

**Committee of Experts
on the Transport of Dangerous Goods
(Twentieth session, 7-16 December 1998)**

**Global Harmonisation of Classification and Labelling
Document ST/SG/AC.10/1998/54**

Transmitted by the Expert from Germany

In the Intersessional Meeting of BLG Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals of IMO, work has been carried out to define criteria for water reactivity of substances to be transported in bulk. Discussions not only concerned the evolution of flammable gases in contact with water but also the evolution of toxic and corrosive gases.

This subject had been brought to the attention of the Committee and the Sub-Committee by the Expert from Canada.

The issue had been discussed in the Joint ILO UN Committee Working Group on classification criteria for physical hazards. It was agreed that further examination was necessary and that OECD as well as the Working Group should further reconsider the matter on the basis of proposals.

The IMO document ESPH 4/4/1 is attached to this paper for further information of the Committee. The Expert from Germany proposes to take note of the work within IMO and to invite OECD as well as the Joint ILO UN Committee Working Group on Classification Criteria for physical Hazards to further work on the issue to include suitable criteria for substances evolving toxic and corrosive gases in contact with water.

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INTERNATIONAL MARITIME ORGANIZATION



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INTERSESSIONAL MEETING OF THE BLG
WORKING GROUP ON THE EVALUATION
OF SAFETY AND POLLUTION HAZARDS OF
CHEMICALS
4th session
Agenda item 4

ESPH 4/4/1
26 July 1998
ENGLISH ONLY

NEW PRODUCT REPORTING FORM

Review of annex 8 of MEPC/Circ.265 - Guidelines for the provisional assessment of liquids transported in bulk and criteria for data submitted for classification of products

Definition of Water Reactive Substances

Submitted by Germany

SUMMARY

<i>Executive summary:</i>	A proposal is made for the definition of Water Reactive Substances that may be used to assign carriage conditions for products in chapter 17 of the IBC Code.
<i>Action to be taken:</i>	Paragraph 7.
<i>Related documents:</i>	BLG 3/12/1 and IBC Code; BLG 2/10/2; ESPH 3/4/3; ESPH 3/4/4.

Introduction

1 At BLG 2, the Working Group on the Evaluation of Safety and Pollution Hazards of Chemicals (ESPH) was instructed to review and further develop MEPC/Circ.265, annex 8, on the basis of a paper prepared by the Secretariat (BLG 2/10/2). The Working Group agreed that the criteria used for evaluating liquids in bulk need closer definition.

2 At ESPH 3, two proposals for definitions were submitted. The proposal by the Secretariat (ESPH 3/4/3) still lacked a clear definition administrations and industry could use for self-classification (proposals for entries in the Code and Tripartite Agreements). Water reactivity categorizations proposed were not based on physical or chemical safety data. According to the submission by the United Kingdom (ESPH 3/4/4) a number of liquid cargoes would have to be assigned to higher ship types although to our knowledge there are no problems reported with these cargoes (e.g. Hydrochloric acid and Coal tar pitch (molten) from ST3 to ST1; 1, 3-Cyclopentadiene dimer (molten) from ST2 to ST1). However, based on the United Kingdom proposal a further development of specific criteria is possible.

3 With BLG 3/12/1 the Secretariat noted the proposals and prepared them for consideration.

Present definitions of Water Reactive Substances

4 Water reactivity is used to define following carriage conditions:

Ship Type 1:	"Extremely reactive with water, producing large quantities of toxic or corrosive gas or aerosols (e.g., chlorosulphonic acid)".
Ship Type 2:	"Highly reactive with water, producing toxic or corrosive gas or aerosols (e.g. oleum)."
Tank Type 1G:	"Extremely reactive with water producing large quantities of toxic or corrosive gas or aerosols."
Respiratory and Eye Protection:	"Highly reactive with water, producing toxic or corrosive gas or aerosols (e.g. oleum)".

Proposed definitions of Water Reactive Substances

5 The existing specifications on water reactivity should be specified by a limit value based on the volume of gas per weight of cargo being emitted within a specific time. This value and a definition for "large quantity" should be introduced based on internationally used tests (e.g. UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, section 33.4). It is proposed to include substances which in contact with water emit toxic or corrosive gases (according to the existing Minimum Hazard 2.1.8) in large quantities (according to the quantitative definitions given).

5.1 "Extremely reactive with water" means any liquid product which reacts vigorously with water at ambient temperatures such that the maximum rate of evolution of toxic or corrosive gas is equal to or greater than 10 litre per kilogram of product over any one minute.

5.2 "Highly reactive with water" means any liquid product which reacts with water at ambient temperatures such that the maximum rate of evolution of toxic or corrosive gas is equal to or greater than 1[20] litre per kilogram of product per hour.

Proposed definitions for Carriage Conditions

6 The closer specification of hazards should amend the assignment of requirements to products to read as follows:

6.1 Ship Type 1 should be assigned to products which are "extremely reactive with water".

6.2 Ship Type 2 should be assigned to products which are "highly reactive with water".

6.3 Ship Type 3 should be assigned to any substance not expected to react vigorously with water.

6.4 Tank Type 1G should be assigned to products which are "extremely reactive with water" [or which vigorously react with water at ambient temperatures producing large amounts of heat].

6.5 Respiratory and Eye Protection should be assigned to products which are "highly reactive with water" [or which vigorously react with water at ambient temperatures producing aerosols].

Action requested of the Working Group

7 The Working Group is invited to consider the proposed definitions under 6.1 to 6.5 and further develop them as considered appropriate.
