

## COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the  
Transport of Dangerous Goods

Twenty-eighth session

Geneva, 28 November-7 December 2005

Item 11 of the provisional agenda

### OTHER BUSINESS

Note by the secretariat

Outcome of DSC10

The secretariat reproduces hereafter relevant extracts of the report of the IMO Sub-Committee on Dangerous Goods, solid cargoes and containers on its 10<sup>th</sup> session (London 26 – 30 September 2005).

### 3 AMENDMENTS TO THE IMDG CODE AND SUPPLEMENTS, INCLUDING HARMONIZATION OF THE IMDG CODE WITH THE RECOMMENDATIONS ON THE TRANSPORT OF DANGEROUS GOODS

#### Errata and corrigenda to the IMDG Code (amendment 32-04)

3.4 The Sub-Committee approved draft errata and corrigenda to the IMDG Code, amendment 32-04, and, subject to finalization by the E&T Group on the basis of decisions taken during the plenary, requested the Secretariat to issue the finalized errata and corrigenda before 1 January 2006, the date from which amendment 32-04 of the IMDG Code would attain mandatory status without any transitional period.

3.5 On the basis of a proposal by the Chairman (DSC 10/3/12, paragraphs 2 and 3), the Sub-Committee agreed to replace TP33 by TP2 in column 14 of the entry for UN 3254 and decided to reflect the change in the errata and corrigenda to the IMDG Code, amendment 32-04 [see report of the SCETDG on its 27<sup>th</sup> session, Annex 4].

3.6 The Sub-Committee agreed with the proposal by Australia (DSC 10/3/22) to rectify an omission in the IMDG Code, amendment 32-04 by means of incorporating special provision B1 for UN 1689 (Sodium Cyanide, solid) in the errata and corrigenda to the IMDG Code.

#### Reporting accidents and incidents

3.7 The Sub-Committee agreed with the view of the group that it is not necessary to incorporate new paragraph 19, an amendment to the UN Recommendations on the transport of dangerous goods, in the draft amendment 33-06, as existing SOLAS regulation VII/6 and MARPOL Article 8 on Reporting of incidents involving dangerous goods, and Reports on incidents involving harmful substances, respectively, adequately addressed the relevant requirements.

#### Changing of flashpoint from 61°C to 60°C

3.8 The Sub-Committee considered the view of the group that by the adoption of the various amendments to the UN Recommendations on the transport of dangerous goods, whereby the flashpoint of 61°C in various places within the IMDG Code would read 60°C, would require consequential amendments to SOLAS regulation II-2/19 (II-2/54) and, perhaps, to other IMO instruments.

3.9 Having deliberated the issue, the Sub-Committee, noting, in particular, that the proposed change would align the relevant provisions of the Code with those of SOLAS (other than SOLAS regulation II-2/19) and the IBC Code and, thus, harmonize the IMDG Code with the GHS criteria, agreed to change the flashpoint from 61°C to 60°C in the various provisions of the IMDG Code.

3.10 In that context, the Sub-Committee requested the E&T Group to identify other IMO instruments which would need consequential amendments as a result of the change to the flashpoint and, having requested the FP Sub-Committee to note the decision of the Sub-Committee, invited the Committee to consider instructing the FP Sub-Committee to develop appropriate amendments to SOLAS regulation II-2/19.

### **Marine pollutants**

3.11 The Sub-Committee noted that DSC 9 had taken certain decisions based on the outcome of the UN SCOE at its July 2004 meeting and that, as the UN SCOE at its December 2004 meeting took a different position to what was decided at its July 2004 meeting, the group had agreed (DSC 10/3/1, paragraph 31.4) that it was premature to prepare consequential amendments to the IMDG Code as requested by DSC 9 (DSC 9/15, paragraph 3.33.7). Following discussion, the Sub-Committee took decisions as detailed in paragraphs 3.69 to 3.86.

### **REVIEW OF ANNEX III TO MARPOL 73/78**

3.69 The Sub-Committee noted that MEPC 53 (DSC 10/2/2, paragraphs 6 to 12), noting that the UN COE at its December 2004 meeting had taken a different position to what was decided at its July 2004 meeting and decided not to adopt that substances hazardous to the aquatic environment would be identified by the words "Aquatic pollutant" in the transport document, had decided to retain the use of the term "Marine pollutant" and agreed to keep the current structure of MARPOL Annex III including its Appendix and instructed the Sub-Committee to continue the review of MARPOL Annex III with that in mind and submit its outcome to the MEPC for consideration.

3.70 In this context the Sub-Committee noted the outcome of the UNCOE 26 as detailed in document DSC 10/3 (Secretariat).

3.71 Germany (DSC 10/3/9) presented the developments under IMO's review of Annex III MARPOL and drew conclusions for further work in order to facilitate a qualified discussion on regulative implications created by the decisions of the UNCOE 26 in December 2004 on global harmonization.

3.72 While the United States (DSC 10/3/25) having provided comments, proposed solutions concerning the ongoing developments of revisions to the IMDG Code related to Marine Pollutants based on the latest provisions for Environmentally Hazardous Substances (Aquatic Environment) as contained in the UN Recommendations on the transport of dangerous goods, DGAC (DSC 10/3/19) proposed to retain the present list of Marine Pollutants in the IMDG Code as a starting point for identifying Marine Pollutants under the amended Annex III of MARPOL 73/78.

3.73 Having considered the proposals by Germany (DSC 10/3/9), the United States (DSC 10/3/25) and DCAG (DSC 10/3/19), the Sub-Committee identified four issues which needed further consideration and took decisions concerning them as elucidated in the ensuing paragraphs.

### ***Application of the Classification criteria for Marine Pollutants***

3.74 The Sub-Committee recalled that DSC 9 (DSC 9/15, paragraph 3.30.1) had noted that MEPC 51 agreed that the criteria adopted by the UNCOE should also be adopted under MARPOL Annex III and reflected in the IMDG Code to define substances as hazardous to the marine environment. Subsequently, the Sub-Committee acknowledged that the decision to incorporate the GHS provisions in the IMDG Code had been taken by MEPC 51 and it was for the Sub-Committee to work on the modalities for the way forward which should be in accordance with the decisions of MEPC 53, that is the existing structure of Annex III should be maintained and that the use of the term Marine Pollutant should be retained.

3.75 Having considered the matter further, the Sub-Committee confirmed that the GHS criteria for identifying Marine Pollutants (Environmentally Hazardous Substances), once incorporated in the amended Annex III of MARPOL 73/78, would be applicable to all classes of dangerous goods.

#### ***Self-classification or listing of Marine Pollutants***

3.76 The Sub-Committee recalled that DSC 9 (DSC 9/15, paragraph 3.33.3) had noted the view of the Working Group on Review of Annex III of MARPOL 73/78, established at DSC 9, regarding the concept of the identification of Aquatic (Marine) Pollutants by keeping an indicative list of products (identified as harmful to the aquatic (marine) environment as well as allowing self-classification of substances not listed in the Dangerous Goods List or Index of the Code) and, having debated the issue, invited Member Governments and international organizations to submit proposals to DSC 10.

3.77 The Sub-Committee noted that only two proposals (DSC 10/3/19 and DSC 10/3/25) had been submitted to the Sub-Committee on the issue and both were in favour of retaining the present legal list of Marine Pollutants in the Dangerous Goods List and Index of the IMDG Code, with additions and deletions made by proposals supported by data and using the criteria for Environmentally Hazardous Substances as per MARPOL Annex III, as amended (whereby the relevant GHS criteria would be incorporated in Annex III), and that the responsibility for correct classification would rest with the shipper of dangerous goods.

3.78 The Sub-Committee noted that, as per the existing provisions of the IMDG Code, amendment 32-04, paragraph 2.10.2.6, when a substance, material or article is suspected to possess properties that may meet the criteria of a marine pollutant or severe marine pollutant but is not identified in the Code, it may be transported as a marine pollutant or severe marine pollutant in accordance with the Code.

3.79 The Sub-Committee further noted that, as per the existing provisions of the IMDG Code, amendment 32-04, paragraph 2.10.2.7, competent authority may issue an approval to except a substance, material or article that is identified as a Marine Pollutant, if data showed that the material does not meet the criteria.

3.80 In that context and in the light of the aforesaid, the Sub-Committee agreed that the existing system, as within the IMDG Code, was serving the needs of the users adequately; but decided to have a non-exhaustive list of confirmed marine pollutants; confirmed that the provisions in the IMDG Code, amendment 32-04, paragraphs 2.10.2.6 and 2.10.2.7 need to be retained, though the text might benefit from improvements; and referred the proposals to the working group for further consideration and finalization.

#### ***Marking of Marine Pollutants***

3.81 The Sub-Committee recalled that DSC 8 (DSC 8/15, paragraph 3.41), in considering issues related to the UN GHS marking for marine pollutants, had agreed that when the UN COE on the transport of dangerous goods and the globally harmonized system of classification and labelling of chemicals would adopt the UN GHS marking for marine pollutants, the Sub-Committee would make a recommendation to the MSC to consider doing the same and delete the marine pollutant (MP) mark.

3.82 On the basis of its earlier decisions, the Sub-Committee agreed that the GHS environmentally hazardous substance mark would apply to all Marine Pollutants.

#### ***Timetable for the application of amended Annex III of MARPOL 73/78***

3.83 The Sub-Committee noted MARPOL article 16 and the MEPC procedures for amendments to the MARPOL Convention and instructed the Working Group on Review of MARPOL Annex III to prepare amendments to Annex III at this session of the Sub-Committee which should be forwarded to MEPC 54 for approval with the view to adoption at MEPC 55 and, in addition, prepare a timetable of envisaged sequence of events leading to the entry into force of the amended Annex III to MARPOL 73/78.

### **Establishment of a working group**

3.84 The Sub-Committee established the Working Group on Review of Annex III of MARPOL 73/78 under the chairmanship of Mr. T. Hoefer (Germany) and instructed the group, taking into account the comments made and decisions taken in plenary and documents DSC 10/3/9 (Germany), DSC 10/3/19 (DGAC) and DSC 10/3/25 (United States), to:

- .1 prepare draft amendments to Annex III, noting that MEPC 53 decided that the existing structure of Annex III should be maintained and that the use of the term "Marine Pollutant" should be retained;
- .2 prepare a timetable for incorporation of amendments relevant to marine pollutants in the IMDG Code, noting that amendments to Annex III are subject to adoption by the MEPC;
- .3 prepare consequential amendments to the IMDG Code in the light of amendments to Annex III;
- .4 prepare consequential amendments to the Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances other than Oil, 1973; and
- .5 with regard to items .1, .2 and .4 above, submit a written report to plenary by Thursday, 29 September 2005; and with regard to item .3 submit a written report to DSC 11.

### **Report of the working group**

3.85 Having received the report of the working group (DSC 10/WP.1), the Sub-Committee approved the report in general and took action as follows:

- .1 agreed to the text of the revised MARPOL Annex III, as set out in annex 2, for submission to MEPC 54 for approval and subsequent adoption of MEPC 55;
- .2 having noted the different options for timeframes leading to the entry into force of the revised MARPOL Annex III, decided, in the light of MARPOL article 16 and the MEPC procedures for amendments to the MARPOL Convention, to observe the timeframe leading to the entry into force of the revised MARPOL Annex III, set out in annex 3;
- .3 agreed to the amendments of the Intervention Protocol and to bring to the attention of the MEPC of the need that the entry into force date of this amendment should either be before or no later than the entry into force date of the relevant IMDG Code amendment, set out in annex 4; and
- .4 noted the progress made on the consequential amendments to the IMDG Code, as set out in annexes 3 and 4 of document DSC 10/WP.1, and agreed to keep chapters 2.9 and 2.10 of the IMDG Code separate.

3.86 The Sub-Committee noted the view of some delegations that it might be helpful to the industry if consequential amendments to the IMDG Code, prepared on the basis of adopted amended Annex III of MARPOL 73/78, were made available, as early as possible, in the form of an MSC/MEPC circular.

### **Mandatory application of chapter 1.3 (Training) of the IMDG Code**

3.16 The Sub-Committee considered a submission by the United Kingdom (DSC 10/3/8), supported by ICS (DSC 10/3/23), which, in the light of the feedback received from the industry, proposed to make chapter 1.3 (Training) of the IMDG Code mandatory.

3.17 Having debated the issue at length, the Sub-Committee agreed that mandatory training of shore-based personnel involved in the handling of dangerous goods, in accordance with the provisions of chapter 1.3 of

the IMDG Code was indeed desirable and in the interest of maritime safety. However, a substantial number of the delegations who spoke on the issue, though in favour of mandatory training requirements, were of the view that mandating dangerous goods training for shore-based personnel was perhaps beyond the scope of the Organization.

3.18 In that context, the Sub-Committee invited the Committee to note the outcome of the consideration of the issue and further noted the intention of the United Kingdom to submit an appropriate proposal for consideration by the Committee.

#### **Exclusion of Tampico fibre from the provisions of the IMDG Code**

3.19 Based on the technical report of the Mexican Authority and testimony from various national and international bodies within the industry, Mexico (DSC 10/3/2) proposed to exempt Tampico fibre, falling under UN 3360 (Fibres, Vegetables, Dry), from the provisions of the IMDG Code.

3.20 In considering the above proposal of Mexico, the Sub-Committee noted that UN 3360 (Fibres, Vegetables, Dry) was a generic entry and that if a product of vegetable origin did not meet the criteria for it to be classed under that entry, or for any other entry, then the provisions of the IMDG Code are not applicable.

3.21 The Sub-Committee agreed that the test report of Tampico fibre which was vital for an informed decision to be taken was missing and noted the intention of Mexico to provide the requisite test report for consideration at DSC 11. It was agreed to forward document DSC 10/3/2 to DSC 11 for consideration on the basis of the test report.

**Carriage of Ethylene Oxide with Nitrogen (UN 1040) in portable tanks with bottom openings on short international voyages**

3.22 In their document DSC 10/3/3, CEFIC proposed to continue to allow the transport of UN 1040 (Ethylene Oxide with Nitrogen up to a total pressure of 1 Mpa (10 bar) at 50°C) in portable tanks with bottom openings on short international voyages beyond 2010.

3.23 The Sub-Committee noted that as per the existing provisions of the IMDG Code amendment 32-04, UN 1040 is allowed to be carried in portable tanks of type T50 and, in addition, portable tank special provision TP20 is applicable.

3.24 The Sub-Committee also noted that Ethylene oxide is being transported in containers with bottom openings across the North Sea in excess of 12 years and across the Baltic for over 20 years without any incident regarding the safety or failure of the technical equipment.

3.25 In the light of the aforesaid, the Sub-Committee agreed, in principle, with the first proposal in paragraph 12 of document DSC 10/3/3.

#### **Aerosols (UN 1950) not exceeding 1,000 cm<sup>3</sup>**

3.30 The Sub-Committee considered a proposal by Sweden (DSC 10/3/6) to delete, for the sake of harmonization with other modal dangerous goods regulations, paragraph 3.4.6.2 of the IMDG Code which stipulates that class number "2" need to be entered on the dangerous goods declaration for aerosols (UN 1950) which do not exceed 1,000cm<sup>3</sup>. Sweden believed that from a safety point of view, as well as for proper hazard communication, it is preferable to use the appropriate subdivision indicated in the dangerous goods list and, thus, use the same principle as for other classes transported in accordance with the limited quantity regulations. Following consideration, the Sub-Committee agreed, in principle, with the proposal of Sweden.

3.31 The Sub-Committee noted the intention of some Member Governments to submit proposals to the UN Sub-Committee of Experts for specific entries for each class of aerosols.

**Aerosols (UN 1950) – carriage of waste aerosols**

3.37 The Sub-Committee recalled that the E&T Group at its April 2005 session, when preparing draft amendment 33-06 and on the basis of a proposal by VOHMA, that compliance with UNCOE approved amendments might lead to a situation whereby large quantities of waste aerosols containing flammable gases, which were not protected against inadvertent discharge, are carried in the holds of ships, had decided to place the text relevant to the carriage of waste aerosols for disposal and recycling in square brackets and noted the intention of VOHMA (DSC 10/3/1, paragraph 13) to submit proposal to DSC 10 on the issue.

3.38 VOHMA (DSC 10/3/11) reiterated the concerns, raised at the E&T Group meeting, and proposed additional safety provisions applicable to transport by ships of waste aerosols sent for disposal and recycling. Having noted the additional information provided by VOHMA (DSC 10/INF.3) regarding the dangers that might be created by accumulations of flammable vapours in holds of cellular containerships, associated with the accumulation of unknown quantity of flammable vapours, which took place on board **Sea-Land Mariner** on 18 April 1998, the Sub-Committee agreed, in principle, with the amended proposal of VOHMA.

**Absolute pressure, infectious substances, and dynamic longitudinal impact for portable tanks**

3.39 The Sub-Committee agreed, in principle, with the proposals by the Chairman on amendments relevant to absolute pressure, infectious substances and dynamic longitudinal impact for portable tanks, as elucidated in document DSC 10/3/12, paragraphs 4 to 11, for incorporation in draft amendment 33-06 to the IMDG Code.

**Mark for ventilated fumigated cargo transport unit**

3.45 Germany (DSC 10/3/14), noting that cargoes in fumigated cargo transport units might contain residues of the fumigant in dangerous quantities even after they have been ventilated, proposed a ventilation mark to indicate that fumigants might be present in the ventilated fumigated cargo transport unit.

3.46 Following detailed discussion, the Sub-Committee agreed, in principle, with the proposal, as amended, in the light of the discussions in plenary. The amended proposal would result in the fumigated unit having the warning sign affixed on the fumigated unit and when that unit had been ventilated to remove harmful concentrations of the fumigant gas and the fumigated cargoes and material have been unloaded, it would be supplemented with a “date of ventilation” mark, subsequent to which the provisions of the IMDG Code would not apply.

**Outer packaging for dangerous goods in limited quantities in articles**

3.56 Republic of Korea (DSC 10/3/20), in order to avoid user's confusion regarding packing of articles containing dangerous goods in limited quantities, proposed amendments to chapter 3.4 of the IMDG Code such that articles containing dangerous goods in limited quantities may be packed directly in (outer) packagings without the need for them to be placed in inner packagings first, as the articles in which dangerous goods in limited quantities are placed served the purpose of inner packaging.

3.57 The Sub-Committee, noting that the relevant existing provisions of the IMDG Code could benefit from improvements, agreed in principle, with the proposal.

**Harmonization of information on the dangerous goods transport document with other modes of transport – deletion of flashpoint**

3.58 The United Kingdom (DSC 10/3/21), in order to facilitate the smooth multimodal transport of dangerous goods, proposed to delete the requirement for flashpoint in the transport document and to substitute it with an equivalent but widely understood means of indicating the flammability of the cargo being carried, that is the packing group.

3.59 Having discussed the proposal, and noting that, amongst others, issues relevant to stowage, subsidiary risk and emergency response procedures needed detailed consideration, the Sub-Committee noted the intention of the United Kingdom to submit a revised proposal to DSC 11.

### **Review of Recommendations on the safe use of pesticides in ships**

3.63 Germany (DSC 10/3/15) proposed full harmonization of the Recommendations on the safe use of pesticides in ships and the IMDG Code concerning handling, stowage and transport of Fumigated Units (3359).

3.64 The Sub-Committee, having noted that Germany had submitted a similar proposal (DSC 10/4/4) for consideration under agenda item 4, took decisions as detailed in paragraph 4.23.

### **DRAFT AMENDMENT 33-06 TO THE IMDG CODE**

3.87 On the basis of document DSC 10/3/1, annex 5, the Sub-Committee agreed to amendment 33-06 to the IMDG Code and authorized the E&T Group to finalize all the agreed texts and prepare a final text of draft amendment 33-06 to the IMDG Code taking into account the agreed in principle proposals, relevant decisions of the MSC and the MEPC and comments made during the plenary. The Sub-Committee requested the Secretary-General to circulate them in accordance with SOLAS article VIII, for consideration and subsequent adoption at MSC 81.

3.88 In that context, the Sub-Committee recalled that MSC 75 (MSC 75/24, paragraph 7.36) approved the proposed procedure for the adoption of future amendments to the IMDG Code, including the proposed general authorization for circulation of the proposed amendments, which provides for the following:

- .1 amendments to the mandatory IMDG Code should be adopted at two-year intervals so that they may enter into force on the 1st January of even years, e.g. 1 January 2006, 1 January 2008 and so on;
- .2 the DSC Sub-Committee, at a session which takes place in an odd year, prepares and agrees to proposed amendments developed on the basis of the amendments approved by the UN Committee of Experts on the Transport of Dangerous Goods and those proposed by Member Governments;
- .3 the proposed amendments to the IMDG Code, so agreed by the DSC Sub-Committee, are circulated by the Secretary-General to all IMO Members and Contracting Governments to SOLAS in accordance with SOLAS article VIII(b)(i) for consideration and adoption by the expanded MSC at its first session thereafter;
- .4 proposed amendments, as may be adopted by the expanded MSC in accordance with SOLAS article VIII(vi)(2)(bb), will enter into force 18 months later, i.e. on the 1st January of even years;
- .5 one year prior to the date of entry into force of new amendments, Governments are invited to apply them on a voluntary basis. During that period, the carriage of dangerous goods in compliance with either the IMDG Code in force or the Code incorporating the new amendments should be acceptable; and
- .6 the MSC resolution on adoption of new amendments to the IMDG Code should include, in an operative paragraph, a clause on the above-mentioned treatment of the amended Code referred to in subparagraph .5.

3.89 In agreeing to the above amendments to the IMDG Code, the Sub-Committee authorized the Secretariat, when preparing the final texts thereof, to effect any editorial corrections that might be identified.

## **16 ANY OTHER BUSINESS**

### **World convention on the transport of dangerous goods**

16.19 In discussing document DSC 10/15 (Secretariat), the Sub-Committee noted that the UN Sub-Committee of Experts on the Transport of Dangerous Goods (29 November to 7 December 2004) had considered issues related to a proposal by Italy (ST/SY/AC.10/C.3/2004/32) for a World convention on the transport of dangerous goods and the comments provided in writing by AISE *et al* (UN/SCETDG/25/INF.26) and ICAO (UN/SCETDG/26/INF.36) and decided that the issue of further harmonization with the UN Model Regulations should be discussed in greater depth during the forthcoming biennium with the development of a world convention being one possible solution. It requested the UNECE secretariat to prepare documents for the possible drafting of a convention of this nature and to consult the pertinent bodies of the United Nations system in this regard, in particular IMO, ICAO, IAEA and the regional commissions. At the same time, the UN Sub-Committee should study alternatives to a convention in order to improve internationally the assurance of the simultaneous harmonization of legislation applicable to the international transport of dangerous goods in all countries by all modes of transport.

16.20 The Sub-Committee also noted the outcome of the UN Sub-Committee (4 to 8 July 2005) on the World convention on the transport of dangerous goods and, in particular, noted that, in conclusion, experts of the UN Sub-Committee and international organizations are invited to discuss all these issues formally or informally at national level or within their constituencies so as to further explore the possibilities of improving global harmonization for international transport of dangerous goods.

16.21 Following discussion, the Sub-Committee agreed that the process of harmonization was an ongoing one and recognized that there was a need to make the provisions of the instruments governing the carriage of dangerous goods clearer and understandable which would encourage and foster, amongst others, a consistent enforcement of regulations.

16.22 In that context, some delegations were of the view that the development of the world convention was perhaps not, at this stage, the preferred way forward as other international conventions (SOLAS, MARPOL and Chicago) adequately served the maritime and air transport needs; however, a greater emphasis on training and enforcement would improve the IMDG Code compliance rate.

16.23 Some other delegations were of the view that the development of the world convention was a good way forward, though it should not be the only way towards greater harmonization of the modal instruments governing the carriage of dangerous goods. The Sub-Committee invited Member Governments and international organizations to give consideration to the issue and provide comments for consideration at DSC 11 so that a firmer position of the Organization could be forwarded to the UN Committee of Experts on the transport of dangerous goods and on the globally harmonized system of classification and labelling of chemicals.

## ANNEX 2

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

REGULATIONS FOR THE PREVENTION OF POLLUTION BY HARMFUL SUBSTANCES CARRIED  
BY SEA IN PACKAGED FORM

#### **Annex III**

The existing text of Annex III is replaced with the following:

“REGULATIONS FOR THE PREVENTION OF POLLUTION BY HARMFUL SUBSTANCES  
CARRIED BY SEA IN PACKAGED FORM

##### **Regulation 1**

###### *Application*

- (1) Unless expressly provided otherwise, the regulations of this Annex apply to all ships carrying harmful substances in packaged form.
  - (1.1) For the purpose of this Annex, “harmful substances” are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code)\* or which meet the criteria in the Appendix of this Annex.
  - (1.2) For the purposes of this Annex, “packaged form” is defined as the forms of containment specified for harmful substances in the IMDG Code.
- (2) The carriage of harmful substances is prohibited, except in accordance with the provisions of this Annex.
- (3) To supplement the provisions of this Annex, the Government of each Party to the Convention shall issue, or cause to be issued, detailed requirements on packing, marking, labelling, documentation, stowage, quantity limitations and exceptions for preventing or minimizing pollution of the marine environment by harmful substances.\*
- (4) For the purposes of this Annex, empty packagings which have been used previously for the carriage of harmful substances shall themselves be treated as harmful substances unless adequate precautions have been taken to ensure that they contain no residue that is harmful to the marine environment.
- (5) The requirements of this Annex do not apply to ship’s stores and equipment.

---

\* Refer to the IMDG Code adopted by the Organization by resolution MSC.122(75), as it has been or may be amended by the Maritime Safety Committee; see IMO sales publications [...] and [...].

**Regulation 2***Packing*

Packages shall be adequate to minimize the hazard to the marine environment, having regard to their specific contents.

**Regulation 3***Marking and labelling*

- (1) Packages containing a harmful substance shall be durably marked with the correct technical name (trade names alone shall not be used) and, further, shall be durably marked or labelled to indicate that the substance is a marine pollutant. Such identification shall be supplemented where possible by any other means, for example, by use of the relevant United Nations number.
- (2) The method of marking the correct technical name and of affixing labels on packages containing a harmful substance shall be such that this information will still be identifiable on packages surviving at least three months' immersion in the sea. In considering suitable marking and labelling, account shall be taken of the durability of the materials used and of the surface of the package.
- (3) Packages containing small quantities of harmful substances may be exempted from the marking requirements.\*

**Regulation 4<sup>§</sup>**

- (1) In all documents relating to the carriage of harmful substances by sea where such substances are named, the correct technical name of each such substance shall be used (trade names alone shall not be used) and the substance further identified by the addition of the words "MARINE POLLUTANT".
- (2) The shipping documents supplied by the shipper shall include, or be accompanied by, a signed certificate or declaration that the shipment offered for carriage is properly packaged and marked, labelled or placarded as appropriate and in proper condition for carriage to minimize the hazard to the marine environment.
- (3) Each ship carrying harmful substances shall have a special list or manifest setting forth the harmful substances on board and the location thereof. A detailed stowage plan which sets out the location of the harmful substances on board may be used in place of such special list or manifest. Copies of such documents shall also be retained on shore by the owner of the ship or his representative until the harmful substances are unloaded. A copy of one of these documents shall be made available before departure to the person or organization designated by the port State authority.
- (4) At any stopover, where any loading or unloading operations, even partial, are carried out, a revision of the documents listing the harmful substances taken on board, indicating their location on board or showing a detailed stowage plan, shall be made available before departure to the person or organization designated by the port State authority.
- (5) When the ship carries a special list or manifest or a detailed stowage plan, required for the carriage of dangerous goods by the International Convention for the Safety of Life at Sea, 1974, as amended, the documents required by this regulation may be combined with those for

---

\* Refer to the specific exemptions provided for in the IMDG Code; see IMO sales publications [...] and [...].

§ Reference to "documents" in this regulation does not preclude the use of electronic data processing (EDP) and electronic data interchange (EDI) transmission techniques as an aid to paper documentation.

dangerous goods. Where documents are combined, a clear distinction shall be made between dangerous goods and harmful substances covered by this Annex.

## **Regulation 5**

### *Stowage*

Harmful substances shall be properly stowed and secured so as to minimize the hazards to the marine environment without impairing the safety of the ship and persons on board.

## **Regulation 6**

### *Quantity limitations*

Certain harmful substances may, for sound scientific and technical reasons, need to be prohibited for carriage or be limited as to the quantity which may be carried aboard any one ship. In limiting the quantity, due consideration shall be given to size, construction and equipment of the ship, as well as the packaging and the inherent nature of the substances.

## **Regulation 7**

### *Exceptions*

- (1) Jettisoning of harmful substances carried in packaged form shall be prohibited, except where necessary for the purpose of securing the safety of the ship or saving life at sea.
- (2) Subject to the provisions of the present Convention, appropriate measures based on the physical, chemical and biological properties of harmful substances shall be taken to regulate the washing of leakages overboard, provided that compliance with such measures would not impair the safety of the ship and persons on board.

## **Regulation 8**

### *Port State control on operational requirements\**

- (1) A ship when in a port of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Annex, where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the prevention of pollution by harmful substances.
- (2) In the circumstances given in paragraph (1) of this regulation, the Party shall take such steps as will ensure that the ship shall not sail until the situation has been brought to order in accordance with the requirements of this Annex.
- (3) Procedures relating to the port State control prescribed in article 5 of the present Convention shall apply to this regulation.
- (4) Nothing in this regulation shall be construed to limit the rights and obligations of a Party carrying out control over operational requirements specifically provided for in the present Convention.

## **Appendix to Annex III**

### *Criteria for the identification of harmful substances in packaged form*

---

\* Refer to the Procedures for port State control adopted by the Organization by resolution [...] and amended by [...]; see IMO sales publication IMO-650E.

For the purposes of this Annex, substances identified by any one of the following criteria are harmful substances\*:

**Category: Acute 1**

96 hr LC <sub>50</sub> (for fish)	≤ 1 mg/l and/or
48 hr EC <sub>50</sub> (for crustacea)	≤ 1 mg/l and/or
72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants)	≤ 1 mg/l

**Category: Chronic 1**

96 hr LC <sub>50</sub> (for fish)	≤ 1 mg/l and/or
48 hr EC <sub>50</sub> (for crustacea)	≤ 1 mg/l and/or
72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants)	≤ 1 mg/l
and the substance is not rapidly degradable and/or the log K <sub>ow</sub> ≥ 4 (unless the experimentally determined BCF < 500).	

**Category: Chronic 2**

<u>96 hr LC<sub>50</sub> (for fish)</u>	<u>&gt;1 to ≤ 10 mg/l</u> <u>and/or</u>
<u>48 hr EC<sub>50</sub> (for crustacea)</u>	<u>&gt;1 to ≤ 10 mg/l</u> <u>and/or</u>
<u>72 or 96hr ErC<sub>50</sub> (for algae or other aquatic plants)</u>	<u>&gt;1 to ≤ 10 mg/l</u>
and the substance is not rapidly degradable and/or the log K <sub>ow</sub> ≥ 4 (unless the experimentally determined BCF <500), unless the chronic toxicity NOECs are > 1 mg/l.	

\*\*\*

,,

\* The criteria are based on those developed by the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS) as amended.  
For definitions of acronyms or terms used in this appendix, refer to the relevant paragraphs of the IMDG Code.

### ANNEX 3

#### TIMEFRAME LEADING TO THE ENTRY INTO FORCE OF THE AMENDED ANNEX III OF MARPOL 73/78

No.	Action	Meeting	Date	Remarks
1	<i>Agree</i> to amendments to Annex III of MARPOL 73/78	DSC 10	September 2005	
2	<i>Approve</i> amendments to Annex III of MARPOL 73/78	MEPC 54	March 2006	Submit to MEPC 55 under the six-month rule as per MARPOL article 16
3	<i>Adopt</i> amendments to Annex III of MARPOL 73/78	MEPC 55	October 2006	
4	<i>Acceptance</i> of amendments to Annex III of MARPOL 73/78		* 1 July 2009 (August 2007)	Not less than 10 months, from the date of adoption, required as per MARPOL article 16
5	<i>Agree</i> to amendment 34-08 to the IMDG Code incorporating amended Annex III	DSC 12	September 2007	Submit to MSC 84 under the six-month rule as per SOLAS article VIII
6	<i>Adopt</i> amendment 34-08 to the IMDG Code	MSC 84	May 2008	
7	<i>Voluntary</i> application of amendment 34-08 to the IMDG Code incorporating amended Annex III		1 January 2009	To facilitate global application of amendments to all modal instruments
8	<i>Acceptance</i> of amendment 34-08 to the IMDG Code incorporating amended Annex III		* 1 July 2009	Not less than 12 months, from the date of adoption, required as per SOLAS article VIII
9	<i>Entry into force</i> of amendment 34-08 to the IMDG Code incorporating amended Annex III		1 January 2010	Not less than 6 months from the date of acceptance as per MARPOL article 16 and SOLAS article VIII

\*\*\*

---

\* Deemed acceptance in August 2007 or on 1 July 2009 to coincide with date of acceptance of IMDG Code under SOLAS

## PROPOSED DRAFT CONSEQUENTIAL AMENDMENTS TO CHAPTER 2.9 OF THE IMDG CODE

### **Chapter 2.9**

#### *Class 9 – Miscellaneous dangerous substances and articles*

To be added:

**2.9.2.1.5** Environmentally hazardous substances not covered by other classes

**2.9.3** **Environmentally hazardous substances (aquatic environment)**

**2.9.3.1** **General definitions**

2.9.3.1.1 Environmentally hazardous substances include, *inter alia*, liquid or solid substances pollutant to the aquatic environment and solutions and mixtures of such substances (such as preparations and wastes).

2.9.3.1.2 The aquatic environment may be considered in terms of the aquatic organisms that live in the water, and the aquatic ecosystem of which they are part<sup>1</sup>. The basis, therefore, of the identification of hazard is the aquatic toxicity of the substance or mixture, although this may be modified by further information on the degradation and bioaccumulation behaviour.

2.9.3.1.3 While the following classification procedure is intended to apply to all substances and mixtures, it is recognised that in some cases, e.g. metals or poorly soluble inorganic compounds, special guidance will be necessary<sup>2</sup>.

2.9.3.1.4 The following definitions apply for acronyms or terms used in this section:

- BCF: Bioconcentration Factor;
- BOD: Biochemical Oxygen Demand;
- COD: Chemical Oxygen Demand;
- GLP: Good Laboratory Practices;
- EC<sub>50</sub>: the effective concentration of substance that causes 50% of the maximum response;
- ErC<sub>50</sub>: EC<sub>50</sub> in terms of reduction of growth;
- K<sub>ow</sub>: octanol/water partition coefficient;
- LC<sub>50</sub> (50% lethal concentration): the concentration of a substance in water which causes the death of 50% (one half) in a group of test animals;
- L(E)C<sub>50</sub>: LC<sub>50</sub> or EC<sub>50</sub>;
- NOEC: No Observed Effect Concentration;

---

1 This does not address aquatic pollutants for which there may be a need to consider effects beyond the aquatic environment such as the impacts on human health etc.

2 This can be found in Annex 10 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

- OECD Test Guidelines: Test guidelines published by the Organization for Economic Cooperation and Development (OECD);

### **2.9.3.2 Definitions and data requirements**

- 2.9.3.2.1 The basic elements for classification of environmentally hazardous substances (aquatic environment) are:
- acute aquatic toxicity;
  - potential for or actual bioaccumulation;
  - degradation (biotic or abiotic) for organic chemicals; and
  - chronic aquatic toxicity.
- 2.9.3.2.2 While data from internationally harmonised test methods are preferred, in practice, data from national methods may also be used where they are considered as equivalent. In general, freshwater and marine species toxicity data can be considered as equivalent data and are preferably to be derived using OECD Test Guidelines or equivalent according to the principles of Good Laboratory Practices (GLP). Where such data are not available, classification shall be based on the best available data.
- 2.9.3.2.3 **Acute aquatic toxicity** shall normally be determined using a fish 96 hour LC<sub>50</sub> (OECD Test Guideline 203 or equivalent), a crustacea species 48 hour EC<sub>50</sub> (OECD Test Guideline 202 or equivalent) and/or an algal species 72 or 96 hour EC<sub>50</sub> (OECD Test Guideline 201 or equivalent). These species are considered as surrogates for all aquatic organisms. Data on other species such as Lemna may also be considered if the test methodology is suitable.
- 2.9.3.2.4 **Bioaccumulation** means net result of uptake, transformation and elimination of a substance in an organism due to all routes of exposure (i.e. air, water, sediment/soil and food). **The potential for bioaccumulation** shall normally be determined by using the octanol/water partition coefficient, usually reported as a log K<sub>ow</sub> determined according to OECD Test Guideline 107 or 117. While this represents a potential to bioaccumulate, an experimentally determined Bioconcentration Factor (BCF) provides a better measure and shall be used in preference when available. A BCF shall be determined according to OECD Test Guideline 305.
- 2.9.3.2.5 **Environmental degradation** may be biotic or abiotic (eg. hydrolysis) and the criteria used reflect this fact. Ready biodegradation is most easily defined using the OECD biodegradability tests (OECD Test Guideline 301 (A - F)). A pass level in these tests may be considered as indicative of rapid degradation in most aquatic environments. As these are freshwater tests, use of results from OECD Test Guideline 306, which is more suitable for the marine environment, is also included. Where such data are not available, a BOD(5 days)/COD ratio >0.5 is considered as indicative of rapid degradation. Abiotic degradation such as hydrolysis, primary degradation, both abiotic and biotic, degradation in non-aquatic media and proven rapid degradation in the environment may all be considered in defining rapid degradability<sup>3</sup>.
- 2.9.3.2.5.1 Substances are considered rapidly degradable in the environment if the following criteria are met:

---

3 Special guidance on data interpretation is provided in Chapter 4.1 and Annex 9 of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

- (a) In 28-day ready biodegradation studies, the following levels of degradation are achieved:
- (i) tests based on dissolved organic carbon: 70%;
  - (ii) tests based on oxygen depletion or carbon dioxide generation: 60% of theoretical maxima;

These levels of biodegradation shall be achieved within 10 days of the start of degradation which point is taken as the time when 10% of the substance has been degraded; or

- (b) In those cases where only BOD and COD data are available, when the ratio of  $BOD_5/COD$  is  $\geq 0.5$ ; or
- (c) If other convincing scientific evidence is available to demonstrate that the substance or mixture can be degraded (biotically and/or abiotically) in the aquatic environment to a level above 70% within a 28 day period.

**2.9.3.2.6 Chronic toxicity** data are less available than acute data and the range of testing procedures less standardized. Data generated according to the OECD Test Guidelines 210 (Fish Early Life Stage) or 211 (Daphnia Reproduction) and 201 (Algal Growth Inhibition) may be accepted. Other validated and internationally accepted tests may also be used. The “No Observed Effect Concentrations” (NOECs) or other equivalent L(E)Cx shall be used.

### **2.9.3.3 Substance classification categories and criteria**

**2.9.3.3.1** Substances shall be classified as “environmentally hazardous substances (aquatic environment)”, if they satisfy the criteria for Acute 1, Chronic 1 or Chronic 2, according to the following tables:

#### **Acute toxicity**

##### **Category: Acute 1**

Acute toxicity:

96 hr LC <sub>50</sub> (for fish)	$\leq 1 \text{ mg/l}$ and/or
48 hr EC <sub>50</sub> (for crustacea)	$\leq 1 \text{ mg/l}$ and/or
72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants)	$\leq 1 \text{ mg/l}$

#### **Chronic toxicity**

##### **Category: Chronic 1**

Acute toxicity:

96 hr LC <sub>50</sub> (for fish)	$\leq 1 \text{ mg/l}$ and/or
48 hr EC <sub>50</sub> (for crustacea)	$\leq 1 \text{ mg/l}$ and/or
72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants)	$\leq 1 \text{ mg/l}$

and the substance is not rapidly degradable and/or the  $\log K_{ow} \geq 4$  (unless the experimentally determined BCF < 500)

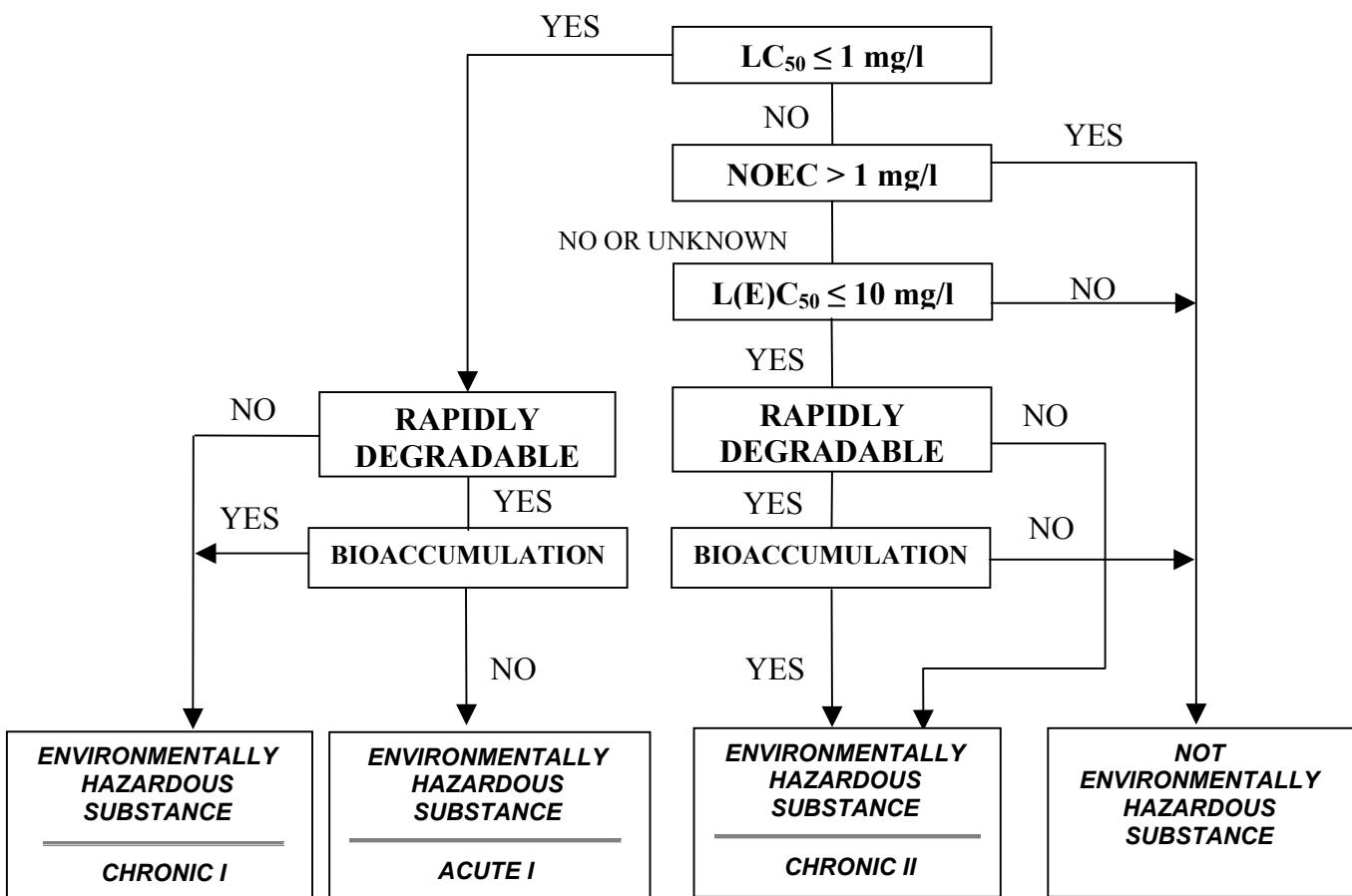
**Category: Chronic 2**

Acute toxicity:

96 hr LC <sub>50</sub> (for fish)	>1 to ≤ 10 mg/l and/or
48 hr EC <sub>50</sub> (for crustacea)	>1 to ≤ 10 mg/l and/or
72 or 96hr ErC <sub>50</sub> (for algae or other aquatic plants)	>1 to ≤ 10 mg/l

and the substance is not rapidly degradable and/or the log K<sub>ow</sub> ≥ 4 (unless the experimentally determined BCF <500), unless the chronic toxicity NOECs are > 1 mg/l

The classification flowchart below outlines the process to be followed.



#### 2.9.3.4 Mixtures classification categories and criteria

2.9.3.4.1 The classification system for mixtures covers the classification categories which are used for substances meaning acute category 1 and chronic categories 1 and 2. In order to make use of all available data for purposes of classifying the aquatic environmental hazards of the mixture, the following assumption is made and is applied, where appropriate:

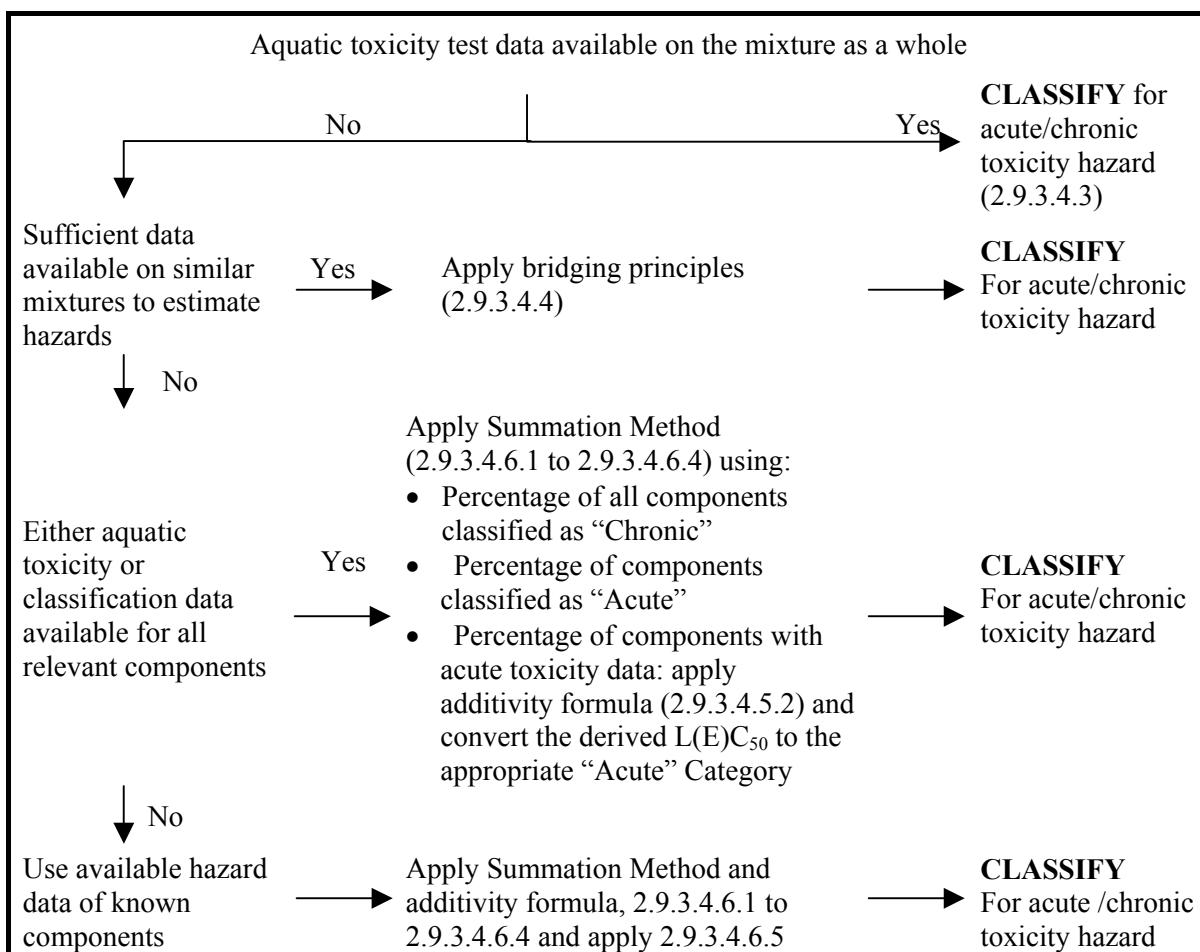
The “relevant components” of a mixture are those which are present in a concentration of 1% (w/w) or greater, unless there is a presumption (e.g. in the case of highly toxic components) that a component present at less than 1% can still be relevant for classifying the mixture for aquatic environmental hazards.

2.9.3.4.2 The approach for classification of aquatic environmental hazards is tiered and dependent upon the type of information available for the mixture itself and its components. Elements of the tiered approach include:

- (a) classification based on tested mixtures;
- (b) classification based on bridging principles;
- (c) the use of “summation of classified components” and/or an “additivity formula”.

Figure 2.9.1 below outlines the process to be followed.

**Figure 2.9.1: Tiered approach to classification of mixtures for acute and chronic aquatic environmental hazards**



2.9.3.4.3 *Classification of mixtures when data are available for the complete mixture*

- 2.9.3.4.3.1 When the mixture as a whole has been tested to determine its aquatic toxicity, it shall be classified according to the criteria that have been agreed for substances, but only for acute toxicity. The classification is based on the data for fish, crustacea and algae/plants. Classification of mixtures by using LC<sub>50</sub> or EC<sub>50</sub> data for the mixture as a whole is not possible for chronic categories since both toxicity data and environmental fate data are needed, and there are no degradability and bioaccumulation data for mixtures as a whole. It is not possible to apply the criteria for chronic classification because the data from degradability and bio-accumulation tests of mixtures cannot be interpreted; they are meaningful only for single substances.
- 2.9.3.4.3.2 When there is acute toxicity test data (LC<sub>50</sub> or EC<sub>50</sub>) available for the mixture as a whole, this data as well as information with respect to the classification of components for chronic toxicity shall be used to complete the classification for tested mixtures as follows. When chronic (long term) toxicity data (NOEC) is also available, this shall be used in addition.
- (a) L(E)C<sub>50</sub> (LC<sub>50</sub> or EC<sub>50</sub>) of the tested mixture ≤ 1mg/l and NOEC of the tested mixture ≤ 1.0 mg/l or unknown:
    - classify mixture as category acute 1;
    - apply summation of classified components approach (see 2.9.3.4.6.3 and 2.9.3.4.6.4) for chronic classification (chronic 1, 2, or no need of chronic classification).
  - (b) L(E)C<sub>50</sub> of the tested mixture ≤ 1 mg/l and NOEC of the tested mixture > 1.0 mg/l:
    - classify mixture as category acute 1;
    - apply summation of classified components approach (see 2.9.3.4.6.3 and 2.9.3.4.6.4) for classification as Category Chronic 1. If the mixture is not classified as Category Chronic 1, then there is no need for chronic classification.
  - (c) L(E)C<sub>50</sub> of the tested mixture >1mg/l, or above the water solubility, and NOEC of the tested mixture ≤ 1.0mg/l or unknown:
    - no need to classify for acute toxicity;
    - apply summation of classified components approach (see 2.9.3.4.6.3 and 2.9.3.4.6.4) for chronic classification or no need for chronic classification.
  - (d) L(E)C<sub>50</sub> of the tested mixture >1mg/l, or above the water solubility, and NOEC of the tested mixture > 1.0 mg/l:
    - No need to classify for acute or chronic toxicity.

#### 2.9.3.4.4 *Bridging principles*

- 2.9.3.4.4.1 Where the mixture itself has not been tested to determine its aquatic environmental hazard, but there are sufficient data on the individual components and similar tested mixtures to adequately characterise the hazards of the mixture, this data shall be used in accordance with the following agreed bridging rules. This ensures that the classification process uses the available data to the greatest extent possible in characterising the hazards of the mixture without the necessity for additional testing in animals.
- 2.9.3.4.4.2 Dilution
- 2.9.3.4.4.2.1 If a mixture is formed by diluting another classified mixture or a substance with a diluent which has an equivalent or lower aquatic hazard classification than the least toxic original component and which is not expected to affect the aquatic hazards of other components, then the mixture shall be classified as equivalent to the original mixture or substance.
- 2.9.3.4.4.2.2 If a mixture is formed by diluting another classified mixture or a substance with water or other totally non-toxic material, the toxicity of the mixture shall be calculated from the original mixture or substance.
- 2.9.3.4.4.3 Batching
- 2.9.3.4.4.3.1 The aquatic hazard classification of one production batch of a complex mixture shall be assumed to be substantially equivalent to that of another production batch of the same commercial product and produced by or under the control of the same manufacturer, unless there is reason to believe there is significant variation such that the aquatic hazard classification of the batch has changed. If the latter occurs, new classification is necessary.
- 2.9.3.4.4.4 Concentration of mixtures which are classified with the most severe classification categories (chronic 1 and acute 1).
- 2.9.3.4.4.4.1 If a mixture is classified as chronic 1 and/or acute 1, and components of the mixture which are classified as chronic 1 and/or acute 1 are further concentrated, the more concentrated mixture shall be classified with the same classification category as the original mixture without additional testing.
- 2.9.3.4.4.5 Interpolation within one toxicity category
- 2.9.3.4.4.5.1 If mixtures A and B are in the same classification category and mixture C is made in which the toxicologically active components have concentrations intermediate to those in mixtures A and B, then mixture C shall be in the same category as A and B. Note that the identity of the components is the same in all three mixtures.
- 2.9.3.4.4.6 Substantially similar mixtures
- 2.9.3.4.4.6.1 Given the following:
- (a) Two mixtures:
    - i) A + B
    - ii) C + B
  - (b) The concentration of component B is the same in both mixtures;
  - (c) The concentration of component A in mixture (i) equals that of component C in mixture (ii);

- (d) Classification for A and C are available and are the same, i.e. they are in the same hazard category and are not expected to affect the aquatic toxicity of B,

then there shall be no need to test mixture (ii) if mixture (i) is already characterised by testing and both mixtures are classified in the same category.

**2.9.3.4.5** *Classification of mixtures when data are available for all components or only for some components of the mixture*

**2.9.3.4.5.1** The classification of a mixture shall be based on summation of the classification of its components. The percentage of components classified as “Acute” or “Chronic” will feed straight into the summation method. Details of the summation method are described in 2.9.3.4.6.1 to 2.9.3.4.6.4.1.

**2.9.3.4.5.2** Mixtures are often made of a combination of both components that are classified (as Acute 1 and/or Chronic 1, 2) and those for which adequate test data is available. When adequate toxicity data is available for more than one component in the mixture, the combined toxicity of those components shall be calculated using the following additivity formula, and the calculated toxicity shall be used to assign that portion of the mixture an acute toxicity hazard which is then subsequently used in applying the summation method.

$$\frac{\sum C_i}{L(E)C_{50m}} = \sum_n \frac{C_i}{L(E)C_{50i}}$$

where:

$C_i$  = concentration of component i (weight percentage);  
 $L(E)C_{50i}$  = (mg/l) LC<sub>50</sub> or EC<sub>50</sub> for component i;  
 $n$  = number of components, and i is running from 1 to n;  
 $L(E)C_m$  = L(E)C<sub>50</sub> of the part of the mixture with test data

**2.9.3.4.5.3** When applying the additivity formula for part of the mixture, it is preferable to calculate the toxicity of this part of the mixture using for each substance toxicity values that relate to the same species (i.e. fish, daphnia or algae) and then to use the highest toxicity (lowest value) obtained (i.e. use the most sensitive of the three species). However, when toxicity data for each component are not available in the same species, the toxicity value of each component shall be selected in the same manner that toxicity values are selected for the classification of substances, i.e. the higher toxicity (from the most sensitive test organism) is used. The calculated acute toxicity shall then be used to classify this part of the mixture as Acute 1 using the same criteria described for substances.

**2.9.3.4.5.4** If a mixture is classified in more than one way, the method yielding the more conservative result shall be used.

**2.9.3.4.6** *Summation method*

**2.9.3.4.6.1** *Classification procedure*

**2.9.3.4.6.1.1** In general a more severe classification for mixtures overrides a less severe classification, e.g. a classification with chronic 1 overrides a classification with chronic 2. As a consequence the classification procedure is already completed if the results of the classification is chronic 1. A more severe classification than chronic 1 is not possible and it is not necessary therefore to undergo the further classification procedure.

## 2.9.3.4.6.2 Classification for the acute category 1

2.9.3.4.6.2.1 All components classified as acute 1 shall be considered. If the sum of these components is greater than 25% the whole mixture shall be classified as category acute 1. If the result of the calculation is a classification of the mixture as category acute 1, the classification process is completed.

2.9.3.4.6.2.2 The classification of mixtures for acute hazards based on this summation of classified components, is summarised in Table 2.9.1 below.

**Table 2.9.1: Classification of a mixture for acute hazards, based on summation of classified components**

Sum of components classified as:	Mixture is classified as:
Acute 1 $\times M^1 > 25\%$	Acute 1

<sup>1</sup> For explanation of the M factor, see 2.9.3.4.6.4.

## 2.9.3.4.6.3 Classification for the chronic categories 1, 2

2.9.3.4.6.3.1 First, all components classified as chronic 1 are considered. If the sum of these components is greater than 25% the mixture shall be classified as category chronic 1. If the result of the calculation is a classification of the mixture as category chronic 1 the classification procedure is completed.

2.9.3.4.6.3.2 In cases where the mixture is not classified as chronic 1, classification of the mixture as chronic 2 is considered. A mixture shall be classified as chronic 2 if 10 times the sum of all components classified as chronic 1 plus the sum of all components classified as chronic 2 is greater than 25%. If the result of the calculation is classification of the mixture as chronic 2, the classification process is completed.

2.9.3.4.6.3.3 The classification of mixtures for chronic hazards, based on this summation of classified components, is summarised in Table 2.9.2 below.

**Table 2.9.2: Classification of a mixture for chronic hazards, based on summation of classified components**

Sum of components classified as:	Mixture is classified as:
Chronic 1 $\times M^1 > 25\%$	Chronic 1
(M $\times 10 \times$ Chronic 1) + Chronic 2 $> 25\%$	Chronic 2

<sup>1</sup> For explanation of the M factor, see 2.9.3.4.6.4.

## 2.9.3.4.6.4 Mixtures with highly toxic components

2.9.3.4.6.4.1 Acute category 1 components with toxicities well below 1 mg/l may influence the toxicity of the mixture and are given increased weight in applying the summation of classification approach. When a mixture contains components classified as acute or chronic category 1, the tiered approach described in 2.9.3.4.6.2 and 2.9.3.4.6.3 shall be applied using a weighted sum by multiplying the concentrations of acute category 1 components by a factor, instead of merely adding up the percentages. This means that the concentration of "Acute 1" in the left column of Table 2.9.1 and the concentration of "Chronic 1" in the left column of Table 2.9.2

are multiplied by the appropriate multiplying factor. The multiplying factors to be applied to these components are defined using the toxicity value, as summarised in Table 2.9.3 below. Therefore, in order to classify a mixture containing acute 1 and/or chronic 1 components, the classifier needs to be informed of the value of the M factor in order to apply the summation method. Alternatively, the additivity formula (2.9.3.4.5.2) may be used when toxicity data are available for all highly toxic components in the mixture and there is convincing evidence that all other components, including those for which specific acute toxicity data are not available, are of low or no toxicity and do not significantly contribute to the environmental hazard of the mixture.

**Table 2.9.3: Multiplying factors for highly toxic components of mixtures**

L(E)C <sub>50</sub> value	Multiplying factor (M)
0.1 < L(E)C <sub>50</sub> ≤ 1	1
0.01 < L(E)C <sub>50</sub> ≤ 0.1	10
0.001 < L(E)C <sub>50</sub> ≤ 0.01	100
0.0001 < L(E)C <sub>50</sub> ≤ 0.001	1000
0.00001 < L(E)C <sub>50</sub> ≤ 0.0001	10000
(continue in factor 10 intervals)	

2.9.3.4.6.5 Classification of mixtures with components without any useable information

2.9.3.4.6.5.1 In the event that no useable information on acute and/or chronic aquatic hazard is available for one or more relevant components, it is concluded that the mixture cannot be attributed (a) definitive hazard category(ies). In this event, the mixture shall be classified based on the known components only with the additional statement that: “× percent of the mixture consists of component(s) of unknown hazards to the aquatic environment.”.

**2.9.3.5 *Substances or mixtures dangerous to the aquatic environment not otherwise classified under the provisions of this Code***

2.9.3.5.1 Substances or mixtures dangerous to the aquatic environment not otherwise classified under this Code shall be designated:

UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. or

UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

They shall be assigned to Packing Group III.

**PROPOSED DRAFT CONSEQUENTIAL AMENDMENTS TO CHAPTER 2.10  
OF THE IMDG CODE**

**Chapter 2.10**

*Marine pollutants*

**2.10.1      Definition**

*Marine pollutants* means substances which ~~because of their potential to bioaccumulate in seafood or because of their high toxicity to aquatic life~~, are subject to the provisions of Annex III of MARPOL 73/78, as amended.

**2.10.2      Properties General provisions**

~~Substances harmful to the marine environment (m~~Marine pollutants) shall be transported under the provisions of Annex III of MARPOL 73/78, as amended.

**2.10.2.2** The Index ~~contains~~ indicates by the symbol P in column headed MP those the comprehensive listing of substances, materials and articles that are identified as marine pollutants as follows:

- ~~.1 substances, materials and articles which have a pollution potential (marine pollutants) are identified in the Index with P in the column headed MP; and~~
- ~~.2 substances, materials and articles which have an extreme pollution potential (severe marine pollutants) are identified in the Index with PP in the column headed MP.~~

**2.10.2.3** The Index also ~~contains~~ indicates ~~those~~ N.O.S. entries under which substances, materials and articles with a pollution potential may fall. These are identified in the Index with • in the column headed MP.

**2.10.2.4** Marine pollutants ~~and severe marine pollutants~~ shall be transported under the appropriate entry according to their properties if they fall within the criteria of any of the classes 1 to 8.9. If they ~~do not fall within the criteria of any of these classes, they shall be transported under the entry: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., UN 3077 or ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., UN 3082, as appropriate, unless there is a specific entry in class 9.~~

**2.10.2.5** Column 4 of the Dangerous Goods List also provides information on marine pollutants using the symbol P and • as follows:

- ~~P if the entry covers a marine pollutant, or, in the case of generic entries, the majority of substances, materials or articles covered by that entry are marine pollutants;~~
- ~~PP if the entry covers a severe marine pollutant, or, in the case of generic entries, the majority of substances, materials or articles covered by that entry are severe marine pollutants.~~
- ~~• if the entry covers an N.O.S. substance, material or article and provides for the inclusion of goods which are marine pollutants or severe marine pollutants.~~

**2.10.2.6** When a substance, material or article ~~is suspected to~~ possesses properties that ~~may~~ meet the criteria of a marine pollutant ~~or severe marine pollutant~~ but is not identified in this Code, such substance, material or article ~~may~~ shall be transported as a marine pollutant ~~or severe marine pollutant~~ in accordance with the Code. All relevant data shall be submitted to GESAMP as appropriate.

**2.10.2.7** With the approval of the competent authority, substances materials or articles that are identified as marine pollutants in this Code but which, on the basis of a reviewed GESAMP hazard profile, no longer meet the criteria for designation as a marine pollutant or a severe marine pollutant need not be transported in accordance with the provisions of this Code applicable to marine pollutants.

**2.10.2.7** With the exemption provided in accordance with the procedure in chapter 7.9.1 of this Code, substances, materials or articles that are identified as marine pollutants in this Code but which no

longer meet the criteria as a marine pollutant need not be transported in accordance with the provisions of this Code applicable to marine pollutants.

### **2.10.3 Classification of solutions, mixtures and isomers**

#### **2.10.3.1 Marine pollutants shall be classified in accordance with chapter 2.9.3.**

~~2.10.3.1 A solution or mixture containing 10% or more of (a) marine pollutant(s) is a marine pollutant. A solution or mixture containing any marine pollutant should be evaluated according to the mixture classification under 2.9.3.4.~~

~~2.10.3.2 A solution or mixture containing 1% or more of (a) severe marine pollutant(s) is a marine pollutant.~~

~~2.10.3.3 A solution or mixture which does not fall within the criteria of classes 1 to 8 but which meets the criteria for marine pollutants under 2.10.3.1 or 2.10.3.2 above shall be offered for transport as an ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or as an ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. under the entries in class 9, even though it is not listed by name in relation to those entries in the Index.~~

~~2.10.3.4 An isomer of a substance identified as a marine pollutant and covered by a generic entry in classes 1 to 8, but which does not fall within the criteria of these classes, shall be offered for transport as an ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or as an ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., under the entries in class 9, even though it is not listed in the Index.~~

#### **2.10.4 Guidelines for the identification of harmful substances in packaged form (marine pollutants)**

##### **2.10.4.1 For the purposes of Annex III to MARPOL 73/78, substances identified by any one of the following criteria [ boxes ] are harmful substances.\***

~~.1 Substances are regarded to have a pollution potential identified as marine pollutants (P) if:~~

~~— bioaccumulated to a significant extent and known to produce a hazard to aquatic life or to human health (hazard rating “+” in column A); or~~

~~— bioaccumulated with attendant risk to aquatic organisms or to human health with a short retention of the order of one week or less (hazard rating “Z” in column A); or~~

~~— highly toxic to aquatic life, defined by an LC<sub>50</sub> less than 1 mg/l (hazard rating “4” in column B),~~

<b>GESAMP hazard profiles</b>				
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
+				
Z	4			

~~.2 Substances are regarded as having an extreme pollution potential, identified as severe marine pollutants (PP), if:~~

~~— bioaccumulated to a significant extent and known to produce a hazard to aquatic life or human health (hazard rating “+” in column A) and are highly toxic to aquatic life, defined~~

---

\* Reference is made to the GESAMP/EHS Composite list of Hazard Profiles, prepared by GESAMP, which is circulated annually by the Organization by means of BLG circulars to all IMO Member States.

~~by LC<sub>50</sub> 4 less than 1 mg/l (hazard rating "4" in column B); or~~

~~extremely toxic to aquatic life, defined by LC<sub>50</sub><sup>†</sup> less than 0.01 mg/l (hazard rating "5" in column B).~~

**GESAMP hazard profiles**

A	B	C	D	E
+	4 5			

---

4 The concentration of a substance which will, within the specified time (generally 96 hours), kill 50% of the exposed group of test organisms; LC50 is often specified in mg/l, equivalent to parts per million (ppm).