



**INF. 2**

31 October 2016

(English only)

**RID:** 7<sup>th</sup> Session of the RID Committee of Experts' standing working group  
(Prague, 22 to 24 November 2016)

**Subject:** Proposal for an addition to RID 5.5.3 and SMGS Annex 2

**Proposal transmitted by the Russian Federation**

### Introduction

1. RID/ADR/AD/SMGS Annex 2 5.5.3 defines special provisions applicable to packages, wagons and containers containing substances presenting a risk of asphyxiation when used for cooling or conditioning purposes (such as the UN 1845 Dry ice, UN 1977 Nitrogen, refrigerated liquid or UN 1951 Argon, refrigerated liquid).
2. In practice, in transport in the Russian Federation and other CIS countries, large capacity universal containers with liner bags with terephthalic acid (non-dangerous goods) are used. The existing technology in the transport of terephthalic acid loaded into liner bags in order to exclude the risk of explosion and the formation of clouds of acidic dust, uses compressed nitrogen as a protective agent. After the terephthalic acid at the top of the liner-bag has a certain amount of nitrogen, during transport it may penetrate the walls of the liner bag in the cargo space of large universal containers.



3. Since no warning mark as specified in 5.5.3.6.2 is prescribed for large capacity universal containers, there is no information about the presence of a dangerous concentration of nitrogen in the cargo space and people entering it may be asphyxiated.

### Proposal

4. Supplement 5.5.3, UN 1066 Nitrogen, compressed, as follows:

**"5.5.3 Special provisions applicable to packages and wagons and containers containing substances presenting a risk of asphyxiation when used for cooling, or conditioning or protection purposes (such as dry ice (UN 1845) or nitrogen, refrigerated liquid (UN 1977) or argon, refrigerated liquid (UN 1951))**

#### **5.5.3.1 Scope**

**5.5.3.1.1** This section is not applicable to substances which may be used for cooling, or conditioning or protection 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 in accordance with the associated conditions of carriage.

For UN No. 1845, the conditions of carriage specified in this section, except 5.5.3.3.1, apply for all kinds of carriage, as a coolant, conditioner, or as a consignment. For the carriage of UN No. 1845, no other provisions of RID apply.

**5.5.3.1.2** This section is not applicable to gases in cooling cycles.

**5.5.3.1.3** Dangerous goods used for cooling, or conditioning or protecting tanks or MEGCs during carriage are not subject to this section.

**5.5.3.1.4** Wagons and containers containing substances used for cooling, or conditioning or protection purposes include wagons and containers containing substances used for cooling, or conditioning or protection purposes inside packages as well as wagons and containers with unpackaged substances used for cooling, or conditioning or protection purposes.

**5.5.3.1.5** Sub-sections 5.5.3.6 and 5.5.3.7 only apply when there is an actual risk of asphyxiation in the wagon 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 or protection, 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 5.5.3.3.3.

### **5.5.3.2 General**

**5.5.3.2.1** Wagons and containers containing substances used for cooling, or conditioning or protection purposes (other than fumigation) during carriage are not subject to any provisions of RID other than those of this section.

**5.5.3.2.2** When dangerous goods are loaded in wagons or containers containing substances used for cooling, or conditioning or protection purposes any provisions of RID relevant to these dangerous goods apply in addition to the provisions of this section.

**5.5.3.2.3** (Reserved)

**5.5.3.2.4** Persons engaged in the handling or carriage of wagons and containers containing substances used for cooling, or conditioning or protection purposes shall be trained commensurate with their responsibilities.

### **5.5.3.3 Packages containing a coolant or conditioner**

**5.5.3.3.1** Packaged dangerous goods requiring cooling or conditioning assigned to packing instructions P 203, P 620, P 650, P 800, P 901 or P 904 of 4.1.4.1 shall meet the appropriate requirements of that packing instruction.

**5.5.3.3.2** For packaged dangerous goods requiring cooling, or conditioning or protection 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 or protective agent. 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 or protective agent.

**5.5.3.3.3** Packages containing a coolant, or conditioner or protective agent shall be carried in well ventilated wagons and containers. Marking according to 5.5.3.6 is not required in this case.

Ventilation is not required, and marking according to 5.5.3.6 is required, if:

- gas exchange between the load compartment and accessible compartments during carriage 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 accessible compartments during carriage.

**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.

**5.5.3.4 Marking of packages containing a coolant, or conditioner or protective agent**

**5.5.3.4.1** 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 these dangerous goods followed by the words "AS COOLANT", or "AS CONDITIONER" or "AS PROTECTIVE AGENT" as appropriate in an official language of the country of origin and also, if that language is not English, French, German or Italian, in English, French, German or Italian, unless agreements concluded between the countries concerned in the transport operation provide otherwise.

**5.5.3.4.2** 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.

**5.5.3.5 Wagons and containers containing unpackaged dry ice**

**5.5.3.5.1** If dry ice in unpackaged form is used, it shall not come into direct contact with the metal structure of a wagon or container to avoid embrittlement of the metal. Measures shall be taken to provide adequate insulation between the dry ice and the wagon 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).

**5.5.3.5.2** 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.

**5.5.3.6 Marking of wagons and containers**

**5.5.3.6.1** Wagons 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 5.5.3.6.2, affixed at each access point in a location where it will be easily seen by persons opening or entering the wagon or container. This mark shall remain on the wagon or container until the following provisions are met:

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

As long as the wagon 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.

5.5.3.6.2 The warning mark shall be as shown in Figure 5.5.3.6.2.

Figure 5.5.3.6.2



Coolant/conditioning/protective agent warning mark for wagons and containers

- \* Insert the name indicated in Column (2) of Table A of Chapter 3.2 of the coolant/conditioner/protective agent. 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" or "AS PROTECTIVE AGENT" 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 × 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" or "AS PROTECTIVE AGENT", as appropriate, shall be in an official language of the country of origin and also, if that language is not English, French, German or Italian, in English, French, German or Italian, unless agreements concluded between the countries concerned in the transport operation provide otherwise.

### **5.5.3.7 Documentation**

**5.5.3.7.1** Documents (such as a bill of lading, cargo manifest or CMR/CIM consignment note) associated with the carriage of wagons or containers containing or having contained substances used for cooling, ~~or~~ conditioning or protective 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 followed by the words "AS COOLANT", ~~or~~ "AS CONDITIONER" or "AS PROTECTIVE AGENT" as appropriate in an official language of the country of origin and also, if that language is not English, French, German or Italian, in English, French, German or Italian, unless agreements, if any, concluded between the countries concerned in the transport operation provide otherwise.

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

**5.5.3.7.2** The transport document may be in any form, provided it contains the information required in 5.5.3.7.1. This information shall be easy to identify, legible and durable."

### **Justification**

- 5. This amendment ensures safe working conditions for persons involved in the processing of goods in the presence of a protective agent.

### **Enforceability**

- 6. No difficulties from software applications are expected.

### **List of sources used**

- 1. RID
- 2. ADR
- 3. ADN
- 4. Terms of transport of dangerous goods (SMGS Annex 2) as of 01.07.2015.

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