



**WORKING PAPER**

**DANGEROUS GOODS PANEL (DGP)  
MEETING OF THE WORKING GROUP OF THE WHOLE**

**The Hague, 3 to 7 November 2008**

**Agenda Item 2: Development of recommendations for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2011/2012 Edition**

**Agenda Item 2.3: Part 3 — Dangerous Goods List, Special Provisions and Limited and Excepted Quantities**

**CLASSIFICATION OF MIXTURES**

(Presented by the Secretary)

**SUMMARY**

This paper requests comments regarding proposed changes to the Model Regulations' provisions applicable to the classification of mixtures of several dangerous substances or containing traces of dangerous substances.

Action by the DGP-WG is in paragraph 2.

**1. INTRODUCTION**

1.1 Following the discussion on cylinders containing ethyl chloride mixtures by the Dangerous Goods Panel (DGP) at the ad-hoc meeting of the working group (8 to 10 April 2008) it was agreed ICAO would request the UN Sub-Committee of Experts on the Transport of Dangerous Goods to consider the Model Regulations' provisions applicable to the classification of mixtures of several dangerous substances or containing traces of dangerous substances. At its thirty-third Session, the Sub-Committee agreed to establish a correspondence working group.

1.2 Documentation provided by the Rapporteur of the correspondence working group is provided in the appendices to this WP:

**Appendix A:** Letter of enquiry from the Rapporteur;

**Appendix B:** Terms of Reference;

**Appendix C:** Proposals to address items 1 and 2 of the terms of reference; and

**Appendix D:** Proposed timetable.

**2. ACTION BY THE DGP-WG**

2.1 The DGP-WG is invited to review the proposals contained in Appendix C and to provide comments to the secretary for submission to the Rapporteur of the correspondence working group.

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**APPENDIX A**

**LETTER OF ENQUIRY FROM THE RAPPORTEUR  
OF THE CORRESPONDING WORKING GROUP**

27 August 2008

Dear Sub-Committee Member or Observer:

The United Nations Sub-Committee of Experts on the Transport of Dangerous Goods agreed at its thirty-third session to establish a correspondence working group as suggested by ICAO in INF.16 (see ST/SG/AC.10/C.3/66 paragraphs 61-64) to consider the Model Regulation provisions applicable to the classification of mixtures of several dangerous substances or containing traces of dangerous substances.

In INF.16, ICAO requested that the Sub-Committee establish a group to perform a review; however, it is also recognized that an extensive review and revision might be necessary which would be unlikely to be completed in the short time remaining in this biennium. Recognizing the time limitations, the Expert from the United States suggests the correspondence group develop a recommendation to items 1 and 2 in the terms of reference and submit as an informal document for the December 2008 session of the Sub-Committee. Further, we recommend the Sub-Committee consider this issue within an informal working group meeting during the December session.

In order to assist in the discussion, Annex A reproduces the terms of reference and potential proposals consistent with the amendments identified in INF.16. Additionally, we propose that the working group follow the timeline in Annex B to enable discussion of possible solutions to this issue at the December 2008 Sub-Committee meeting.

Best regards

Duane Pfund

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## **APPENDIX B**

### **TERMS OF REFERENCE ON THE CORRESPONDENCE GROUP ON THE CLASSIFICATION OF MIXTURES**

1. To review the provisions for determining the proper description of mixtures and solutions, particularly those provisions related to mixtures or solutions containing two or more dangerous goods or two or more goods not subject to the Model Regulations;
2. To review the relevant definitions for the classification of mixtures, solutions, and substances (including distinction between pure and technically pure substances);
3. To review the requirements for packaging compatibility related to the presence of a proportion of a substance in a mixture or solution;
4. To assess how the Model Regulations clearly address regulatory provisions from those provisions contained in guidance material or standards;
5. To consider the implications of the approach for the classification of mixtures and solutions as provided in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) to addressing the problems identified in informal document UN/SCETDG/33/INF.16.;
6. To editorially clarify existing text as necessary.

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## APPENDIX C

### PROPOSALS TO ADDRESS ITEMS 1 AND 2 OF THE TERMS OF REFERENCE:

The following proposals are offered as a thought starter to address the first two items in the terms of reference:

1. To review the provisions for determining the proper description of mixtures and solutions, particularly those provisions related to mixtures or solutions containing two or more dangerous goods or two or more goods not subject to the Model Regulations;

#### Proposal 1:

Consider amendments as suggested in INF.16 reflecting an interim measure the ICAO Dangerous Goods Panel (DGP) decided upon, taking into account an upcoming review by the UN SCOE. Also, IATA submitted a proposal to the ad hoc working group of the ICAO DGP that is more comprehensive. Both options are reflected below (track-change format identifies revisions and additions from existing UNMR text):

**Option 1.** Clarify the text in 3.1.3.3 and add a new 3.1.3.4 to address mixtures and solutions containing two or more dangerous goods similar to the new note for 3;1.4 of the ICAO TI:

3.1.3.3 A mixture or solution containing one or more substances identified by name in the Dangerous Goods List or classified under a N.O.S. entry and one or more substances not subject to these Regulations, is not subject to these Regulations if the hazard characteristics of the mixture or solution are such that they do not meet the criteria (including human experience criteria) for any class.

3.1.3.4 Classification of mixtures or solutions containing two or more dangerous goods shall be based on the properties of the mixture or solution, not the individual substances. In some instances, it may be appropriate to select the UN Number of a substance specifically listed by name in the Dangerous Goods List. For example, it may be more appropriate for mixtures or solutions containing a substance specifically listed by name in the Dangerous Goods List and traces or small quantities of one or more other dangerous goods to be assigned the UN number and proper shipping name of the predominant substance.

**Option 2.** The following text is based on a proposal submitted by IATA to the ad hoc working of the ICAO DGP:

#### 3.1.3 Mixtures and solutions containing one dangerous substance

3.1.3.1 A mixture or solution containing only a single dangerous substance identified by name in the Dangerous Goods List and one or more substances not subject to these Regulations shall be assigned the UN number and proper shipping name of the listed substance unless:

~~treated according to the requirements given for the dangerous substance provided that the packaging is appropriate to the physical state of the mixture or solution unless:~~

- a) The mixture or solution is specifically identified by name in these Regulations; or
- b) The entry in these Regulations specifically indicates that it applies only to the pure substance; or
- c) The hazard class, physical state or packing group of the solution or mixture is different from that of the dangerous substance; or
- d) There is significant change in the measures to be taken in emergencies.

3.1.3.2 For solutions and mixtures treated according to the provisions given for the listed dangerous substance, the qualifying word “SOLUTION” or “MIXTURE”, as appropriate, shall be added as part of the proper shipping name, e.g. “ACETONE SOLUTION”. In addition, the concentration of the solution or mixture may also be indicated, e.g. “ACETONE 75% SOLUTION”.

3.1.3.3 A mixture or solution containing one or more substances identified by name in the Dangerous Goods List ~~these Regulations~~ or classified under a N.O.S. entry and one or more substances not subject to these Regulations, is not subject to these Regulations if the hazard characteristics of the mixture or solution are such that they do not meet the criteria (including human experience criteria) for any class.

### **3.1.4 Mixtures and solutions containing two or more dangerous substances**

3.1.4.1 Except as provided for in 3.1.4.2, a mixture or solution not specifically identified by name in the Dangerous Goods List and containing two or more dangerous goods shall be described by the appropriate N.O.S. entry followed, in parentheses, by the technical names of not more than two of the constituents which most predominantly contribute to the hazard(s), unless it is a controlled substance and a national law or international convention prohibits its disclosure. If a subsidiary risk label is required, the technical names shall include the component which requires the use of subsidiary label(s). Qualifying words such as “mixture”, “solution”, shall be added where appropriate.

3.1.4.2 Unless otherwise specified, a mixture or solution composed of a substance specifically identified by name in the Dangerous Goods List and only traces or small quantities of one or more other dangerous substances shall be assigned the UN number and proper shipping name for the substance specifically listed by name unless:

- a) The mixture or solution is specifically identified by name in these Regulations;
- b) The entry in these Regulations specifically indicates that it applies only to the pure substance; or
- c) The hazard class, physical state or packing group of the substance or mixture is different from that of the pure dangerous substances; or
- d) There is significant change in the measures to be taken in emergencies.



*Note. — For classification purposes, the characteristics of the mixture or solution shall be checked, not the individual characteristics of each of the contents.*

2. To review the relevant definitions for the classification of mixtures, solutions, and substances (including distinction between pure and technically pure substances);

**Proposal 2:**

Consider incorporating into the Model Regulations definitions for substance and mixture from the GHS.

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**APPENDIX D**  
**PROPOSED TIMETABLE**

<b>Action</b>	<b>Date (2008)</b>
1) Letter of enquiry	27 Aug
2) Comments to the proposals for items 1 and 2 of the terms of reference and the proposed timetable	12 Sep
3) First discussion document circulated	10 Oct*
4) Comments on accuracy of first discussion document	17 Oct
5) First draft proposals (if necessary) circulated	29 Oct
6) Responses to the first draft proposal by	7 Nov
7) INF paper to UNSCOE	14 Nov

\* This date takes into consideration the 15-19 Sep Joint Meeting and 22-26 Sep IMO DSC

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