;
- .2 the MEPC circular referred to in 2.6, listing the substances provisionally assessed by IMO;
- .3 the MEPC circular referred to in 2.8, listing the substances provisionally assessed by tripartite agreement; and
- .4 the BCH circular referred to in 4.3, listing the substances for which a hazard profile exists.

When several alternative assimilations are possible, the most severe should prevail.

4.8 After assessment of pollution hazards, the possible safety hazards of the chemical should be assessed.

4.9 Guidelines for the assessment of the possible safety hazards of chemicals are provided in part A – “Safety hazards” of the Criteria for hazard evaluation of bulk chemicals, attached to the IBC Code.

4.10 If the chemical to be provisionally assessed presents a safety hazard, the Administration should assign carriage requirements in accordance with the above-mentioned Criteria. These requirements have to be integrated with those previously assigned for pollution prevention purposes only and the most stringent set has to be adopted. If necessary, the Administration should revise the ship type previously assigned for pollution considerations only.

4.11 At this point, the Administration of the shipping or producing country, having provisionally assessed the chemical in question, should seek the concurrence of the Administrations of the flag States and receiving countries with its evaluation. For this purpose, the standard telex/telefax format for proposing tripartite agreements for the provisional assessment of liquid substances, reproduced in annex 7, should be used.

4.12 After express or tacit agreement has been reached, the proposing Administration should inform IMO, as required by regulation 3(4) of Annex II. It is recommended to use the telex/telefax format for this purpose, adding the list of the countries involved.

4.13 Either the proposing Administration or the manufacturer should then promptly forward to GESAMP all data necessary for a formal hazard evaluation, using the format “Characteristics of liquid chemicals proposed for marine transport in bulk” (see annex 8).

Section 5

Assignment of mixtures of assessed chemicals with no safety hazard

5.1 This section deals with the mixtures defined in 3.1.2, i.e. those presenting no safety hazard and containing at least 97% by weight of chemicals assessed by IMO. Chemicals assessed by IMO include:

- .1 those listed in chapters 17 and 18 of the IBC Code;
- .2 agreed and proposed amendments to these chapters;
- .3 hydrocarbon families, for the purpose of assessing complex petrochemical mixtures of hydrocarbons (see annex 8).

Such a mixture may contain components with safety hazards (designated by S or S/P in column d of the summary of minimum requirements table) as long as they are so diluted that the final mixture presents no safety hazard.

5.2 The pollution category and the ship type of these mixtures are derived from those of the components by the following calculation method. For the purpose of this calculation, unassessed components up to 3% should be assigned to pollution category A, ship type 2, unless they can be evaluated on the basis of GESAMP hazard profiles, data or assimilation.

5.3 The first step is to calculate the pollution category of the mixture by the following procedure:

- .1 identify the pollution category of each component from the IBC Code or the MEPC circular referred to in 2.6;
- .2 multiply the concentration of each identified component in the mixture, expressed in per cent by weight, by the factor associated with its pollution category according to the following table 1:

Table 1

<i>Pollution category</i>	<i>Factor</i>
A	1,000
B	100
C	10
D	1
Appendix III	0
Diluent mineral oil in lube oil additives*	10

* Most lube oil additive components are produced in mineral oil and have been assessed as produced. Sometimes more mineral oil is added to a mixture to make it pumpable. This is called "diluent mineral oil".

- .3 add the resultant multiples to obtain the value S_p ;

- .4 refer to the left-hand column of the flow chart for determining pollution categories and identify the row that corresponds to the value of S_p ;
- .5 read across this row, answering the relevant questions in the middle column, to determine the pollution category of the mixture, as shown in the right-hand column.

Flow chart for determining pollution categories

Sum of multiples (S_p)	Other factors (where relevant)		Pollution category
$S_p \geq 10,000$	Is the total percentage of substances identified in Note 1 $\geq 1\%$ wt?	Yes	A
		No Is the sum of poll. cat. A multiples $\geq 10,000$? Yes . .	A
		No . .	B
$10,000 > S_p \geq 1,000$	Is the total percentage of substances identified in Note 1 $\geq 1\%$ wt?	Yes	A
		No Is the sum of poll. cat. A & B multiples $\geq 1,000$? Yes . .	B
		No . .	C
$1,000 > S_p \geq 100$		Is the sum of poll. cat. A, B & C multiples ≥ 100 ? Yes . .	C
		No . .	D
$100 > S_p \geq 10$			D
$10 > S_p$			App. III

Note 1: Bioaccumulating and other highly toxic substances of pollution category A are only the following:

- chlorinated paraffins (C_{10} – C_{13})
- diphenyl
- diphenyl/diphenyl ether mixtures
- dodecylphenol
- phosphorus, yellow or white
- tricesyl phosphate, containing less than 1% *ortho*-isomer
- tricesyl phosphate, containing 1% or more *ortho*-isomer
- trixyllyl phosphate.

5.4 Mixtures may contain aqueous solutions assessed only within certain concentration limits. For the purpose of the calculation in 5.3, the solution should be assumed to be at the highest assessed concentration.

5.5 If the pollution category of the mixture is either A or B or C, the next step is to calculate its ship type, by the following procedure:

- .1 identify the ship type of each component from the IBC Code or the MEPC circular referred to in 2.6;
- .2 multiply the concentration of each component in the mixture, expressed in per cent by weight, by the factor associated to its ship type according to the following table 2:

Table 2

<i>Ship type</i>	<i>Factor</i>
1	100
2	10
3	1
Other	0
Diluent mineral oil in lube oil additives	1

- .3 add the resultant multiples to obtain the value S_s ;
- .4 refer to the left-hand column of the flow chart for determining ship types and identify the row that corresponds to the value of S_s ;
- .5 read across this row, answering the relevant questions in the middle column, to determine the ship type for the mixture, as shown in the right-hand column.

Flow chart for determining ship types

Sum of multiples (S_s)	Other factors (where relevant)		Ship type
$S_s \geq 1,000$	Is the sum of ship type 1 multiples $\geq 1,000$?	Yes	1
		No	2
$1,000 > S_s \geq 100$	Is the sum of ship type 1 & 2 multiples ≥ 100 ?	Yes	2
		No	3
$100 > S_s \geq 10$			3
$10 > S_s$	Is the pollution category of the mixture A, B or C?	Yes	3
		No	Not applicable

5.6 Examples of the calculation of the pollution category and the ship type of mixtures are given in annex 9.

5.7 On the basis of the pollution category and ship type so calculated and of its flashpoint, melting point and viscosity, a mixture is then assigned to the appropriate “Noxious (or non-noxious) liquid, n.o.s.” generic entry to the IBC Code with the corresponding carriage requirements.

5.8 A mixture is designated in the shipping document by reference to the appropriate generic entry to the IBC Code, completed by the indication of a trade name and of one or two components most responsible for the assigned pollution category. Trade names should not be such as to be confused with generally used chemical descriptions. Components should be identified by their name in either the IBC Code or the MEPC circular referred to in 2.6.

5.9 With reference to 5.3.5, the diluent mineral oil could be responsible for pollution category C being assigned to a lube oil additive mixture. In this case, the designation of the mixture should include the mention “contains mineral oil”.

5.10 The process of assigning a pollutant-only mixture of assessed components to one of the 18 generic entries to the IBC Code is of a purely mechanical nature and does not involve any assessment whatsoever. In the interest of facilitating shipments, the Administration may authorize the manufacturer to carry out the assignment on its behalf.

5.11 In this case, the obligation to inform the flag States and the receiving countries of the performed assignment falls on the delegated manufacturer. The manufacturer should also inform IMO if so requested by the authorizing Administration. Notification of the assignment by the manufacturer should be accompanied by the authorization letter indicating that the manufacturer acts under instruction and on behalf of the Administration until such authorization is recorded in the MEPC circular referred to in 2.8 above.

5.12 The manufacturer should inform the authorizing Administration of the assignment performed along with the details of the assignment. Upon request, the manufacturer should also provide the flag State and/or the receiving country with details of the mixture assignment.

Section 6

Assessment of mixtures of assessed chemicals with safety hazards

6.1 This section deals with the mixtures defined in 3.1.3, i.e. those presenting a safety hazard and containing at least 97% by weight of chemicals assessed by IMO, one or more of which presents a safety hazard. Chemicals assessed by IMO include:

- .1 those listed in chapters 17 and 18 of the IBC Code;
- .2 agreed and proposed amendments to these chapters.

Safety hazard only chemicals are designated by an S in column d of the summary of minimum requirements table. These mixtures contain components with safety hazards (designated by S or S/P in column d of