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Economic Commission for Europe**Inland Transport Committee****Working Party on the Transport of Perishable Foodstuffs****Seventy-fourth session**

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Item 6 (b) of the agenda

Proposals of amendments to ATP:**New proposals**

Proposal to amend ATP by introducing special provisions applicable to packages and vehicles and containers containing substances presenting a risk of asphyxiation when used for cooling or conditioning purposes (such as dry ice (UN 1845) or nitrogen, refrigerated liquid (UN 1977) or argon, refrigerated liquid (UN 1951))

Transmitted by the Government of Switzerland

Summary

Executive summary:	The safety provisions for the handling of substances presenting a risk of asphyxiation used for cooling or conditioning purposes that are set out in the legal instruments governing the transport of dangerous goods in ADR/ADR/RID section 5.5.3 and that are primarily intended for persons who do not work in the area of the transport of dangerous goods would reach their target audience better if they could also be disseminated through other legal instruments, such as ATP, which are not intended for users who are not specifically involved in the transport of dangerous goods.
Action to be taken:	Amend annex 1, appendix 4 of ATP by adding the text of ADR/ADN/RID 5.5.3
Related documents:	None.

Introduction

1. Since 2011, the Recommendations on the Transport of Dangerous Goods have included, in section 5.5.3, special provisions applicable to packages and vehicles and containers containing substances presenting a risk of asphyxiation when used for cooling or



conditioning purposes (such as dry ice (UN No. 1845) or refrigerated liquid nitrogen (UN No. 1977) or refrigerated liquid argon (UN No. 1951)). These provisions were brought into effect in 2013 in section 5.5.3 of the various legal instruments governing inland transport (the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) and the Regulations concerning the International Carriage of Dangerous Goods by Rail (RID)).

2. It was originally the transport of dry ice as a refrigerant that ultimately led to the introduction of provisions in subsection 5.5.3 of the Model Regulations and of the various inland transport agreements. Dry ice poses potential handling problems for persons who work in transport when it is used as a refrigerant for any type of goods. Care must be taken to avoid any damage to the skin and other tissues. Dry ice and other coolants or conditioners are often used for temperature-dependent consignments sent using all modes of transport, and mainly for substances not classified as dangerous in the context of transport. Consequently, it seems appropriate to issue warnings about, and apply specific conditions to, the handling of these coolants and conditioners in the regulations concerning this type of transport. Given that the aim of ATP is precisely to provide an international legal framework for the transport of perishable foodstuffs and that the methods used in such transport encompass the products mentioned in 5.5.3 of the aforementioned regulations for the transport of dangerous goods, our delegation was of the view that it would be appropriate to propose that the Working Party on the Transport of Perishable Foodstuffs (WP.11) should consider introducing the provisions designed to protect persons who are not trained in the transport of dangerous goods in its regulations.

Dissemination of information

3. As noted above, generally, the transport of goods that have to be refrigerated is not typically classified as the transport of dangerous goods. Owing to the nature of the coolant, however, the rules on the transport of dangerous goods should define the basic safety provisions for their handling. Knowledge of these provisions should extend beyond the dangerous goods community to ensure that it reaches other companies and workers. In our opinion, this has been done to a certain extent by developing provisions in a separate, independent section of the rules on the transport of dangerous goods. Subsection 5.5.3 can easily be copied and disseminated to any general goods sender/recipient, as a warning that special rules apply and as an indication of the nature of these rules. The authors of this provision imagined that other United Nations specialized agencies, such as the International Labour Organization and the United Nations Conference on Trade and Development, would be able to use these four pages of the rules on the transport of dangerous goods. Section 5.5.3 of ADR/ADN/RID was designed to be used specifically to provide, to the community of persons working outside the field of dangerous goods, easily understandable information on the handling of the substances used in the cooling and conditioning of consignments. The delegation of Switzerland considered that the insertion of these provisions in an agreement such as ATP would contribute even more effectively to the dissemination of this information among individuals who do not work with dangerous goods. It is with this in mind that the present proposal is being submitted to WP.11.

4. These provisions apply — regardless of the goods transported — to transport using ATP vehicles when the conditioning requires the use of the gases mentioned. As a result, it would be appropriate for WP.11, which is responsible for these vehicles, to introduce these provisions in its own ATP legislation. Bearing in mind that the provisions in question do not concern dangerous goods, there is nothing to prevent this legal instrument (ATP), instead of ADR/ADN/RID, from bringing into effect the content of these four pages directly at the global level in the future. These four pages are currently to be found in ADR/ADN/RID only for reasons of expediency and for historical reasons, since these regulations serve as the implementing instruments for the United Nations recommendations applicable to inland transport. There is thus nothing to prevent ATP from assuming this role as the legal instrument for the dissemination and transposition in the real world, and at the global level, of the provisions of 5.5.3 of the United Nations Model Regulations.

Proposal

5. Amend annex 1, appendix 4 as follows:
- (a) Number the title of annex 1, appendix 4 as follows:
 “1 DISTINGUISHING MARKS TO BE AFFIXED TO SPECIAL EQUIPMENT”
- (b) Add the following text after the current text of annex 1, appendix 4:
 “2. SPECIAL PROVISIONS APPLICABLE TO PACKAGES AND VEHICLES AND CONTAINERS CONTAINING SUBSTANCES PRESENTING A RISK OF ASPHYXIATION WHEN USED FOR COOLING OR CONDITIONING PURPOSES (SUCH AS DRY ICE (UN 1845) OR NITROGEN, REFRIGERATED LIQUID (UN 1977) OR ARGON, REFRIGERATED LIQUID (UN 1951))

2.1 *Scope*

- 2.1.1 This section is not applicable to substances which may be used for cooling or conditioning purposes when carried as a consignment of dangerous goods, except for the carriage of dry ice (UN No. 1845). When they are carried as a consignment, these substances shall be carried under the relevant entry of Table A of Chapter 3.2 of Annex A of ADR,¹ ADN² and RID³ in accordance with the associated conditions of carriage.

For dry ice (UN No. 1845), the conditions of carriage specified in this section, except 2.3.1, apply for all kinds of carriage, as a coolant or conditioner, or as a consignment. For the carriage of UN No. 1845, no other provisions of ADR, ADN or RID (ADR/ADN/RID) apply.

- 2.1.2 This section is not applicable to gases in cooling cycles.
- 2.1.3 Dangerous goods used for cooling or conditioning tanks or MEGCs during carriage, as defined in ADR/ADN/RID, are not subject to this section.
- 2.1.4 Vehicles and containers, as defined in ADR/ADN/RID containing substances used for cooling or conditioning purposes include vehicles and containers containing substances used for cooling or conditioning purposes inside packages, as well as vehicles and containers with unpackaged substances, used for cooling or conditioning purposes.
- 2.1.5 Subsections 2.6 and 2.7 only apply when there is an actual risk of asphyxiation in the vehicle or container. It is for the participants concerned to assess this risk, taking into consideration the hazards presented by the substances being used for cooling or conditioning, the amount of substance to be carried, the duration of the journey, the types of containment to be used and the gas concentration limits given in the note to 2.3.3.

2.2 *General*

- 2.2.1 Vehicles and containers containing substances used for cooling or conditioning purposes (other than fumigation) during carriage are not subject to any provisions of ADR other than those of this section.
- 2.2.2 When dangerous goods are loaded in vehicles or containers containing substances used for cooling or conditioning purposes, any provisions of ADR/ADN/RID relevant to these dangerous goods apply in addition to the provisions of this section.
- 2.2.3 (*Reserved*)

¹ ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

² ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.

³ RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

2.2.4 Persons engaged in the handling or carriage of vehicles and containers containing substances used for cooling or conditioning purposes shall be trained commensurate with their responsibilities.

2.3 *Packages containing a coolant or conditioner*

2.3.1 Packaged dangerous goods requiring cooling or conditioning assigned to packing instructions P203, P620, P650, P800, P901 or P904 of 4.1.4.1 of ADR/ADN/RID shall meet the appropriate requirements of that packing instruction.

2.3.2 For packaged dangerous goods requiring cooling or conditioning assigned to other packing instructions, the packages shall be capable of withstanding very low temperatures and shall not be affected or significantly weakened by the coolant or conditioner. Packages shall be designed and constructed to permit the release of gas to prevent a build-up of pressure that could rupture the packaging. The dangerous goods shall be packed in such a way as to prevent movement after the dissipation of any coolant or conditioner.

2.3.3 Packages containing a coolant or conditioner shall be carried in well ventilated vehicles and containers. Marking according to 2.6 is not required in this case.

Ventilation is not required, and marking according to 2.6 is required, if:

- Gas exchange between the load compartment and the driver's cab is prevented; or
- The load compartment is insulated, refrigerated or mechanically refrigerated equipment, for example as defined in the Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP) and separated from the driver's cab.

NOTE: *In this context "well ventilated" means there is an atmosphere where the carbon dioxide concentration is below 0.5% by volume and the oxygen concentration is above 19.5% by volume.*

2.4 *Marking of packages containing a coolant or conditioner*

2.4.1 Packages containing dangerous goods used for cooling or conditioning shall be marked with the name indicated in Column (2) of Table A of Chapter 3.2 of ADR/ADN/RID, followed by the words "AS COOLANT" or "AS CONDITIONER" as appropriate in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements concluded between the countries concerned in the transport operation provide otherwise.

2.4.2 The marks shall be durable, legible and placed in such a location and of such a size relative to the package as to be readily visible.

2.5 *Vehicles and containers containing unpackaged dry ice*

2.5.1 If dry ice in unpackaged form is used, it shall not come into direct contact with the metal structure of a vehicle or container to avoid embrittlement of the metal. Measures shall be taken to provide adequate insulation between the dry ice and the vehicle or container by providing a minimum of 30 mm separation (e.g. by using suitable low heat conducting materials such as timber planks, pallets etc.).

2.5.2 Where dry ice is placed around packages, measures shall be taken to ensure that packages remain in the original position during carriage after the dry ice has dissipated.

2.6 Marking of vehicles and containers

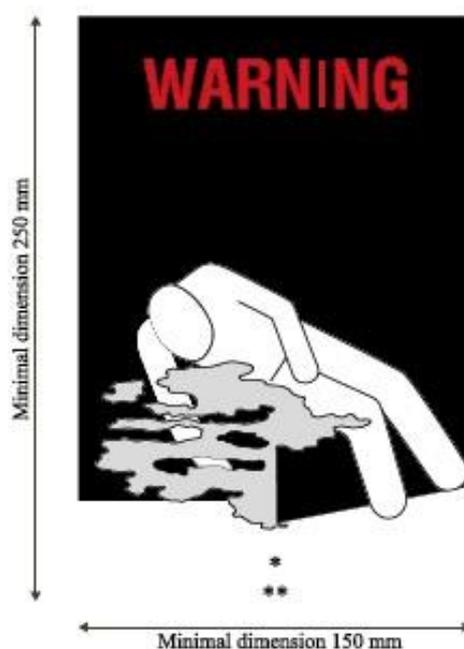
2.6.1 Vehicles and containers containing dangerous goods used for cooling or conditioning purposes that are not well ventilated shall be marked with a warning mark, as specified in 2.6.2, affixed at each access point in a location where it will be easily seen by persons opening or entering the vehicle or container. This mark shall remain on the vehicle or container until the following provisions are met:

- (a) The vehicle or container has been well ventilated to remove harmful concentrations of coolant or conditioner; and
- (b) The cooled or conditioned goods have been unloaded.

As long as the vehicle or container is marked, the necessary precautions have to be taken before entering it. The necessity of ventilating through the cargo doors or other means (e.g. forced ventilation) has to be evaluated and included in training of the involved persons.

2.6.2 The warning mark shall be as shown in Figure 2.6.2.

Figure 2.6.2



Coolant/conditioning warning mark for vehicles and containers

* Insert the name indicated in Column (2) of Table A of Chapter 3.2 of ADR/ADN/RID of the coolant/conditioner. The lettering shall be in capitals, all be on one line and shall be at least 25 mm high. If the length of the proper shipping name is too long to fit in the space provided, the lettering may be reduced to the maximum size possible to fit. For example: "CARBON DIOXIDE, SOLID".

** Insert "AS COOLANT" or "AS CONDITIONER" as appropriate. The lettering shall be in capitals, all be on one line and be at least 25 mm high.

The mark shall be a rectangle. The minimum dimensions shall be 150 mm wide x 250 mm high. The word "WARNING" shall be in red or white and be at least 25 mm high. Where dimensions are not specified, all features shall be in approximate proportion to those shown.

The word "WARNING" and the words "AS COOLANT" or "AS CONDITIONER", as appropriate, shall be in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German,

unless agreements concluded between the countries concerned in the transport operation provide otherwise.

2.7 *Documentation*

2.7.1 Documents (such as a bill of lading, cargo manifest or CMR/CIM consignment note) associated with the carriage of vehicles or containers containing or having contained substances used for cooling or conditioning purposes and have not been completely ventilated before carriage shall include the following information:

- (a) The UN number preceded by the letters “UN”; and
- (b) The name indicated in Column (2) of Table A of Chapter 3.2 of ADR/ADN/RID followed by the words “AS COOLANT” or “AS CONDITIONER” as appropriate in an official language of the country of origin and also, if that language is not English, French or German, in English, French or German, unless agreements, if any, concluded between the countries concerned in the transport operation provide otherwise.

For example: UN 1845, CARBON DIOXIDE, SOLID, AS COOLANT.

2.7.2 The transport document may be in any form, provided it contains the information required in 2.7.1. This information shall be easy to identify, legible and durable.

A class is assigned to refrigerated equipment, mechanically refrigerated equipment, heated equipment, and mechanically refrigerated and heated equipment by the testing station or expert designated by the competent authorities of the Contracting Party.”

Costs

- 6. No additional costs will be incurred.

Feasibility

- 7. No problems with implementation of the proposal are foreseen. Its purpose is to make the work of persons dealing with these consignments safer and to facilitate the dissemination of the applicable safety requirements among those directly exposed to these hazards.
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