



Secretariat

Distr.  
GENERAL

ST/SG/AC.10/C.3/2007/4  
21 March 2007

Original: ENGLISH

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**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

Thirty-first session  
Geneva, 2-6 July 2007  
Item 3 of the provisional agenda

**LISTING, CLASSIFICATION AND PACKING**

Assignment of explosive articles packed or fitted with their means of initiation  
to compatibility groups

Transmitted by the expert from Norway

**Background**

1. The expert from Norway has found a possible inconsistency between the UN Recommendations on the Transport of Dangerous Goods (UNRTDG) and the present text of RID/ADR concerning the assignment of explosive articles to compatibility groups D, E and F.
2. It concerns provisions in RID/ADR to pack or fit articles of compatibility groups D, E and F with their own means of initiation in the same packaging, which does not appear in the UNRTDG, the IMDG Code or the ICAO Technical Instructions. The UNRTDG, IMDG Code and the ICAO TI have provisions for stowing different compatibility groups together, but not for mixed packing or for the transport of articles fitted with their own initiation in the same manner as in RID/ADR.

**Discussion**

3. The text of section 2.1.2 of the UNRTDG for the relevant compatibility groups reads:

“ 2.1.2.1 Goods of Class 1 are assigned to one of six divisions, depending on the type of hazard they present (see 2.1.1.4) and to one of thirteen compatibility groups which identify the kinds of explosive substances and articles that are deemed to be compatible. The tables in 2.1.2.1.1 and 2.1.2.1.2 show the scheme of classification into compatibility groups, the possible hazard divisions associated with each group and the consequential classification codes:

Description of substance or article to be classified	Compatibility group	Classification code
.....		
Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and containing two or more effective protective features	D	1.1D 1.2D 1.4D 1.5D
Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids)	E	1.1E 1.2E 1.4E
Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge	F	1.1F 1.2F 1.3F 1.4F
.....		

4. The corresponding regulatory texts of RID/ADR are the same as in the UNRTDG, the IMDG Code and the ICAO TI, although the layout is somewhat different:

**“2.2.1.1.6 Definition of compatibility groups of substances and articles**

.....

- D Secondary detonating explosive substance or black powder or article containing a secondary detonating explosive substance, in each case without means of initiation and without a propelling charge, or article containing a primary explosive substance and having two or more effective protective features.
- E Article containing a secondary detonating explosive substance, without means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids).

F Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge.

.....”

5. The text of paragraph 2.2.1.1.6 of RID/ADR contains some notes which do not appear in the UNRTDG, the IMDG Code or the ICAO TI, and which open for variations in the assignment to compatibility groups that is not self-evident according to the UNRTDG text:

*“NOTE 2: Articles of compatibility groups D and E may be fitted or packed together with their own means of initiation provided that such means have at least two effective protective features designed to prevent an explosion in the event of accidental functioning of the means of initiation. Such packages shall be assigned to compatibility groups D or E.*

*NOTE 3: Articles of compatibility groups D and E may be packed together with their own means of initiation, which do not have two effective protective features (i.e. means of initiation assigned to compatibility group B), provided that they comply with mixed packing provision MP21 of section 4.1.10. Such packages shall be assigned to compatibility groups D or E.”*

6. The expert from Norway provides hereafter two examples which illustrate the problem with classification described above according to the various schemes in UNRTDG and RID/ADR:

(a) Example 1:

M72 LAW Anti-tank Rocket,  
- Complete rocket with motor, HE-warhead and fuse, in launcher

**UNRTDG:**

“Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge”

= **Compatibility group F**

**RID/ADR:**

“Article of compatibility groups D and E may be fitted or packed together with their own means of initiation provided that such means have at least two effective protective features designed to prevent an explosion in the event of accidental functioning of the means of initiation. Such packages shall be assigned to compatibility groups D or E.”

= **Compatibility group D or E ?**

(b) Example 2:

105 mm artillery munition

- Complete round with HE-shell and cartridge case, with fuze fitted.

**UNRTDG:**

Article containing a secondary detonating explosive substance with its own means of initiation, with a propelling charge (other than one containing a flammable liquid or gel or hypergolic liquids) or without a propelling charge.”

**= Compatibility Group F**

**RID/ADR:**

“Articles of compatibility groups D and E may be fitted or packed together with their own means of initiation provided that such means have at least two effective protective features designed to prevent an explosion in the event of accidental functioning of the means of initiation. Such packages shall be assigned to compatibility groups D or E.”

**= Compatibility Group D or E?**

**Proposal**

7. The expert from Norway brought this up for discussion at the IGUS EPP<sup>1</sup> meeting in 2006 with government and test house representatives from Asia, Europe, North America and the southern hemisphere. The group agreed that the text of notes 2 and 3 to 2.2.1.1.6 of RID/ADR adds clarity to the assignment of explosive articles to compatibility groups D, E and F when packed or fitted with their own means of initiation in the same packaging. The group was furthermore of the opinion that this would be safe and practicable, as well as in line with the current practice in many of the countries represented at the meeting.

8. The expert from Norway subsequently proposes to add the following notes after the table in 2.1.2 of the UNRTDG:

*“NOTE 1: Articles of compatibility groups D and E may be fitted or packed together with their own means of initiation provided that such means have at least two effective protective features designed to prevent an explosion in the event of accidental functioning of the means of initiation. Such packages shall be assigned to compatibility groups D or E.*

*NOTE 2: Articles of compatibility groups D and E may be packed together with their own means of initiation, which do not have two effective protective features when, in the opinion of the competent authority of the country of origin the accidental functioning of the means of initiation does not cause the explosion of an article under normal conditions of carriage. Such packages shall be assigned to compatibility groups D or E;”*

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<sup>1</sup> Explosives, Propellants and Pyrotechnics (EPP) working group of the International Group of Experts on the explosion risks of Unstable Substances (IGUS).