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Working Party on the Transport of Dangerous Goods
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SAFETY IN ROAD TUNNELS

Transmitted by the Government of Switzerland

Summary

<i>Executive summary:</i>	Decisions to be taken by WP.15 concerning safety provisions for road tunnels.
<i>Action to be taken:</i>	Assign the new provisions to a new Chapter 8.6. Exclude all references to limited quantities in 1.1.3.6 or any other quantity in the reference table of INF.15 of the Feldkirch expert meeting. Review the substances in each cargo grouping. Apply the rules for tunnels to certain ADR exemptions. Require the orange-coloured plates and the transport document for dangerous goods in any quantity carried in regulated tunnels. Make it possible for Contracting Parties to provide for exemptions from the general rules for tunnels.
<i>Related documents:</i>	TRANS/AC.7/9, -/Add.1 and -/Corr.1, TRANS/WP.15/2002/21, INF.15, INF.18, INF.24 from the May 2003 meeting, INF.48 from the October 2003 RID/ADR/ADN Joint Meeting.

1. Introduction

At the January 2004 meeting, WP.15 decided to establish a working group which would meet for two days during the May 2004 session. A mandate to this effect needs to be given to the working group. Prior to this, however, WP.15 should take decisions on some fundamental issues.

A list of issues on which decisions should be taken by WP.15 is set out below:

1. The new provisions should not appear in Chapter 1.9 but in another chapter, for example, 8.6.
2. The Working Party (WP.15) should adopt the principle that certain tunnels cannot be subjected to the risks of the carriage of dangerous goods below the thresholds of 1.1.3.6.3 and should make provision for the possibility of prohibiting all dangerous goods in certain tunnels. This solution can be achieved in two ways:
 - (a) By relinquishing all limits in the table of cargo groupings in the Feldkirch report (INF.15 of May 2003). This solution enables the implementation and interpretation of the provisions to be considerably simplified (document INF.28 of the January 2004 meeting).
 - (b) By providing an additional column in the table of cargoes for tunnels in which dangerous goods are prohibited in any quantity (document TRANS/WP.15/2004/12). This solution upholds a system that is too complicated for practical interpretation and practice.
3. The Working Party should review the substances listed in the table of document INF.15 of the May 2003 session (the report of the Feldkirch expert meeting).
4. The Working Party should adopt the principle that part of the exemptions for which ADR provides cannot be applied to regulated tunnels. Some exemptions of Chapters 3.3 and 3.4 and those of 1.1.3.1 should comply with the rules specific to regulated tunnels. They should be subject to the following minimum rules:
 - requirements relating to the marking of the transport unit with an orange-coloured plate;
 - a mandatory transport document; and
 - training in accordance with Chapter 1.3.
5. Irrespective of the quantity of dangerous goods carried, the marking of the vehicle and a transport document must be required in order to simplify the work of the participants in the transport operation and ensure additional safety in passage through regulated tunnels.
6. The Contracting Parties maintain the right to provide for exemptions to the tunnel grouping system recommended in ADR.

Justification

Point 1

The introduction of new provisions exclusively in Chapter 8.6 ensures that the sphere of competence of the States - which is not a matter for WP.15 - is not restricted, but it sends them a sufficiently strong signal to induce them to use the model to classify road tunnels. Similarly, this solution enables users to be informed directly of the existence of these cargoes and categories of tunnels.

This solution is not, however, independent of the other proposals listed below.

Point 2

In document TRANS/WP.15/2004/12 we have already explained the reasons justifying the omission of references to Chapter 1.1.3.6 in the table of cargo groupings of dangerous goods. Our approach has been supported as regards safety issues, as can be seen from the statements contained in document INF.48 of the RID/ADR Joint Meeting of October 2003. The United Kingdom in its document had assessed the hazards and proposed that explosives of Class 1, Divisions 1.1, 1.2 and 1.3 of compatibility group C and 1.5, toxic gases with a value of $LC_{50} \leq 400 \text{ ml/m}^3$ (classification codes T, TF, TC, TO, TFC and TOC, excluding aerosols) and toxic substances of Class 6.1 of packing group I with a value of $LC_{50} \leq 400 \text{ ml/m}^3$ should be transferred to transport category 0 in the table 1.1.3.6.3. This request is probably justified and serves on its own to show that the table in 1.1.3.6 is not enough to ensure safety even for transport operations outside tunnels. This table should not therefore be used as a reference for safety in tunnels.

Similarly, the reference to a restriction on quantities of dangerous goods per transport unit - with values which cannot in any case be exceeded, as in the case of substances of Divisions 1.1, 1.2 and 1.5 for type B tunnels and 1.3 for type C tunnels - deprives the intended restrictions of their meaning when they are to be used for classes other than Class 1.

Our proposal 3 in document TRANS/WP.15/2004/12 is an example of what should ideally be achieved. A consensus needs to be found on the minimum quantities that must not be exceeded and they should be used as the reference in the cargo groupings table. The application of a reference table of this nature, however, becomes difficult in the case of vehicles not carrying the orange-coloured plate marking. The simplest solution, guaranteeing a satisfactory level of safety for regulated tunnels, would seem to be to relinquish the limits of 1.1.3.6 and require an orange-coloured plate irrespective of the quantity carried. In this way the inclusion of a new column for tunnels in which dangerous goods are prohibited in any quantity could be avoided. This was the purpose of our proposal 1 in document TRANS/WP.15/2004/12.

Point 3

Numerous substances representing as many potential hazards as those already cited in the table have been ignored. In all classes, dangerous goods not presenting a subsidiary risk of flammability have been left out although they may also include substances of packing group I. This is particularly alarming in the case of toxic and corrosive substances. The only exception is

corrosive liquids with a subsidiary risk of toxicity of packing group I (CT1). Toxic substances of packing group I, on the contrary, and substances with a subsidiary risk of corrosion are not taken into consideration.

In our opinion, these omissions contradict the principles the OECD/PIARC working group established for itself, whereby releases of toxic gas or volatile toxic liquid constitute one of the three major hazards in tunnels.

Other substances which should also be subject to a limitation like those currently included in the table of INF.15 of May 2003 are listed below:

Class 1:

Substances and articles representing only a minor hazard group in the event of ignition or initiation of detonation during the carriage of the following compatibility groups: 1.4, 1.4B, 1.4C, 1.4D, 1.4E, 1.4F, 1.4S; the following UN numbers: 0349, 0350, 0479, 0480, 0471, 0472 and 0481, explosive substances and articles n.o.s. and UN 0190 were left out of the Feldkirch report. While it is true that these substances and articles present relatively low-level hazards under normal conditions of carriage (on the open road), there should be no question of passing them over when traffic in tunnels is involved.

Class 2:

Classification code 30 is missing, in particular UN No. 3311 in tanks.

Classification code 5, flammable aerosols, is also missing (a full load of flammable aerosols is dangerous in a tunnel!)

Class 3:

Classification codes are missing for packagings F1 (packing group I/II), FT1/FT2 (packing group I/II), FC (packing group I/II) and FTC (packing group I/II). Why should flammable, toxic, corrosive substances of packing group II, for example, not be considered dangerous in type B, C and D tunnels when carried in unlimited quantities per transport unit and in 3,000 litre IBCs? Conversely, in type E tunnels, they would all of a sudden be restricted to 333 litres per transport unit. It must be noted that the hazards tolerated in B, C and D tunnels are considerably greater than those tolerated in type E tunnels. There is no measured gradation of the degree of hazard tunnels can tolerate.

Class 4.1:

Classification codes F1, F2, F3, FT1, FT2, FC1 and FC2 (quantity for packagings or tanks to be determined) are missing.

Class 4.2:

Classification codes are missing for packagings for packing groups I and II: S1, S2, S3, S4 and SW.

Class 4.3:

Only substances of packing group I/II in tanks are subject to limitations. Packagings of packing group I/II should also be restricted. Moreover, corrosive substances which on contact with water emit flammable gases - which are both flammable and corrosive - are not mentioned. This is a serious omission. These substances are permitted for carriage in type D tunnels in packagings in any quantity but are prohibited in type E tunnels.

Class 5.1:

Classification codes are missing: (for packagings) O1 (packing group I/II), O2 (packing group I), OT1 (packing group I/II), OT2 (packing group I), OC1 (packing group I/II), OC2 (packing group I); (for tanks) OT1 (packing group II), OC1 (packing group II).

Class 6.1:

Classification codes are missing: (for packagings and tanks, packing group I and possibly II) T1, T2, T3, T4, T5, T6, T7; TC1, TC2, TC3, TC4; TW2.

Class 7:

It must be ascertained with experts for this class which material or articles should be regulated. Radioactive contamination may be very serious in the event of an accident.

Class 8:

Classification codes are missing: (for packagings and tanks) C1 (packing group I/II), C2 (packing group I), C3 (packing group I/II), C4 (packing group I), C5/C6 (packing group I/II), C7 (packing group I/II), C8 (packing group I), C9 (packing group I), C10 (packing group I), UN 1760 (packing group I/II), CF1/CF2 (packing group I), CS1/CS2 (packing group I/II), CW1/CW2 (packing group I/II), CO1/CO2 (packing group I), CT1 (packing group II), CT2 (packing group I).

Class 9:

The classification codes are missing: (for packagings and tanks) M2. These are PCBs which are liable to produce dioxins in the event of fire; (for tanks) M3.

The quantities per transport unit, classification codes M4/M8, should be limited.

The fact of limiting the carriage of these substances only in the case of type E tunnels and not for type B, C or D tunnels raises the question of what types of tunnels are considered sufficiently safe to permit the carriage of these substances without further need for consideration. What is clear is that there would be enormous differences between the safety guaranteed by a type D tunnel and that guaranteed by a type E tunnel. There is no measured gradation of the hazards tolerated by the different types of tunnel. The Working Party should contribute to rectifying these omissions.

Point 4

This issue is discussed in our document TRANS/WP.15/2004/12 and in document INF.28 of the January 2004 meeting. This approach would make it possible to ensure the necessary control for the safe passage of dangerous goods through tunnels. The respective texts for each exemption should draw the attention of those concerned to the existence of provisions of relevance to them in Chapter 8.6. The application of all the provisions of ADR is naturally not enforceable, but the reference to Chapter 8.6 and compliance with the three rules already mentioned enable the participants to be sufficiently aware that not everything is permitted in regulated tunnels. Where training is concerned, the requirement that companies performing transport operations exempted by ADR in regulated tunnels must provide training in accordance with Chapter 1.3 that includes the issue of transport operations in tunnels as part of the training of their personnel does not seem to be an insurmountable problem. This measure has already been included in the recommendations of the Group of Experts on Safety in Tunnels (Road) as regards driving tests for all categories of vehicles (Measure 1.02 document TRANS/AC.7/9/Corr.1). It should not therefore cause companies any difficulties of implementation.

In accordance with 1.9, Contracting Parties naturally conserve the right to apply these rules as we also suggested in proposal 1 of document TRANS/WP.15/2004/12.

Point 5

The requirement that the vehicle should be marked by an orange-coloured plate and carry a transport document for passage through regulated tunnels cannot present insurmountable difficulties for the companies concerned. These simple measures enable safety to be considerably improved as a result of the efficient management of dangerous goods traffic in regulated tunnels.

Point 6

In some cases and under clearly-defined conditions some goods prohibited in tunnels must nevertheless be permitted. Instances of transport category 0 may be mentioned as examples.

The following substances are totally prohibited in tunnels:

Only certain substances, but not others, of W2, UN Nos. 1390, 1403, 2813 and 2968 are totally prohibited in accordance with 1.1.3.6;

WC1 UN No. 3129 in its three packing groups;

WT1 UN No. 3130 in its three packing groups;

WC2 UN No. 3131 in its three packing groups;

WT2 UN No. 3134;

W1 UN No. 3148 in its two packing groups;

WF1 UN No. 3207 in its three packing groups;

WF2 UN No. 3372 in its three packing groups;

Substances of Class 6.2 UN Nos. 2814 and 2900 (risk groups 3 and 4);

Class 7: UN Nos. 2912 to 2916, 2977, 2978, 3332.

In certain cases, the carriage of the above goods in tunnels may be permitted, the most notable case being that of infectious substances which do not present an immediate danger when an accident occurs in a tunnel. Such transport operations could be permitted under conditions established by the authorities responsible for safety in tunnels.

Other examples could be taken from other transport categories.

States are furthermore free not to implement all the common provisions of ADR (requirement of the orange-coloured plate and a transport document, exemptions in accordance with 1.1.3.1, 3.3 and 3.4). This freedom must be kept. It provides for a common core from which States may diverge. The common core is known and ensures minimum safety. Depending on local circumstances (low traffic density, time of day traffic management), States may permit exemptions from the common rules.
