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**ECONOMIC COMMISSION FOR EUROPE**

**INLAND TRANSPORT COMMITTEE**

Working Party on the Transport of Dangerous Goods  
(Seventy-eighth session, agenda item 7,  
Geneva, 9-13 May 2005)

**SAFETY IN ROAD TUNNELS**

**Points for discussion and proposals to enhance safety in road tunnels**

**Transmitted by the Government of the Netherlands**

**SUMMARY**

<b>Executive Summary:</b>	In the Netherlands experts have ascertained specific risks related to the transport of dangerous goods in tunnels. This document contains proposals and points for discussion to reduce these risks.
<b>Action to be taken:</b>	Take a decision on the proposals and points for discussion presented below.
<b>Related documents:</b>	TRANS/WP.15/2004/24, TRANS/WP.15/179/Add.1 Annex 3, TRANS/WP.15/181, paras. 69 to 74 and the Annex to the report.

**Introduction**

From 12 to 14 May 2003 an ad hoc working group met in Feldkirch (Austria) to discuss regulations for dangerous goods cargo groupings in road tunnels. The mandate was –among other points- “to define in greater depth the substances and types of load (packages, bulk, tanks) to be included in each group, taking into account the OECD/PIARC criteria” (see report of the working group TRANS/WP.15/2004/24) During that meeting a first discussion took place concerning the groups of substances which could be allowed to pass through a certain tunnel.

Another working group was held in Geneva from 3 to 7 May 2004. See report TRANS/WP.15/179/Add.1, Annex 3). Unfortunately, the Netherlands was not able to attend that working group. The results were discussed in the October session of WP.15 (25-28 October 2004) and the text was adopted with some additional amendments. At that time, the representative of the Netherlands said that she would come back to the proposal at a future session (see report TRANS/WP.15/181, paras. 69 to 74 and the Annex to the report). Now, the Netherlands has studied the result of the working group and offers the following comments.

### **Proposal concerning the place of the provisions.**

The place of the adopted text under 2.4 (document TRANS/WP.15/181, Annex) is not correct. These provisions have nothing to do with the classification of dangerous substances. The text deals with a categorization of tunnels in road transport. Multimodal, part 2 deals with the classification of substances and it would be very confusing to include tunnel provisions for road transport in this part. As already suggested by Germany (para. 22 of TRANS/WP.15/179/Add.1) a new chapter 8.6 would be a good solution.

*Proposal: replace the text of 2.4 in TRANS/WP.15/181, Annex to a new chapter 8.6.*

### **Tunnels in the Netherlands**

In the Netherlands, tunnels are in most cases constructions of concrete beneath a river or canal. If a tunnel would be destroyed or damaged, the economic and logistic consequences would be enormous. To reduce this risk, the Netherlands has specific national restrictions for the transport of dangerous goods through tunnels.

In general, the following risk criteria apply:

- Large explosion or a large fire with high temperature which may result in the destruction of the tunnel.
- Toxic by inhalation substances, which could result in a toxic cloud in the tunnel and kill all people inside.
- Fire, this criterion is important for those tunnels which do not have the means to restrict the effect of a fire in a tunnel.

### **Proposals and points for discussion with respect to the grouping**

#### **GROUPING C**

##### **Non flammable and non toxic gases**

In the OECD/PIARC grouping, the scenario of non-flammable and non-toxic gases has been considered. In the OECD/PIARC terms the scenario : “BLEVE of carbon dioxide in bulk (not including toxic effects)” has been taken into account. In the adopted text of ADR (see Annex of TRANS/WP.15/181), however, such gases are not considered. In line with the

OECD/PIARC report, the Netherlands of the opinion that these gases can give a BLEVE in an accident situation and destroy the tunnel.

*Discussion point/proposal: it should be considered to add gases with classification code A and O in tanks to grouping C.*

#### Large release of toxic gases and vapours

The criterion of a large release of toxic gases or vapours in grouping C is difficult to translate in groups of substances of the ADR due to the fact that toxic by inhalation substances are not recognized as such in the ADR list of substances. In TRANS/WP.15/181, Annex this is done quite correctly by including toxic gases (with T in the classification code) in tank transport and also, for other classes, most substances with such properties are covered.

For class 3, the groups of PG I with classification code FC and FTC are included. It is recognized that substances with a flashpoint below 23 °C and toxic covers in many cases substances which are toxic by inhalation. In this context, the group flammable corrosive (FC) is not very logical and should probably be flammable toxic (FT).

*Discussion point: should code FC read FT or should code FT be added?*

In class 6.1, the translation of this criterion is PG I in tanks of the groups TF1 and TFC and indeed these substances often have properties of toxic by inhalation. However these groups do not necessary cover the criterion of toxic by inhalation. The new UN-entries 3381 to 3390 in class 6.1, however, cover the toxic by inhalation substances and should be inserted in grouping C.

*Proposal: add UN-numbers 3381 to 3390 of class 6.1 in grouping C for tank transport.*

## **GROUPING D**

### Toxic by inhalation substances

If the proposal to add UN 3381 to 3390 for tank transport in grouping C is adopted, it would be logical to add these substances also in grouping D for transport in packages.

*Proposal: add the toxic by inhalation substances UN numbers 3381 to 3390 in packages.*

### Large fire

This category is important for those tunnels which are not adequately equipped to fight a large fire. Especially for the older tunnels, this situation could apply.

It is noted that there is a large difference between grouping D and grouping E. For example: grouping D allows tank transport of class 3 PG III as well as all class 3 substances in packages including IBC's whereas in grouping E all dangerous substances above the limits of 1.1.3.2 to 1.1.3.5. are prohibited.

In this context, it could be discussed to add some specific groups of substances to grouping D.

*Discussion point: add to grouping D the following groups of substances:*

- *Transport in packages of class 3 PG I and II*
  - *Transport of packages of class 4.2 and 4.3. PG I.*
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