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

Geneva, 8–11 October 2019

Agenda item 5 (b)

**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 No. 1845) or refrigerated liquid nitrogen (UN No. 1977) or refrigerated liquid argon (UN No. 1951))**

**Transmitted by the Government of Switzerland**

*Summary*

<b>Executive summary:</b>	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/ADN/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 is intended for users who are not specifically involved in the transport of dangerous goods.
<b>Action to be taken:</b>	Amend the ATP Handbook by adding an annex 4 containing the provisions of section 5.5.3 of ADR/ADN/RID.
<b>Related documents:</b>	ECE/TRANS/WP.11/2018/9.



## Introduction

1. During the last session, a discussion was held on the proposal contained in ECE/TRANS/WP.11/2018/9 regarding the introduction of text corresponding to the provisions in the Model Regulations (Recommendations on the Transport of Dangerous Goods), section 5.5.3 of which has included, since 2011, special provisions applicable to packages and cargo transport units 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)). Despite the fact that, since 2013, these provisions have been included 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)), they do not, strictly speaking, concern the transport of dangerous goods, but only unloading and inspection activities conducted at terminals or borders for all types of transported goods that require cooling or conditioning in order to be transported.
2. These precautionary measures are often applicable to persons who transport perishable foodstuffs, which is why our delegation considered it appropriate that international instruments relating to such transport might provide a ready-made means of warning users.
3. In our document of October 2018 we proposed to introduce a text adapted to ATP that reproduces the provisions currently in force in the international regulations on the transport of dangerous goods. The reasons for this proposal are summarized in document ECE/TRANS/WP.11/2018/9 of the last session. This proposal was welcomed by WP.11, as it contained valuable information that was worth disseminating. However, as the Working Party considered that the proposal was outside the scope of ATP, it did not agree that it should be included in the Agreement.
4. Some members pointed out that it would be possible to include a cross-reference to the ADR text either in the ATP Handbook or in ATP itself. The representative of Switzerland was invited to present a proposal, including the two options, for the consideration of the Working Party at the next session.
5. After reviewing the existing texts in the ATP Handbook, we considered that the best option would be to introduce the texts proposed in document ECE/TRANS/WP.11/2018/9, adapted to the framework of ATP, in a new annex 4 of the ATP Handbook.
6. Proposal 1 (a) incorporates the suggestion, made by some Working Party delegates, to include these provisions in the ATP Handbook.

## Proposal 1 (a)

7. Add an annex 4 to the ATP Handbook, using the following texts:

Add a reference to annex 4, with the following text, to the table of contents:

“Annex 4

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 NITROGEN, REFRIGERATED LIQUID (UN No. 1977) OR ARGON, REFRIGERATED LIQUID (UN No. 1951))”

Add an annex 4, consisting of the following text:

“Annex 4

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 NITROGEN, REFRIGERATED LIQUID (UN No. 1977) OR ARGON, REFRIGERATED LIQUID (UN No. 1951))”

## 1. Scope

1.1 This annex applies to substances which may be used for cooling or conditioning purposes when transported as a consignment of dangerous goods. They are based on the provisions contained in section 5.5.3 of ADR,<sup>1</sup> ADN<sup>2</sup> and RID<sup>3</sup> on the international transport of dangerous goods, which are applicable to all types of inland transport.

1.2 Subsections 6 and 7 apply only 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 specified in the NOTE to 3.3.

## 2. Background

2.1 Vehicles and containers containing substances used for cooling or conditioning purposes (other than fumigation) during carriage are subject to the provisions of this annex.

2.2 When dangerous goods are loaded in vehicles or containers containing substances used for cooling or conditioning purposes, the provisions of 5.5.3.2.2 of ADR/ADN/RID shall apply.

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

## 3. Packages containing a coolant or conditioner

3.1 Packaged dangerous goods requiring cooling or conditioning must comply with the provisions of 5.5.3.1 of ADR/ADN/RID.

3.2 The provisions of 5.5.3.2 of ADR/ADN/RID shall apply to packaged dangerous goods requiring cooling or conditioning.

3.3 Packages containing a coolant or conditioner shall be carried in well-ventilated vehicles and containers. Marking according to 6 is not required in this case.

Ventilation is not required, and marking according to 3.6 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 is 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.

## 4. Marking of packages containing a coolant or conditioner

4.1 Packages containing dangerous goods used for cooling or conditioning shall be marked, in accordance with 5.5.3.4.1 of ADR/ADN/RID, 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

<sup>1</sup> ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway.

<sup>2</sup> ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

<sup>3</sup> RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

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

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.

5. *Vehicles and containers containing unpackaged dry ice*

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 planks or pallets, etc.).

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

6. *Marking of vehicles and containers*

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 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.

6.2 The warning mark shall be as shown in Figure 6.2.

Figure 6.2



\* 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 shall 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.

## 7. Documentation

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 that 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.

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

- 8. No additional costs are expected.

## Feasibility

9. 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.

10. As some delegates mentioned the possibility of introducing only a reference to the relevant legal instruments on which these provisions are based, we are presenting an alternative, in proposal 1 (b). However, we have retained the information that we believe to be important for end users, which is that relating to training, marking and documentation.

## Proposal 1 (b)

- 11. Add an annex 4 to the ATP Handbook, using the following texts:

Add a reference to annex 4, with the following text, to the table of contents:

“Annex 4

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 NITROGEN, REFRIGERATED LIQUID (UN No. 1977) OR ARGON, REFRIGERATED LIQUID (UN No. 1951))”

Add an annex 4, consisting of the following text:

“Annex 4

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 NITROGEN, REFRIGERATED LIQUID (UN No. 1977) OR ARGON, REFRIGERATED LIQUID (UN No. 1951))”

1. *Scope*

1.1 This annex applies to substances which may be used for cooling or conditioning purposes when transported as a consignment of dangerous goods. They are based on the provisions contained in section 5.5.3 of ADR,<sup>4</sup> ADN<sup>5</sup> and RID<sup>6</sup> on the international transport of dangerous goods, which are applicable to all types of inland transport.

1.2 Subsections 6 and 7 apply only 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 specified in the NOTE to 5.5.3.3.3 of ADR/ADN/RID.

2. *Background*

2.1 Vehicles and containers containing substances used for cooling or conditioning purposes (other than fumigation) during carriage are subject to the provisions of this annex.

2.2 When dangerous goods are loaded in vehicles or containers containing substances used for cooling or conditioning purposes, the provisions of 5.5.3.2.2 of ADR/ADN/RID shall apply.

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

3. *Packages containing a coolant or conditioner*

Packaged dangerous goods requiring cooling or conditioning must comply with 5.5.3.3.1, 5.5.3.3.2 and 5.5.3.3 of ADR/ADN/RID.

4. *Marking of packages containing a coolant or conditioner*

Packages containing dangerous goods used for cooling or conditioning shall be marked in accordance with 5.5.3.4.1 of ADR/ADN/RID, satisfying the requirements of 5.5.3.4.2 of ADR/ADN/RID.

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<sup>4</sup> ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

<sup>5</sup> ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterway.

<sup>6</sup> RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.

5. *Vehicles and containers containing unpackaged dry ice*

Unpackaged dry ice shall be subject to the provisions of 5.5.3.5.1 and 5.5.3.5.2 of ADR/ADN/RID.

6. *Marking of vehicles and containers*

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 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.

6.2 The warning mark shall be as shown in Figure 6.2.

Figure 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 shall 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.

7. *Documentation*

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 that 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.

7.2. The transport document may be in any form, provided it contains the information required in 7.1. This information shall be easy to identify, legible and durable.

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