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## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on the Transport of Dangerous Goods

##### Joint Meeting of the RID Committee of Experts and the Working Party on the Transport of Dangerous Goods

Berne, 17-21 March 2014

Item 5 (b) of the provisional agenda

##### **Proposals for amendments to RID/ADR/ADN: new proposals**

### **Modification of RID/ADR 5.5.3**

**Transmitted by the Governments of Austria and Spain<sup>1,2</sup>**

#### *Summary*

<b>Executive summary:</b>	Taking into account the danger of transporting dry ice
<b>Action to be taken:</b>	Modification of RID/ADR 5.5.3.
<b>Related documents:</b>	Informal document INF.39 of the September 2013 session ECE/TRANS/WP.15/AC.1/132, paragraphs 88-89

### **Introduction**

1. During the last biennium, since the introduction of 5.5.3 (Special provisions applicable to packages and cargo transport units containing substances presenting risk of a asphyxiation when used for cooling or conditioning purposes) into RID/ADR in 2013, several amendments have been made to this text.

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<sup>1</sup> In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94, ECE/TRANS/2012/12, programme activity 02.7 (A1c)).

<sup>2</sup> Circulated by the Intergovernmental Organisation for International Carriage by Rail (OTIF) under the symbol OTIF/RID/RC/2014/25.

The modifications introduced for RID/ADR 2015 are shown in annex.

2. At the Autumn 2013 session of the Joint Meeting the representative of Austria presented informal document INF.39 about a fatal accident with UN 1845 (dry ice).



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3. In the report of the September 2013 meeting, the following comments summarized the discussion of this topic (ECE/TRANS/WP.15/AC.1/132, paragraph 89):

“The Joint Meeting also noted the information provided by Austria (INF.39) on the tragic death of a chef linked to the fact that he was carrying a package containing dry ice in his private vehicle. As there was no written proposal on the subject, the Joint Meeting did not discuss the issue further, but several delegations stressed the importance of having a separation between the driver’s cab and the load compartment. The question was also raised of whether the final sentence of paragraph 5.5.3.1.4, adopted at the previous session, was relevant because it stated “As a rule, it is assumed that packages containing dry ice (UN 1845) as a coolant do not present such a risk.” (ECE/TRANS/WP.15/AC.1/130, annex II).”

4. Information on another fatal accident in Canada can be added.





5. With reference to these cases, it is proposed to eliminate the last sentence in 5.5.3.1.4 “As a rule, it is assumed that packages containing dry ice (UN 1845) as a coolant do not present such a risk”, as it has been tragically demonstrated that packages containing dry ice may indeed present a risk (see proposal 1).

6. For road transport (ADR), the safety information of the IGV (Germany) (Link: <http://www.industriegaseverband.de/igv/sicherheitshinweise/SHW-Trockeneis.pdf>) gives the advice to transport dry ice not in the cabin but only in a load compartment isolated from the cabin. If the driver’s cabin is not separated, it is useless to have a warning affixed at each access point in a location where it will be easily seen by persons opening or entering the vehicle (5.5.3.6.1). Therefore it is advised to ensure that the vehicles are well ventilated, or to use gas detection systems during transport.

Very often commercial vehicles, where cabin is not completely separated from the load compartment, are used to deliver packages with dry ice as coolant.

7. There is safety information from EIGA that shows clearly that carbon dioxide, differently from other substances like nitrogen used also for cooling purposes, is not just an asphyxiant, but also is dangerous even when sufficient oxygen is present. ([https://www.eiga.eu/fileadmin/docs\\_pubs/Doc\\_150\\_08\\_E.pdf](https://www.eiga.eu/fileadmin/docs_pubs/Doc_150_08_E.pdf)).

Therefore, a separation of the driver’s cab from the load compartment is an effective measure to increase the driver’s safety (proposal 2) for road transport.

8. Into these provisions it should also be included the possibility, that was not taken into account in the text approved in September 2013 (see annex), that the insulated, refrigerated or mechanically refrigerated equipment is not destined for transport of perishable foodstuffs, but also for other purposes, for example pharmaceutical transports. Therefore, into the above mentioned text the reference to ATP should be defined as a non-exclusive possibility (proposal 2).

9. To be able to include this also into RID, the words “for example” should be also included into RID text (proposal 3).

10. In the marking provisions it should also be clearly stated that these are only necessary in case the vehicle or container is not well ventilated (proposal 4).

11. Finally, we see a contradiction in not applying any restrictions to the transport of UN 1845 when it is not transported as a coolant. For the other materials used for cooling or conditioning purposes, when they are carried as a consignment, the full ADR regulation applies.

For UN 1845 no restrictions are applied when transported as a consignment. At least, the same conditions should apply when transporting dry ice as a consignment than when it is transported as a coolant or conditioner.

Therefore, it may be necessary to regulate not only dry ice as a coolant or conditioner, but also as a dangerous good transported by itself, applying the conditions of transport stated in 5.5.3. for all kinds of carriage of UN 1845 (proposal 5).

## **Proposals**

### **Proposal 1**

In RID/ADR 5.5.3.1.4, delete the last sentence so that the text reads:

"5.5.3.1.4 Sub-sections 5.5.3.6 and 5.5.3.7 only apply when there is an actual risk of asphyxiation in the wagon/vehicle or large 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 and the types of containment to be used. "

### **Proposal 2 (ADR only) (new text in italics)**

Amend 5.5.3.3.3 to read as follows:

"5.5.3.3.3 Packages containing a coolant or conditioner shall be carried in well ventilated vehicles and containers. Marking according to 5.5.3.6 is not required in this case.

Ventilations is not required if:

- *the cargo compartment is gas tight separated and not accessible for personnel*
- *the load compartment is insulated, refrigerated or mechanically refrigerated equipment, for example as defined in the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such carriage (ATP) where this requirement is fulfilled.*

*Note: in this context "well ventilated" means to ensure that carbon dioxide is below 0,5% and that oxygen content is above 19%."*

### **Proposal 3 (RID only) (new text in italics)**

Amend 5.5.3.3.3 to read as follows:

"5.5.3.3.3 Packages containing a coolant or conditioner shall be carried in well ventilated vehicles/wagons and containers. This provision does not apply when such packages are carried in insulated, refrigerated or mechanically refrigerated equipment, *for example* as defined in the International Carriage of Perishable Foodstuffs and on the Special Equipment to be used for such Carriage (ATP).

*Note: in this context "well ventilated" means to ensure that carbon dioxide is below 0,5% or that oxygen content is above 19%."*

### **Proposal 4 (new text in italics)**

Amend 5.5.3.6.1 to read as follows:

5.5.3.6.1 *Not well ventilated vehicles and containers* containing dangerous goods used for cooling or conditioning 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 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 ventilated to remove harmful concentrations of coolant or conditioner; and
- (b) The cooled or conditioned goods have been unloaded.

**Proposal 5 (new text in italics)**

In Table A for UN 1845 replace “NOT SUBJECT TO ADR - When used as a coolant, see 5.5.3” by “*Only provisions of 5.5.3 apply*”

Amend 5.5.3.1 to read as follows:

“This section is not applicable to substances which may be used for cooling or conditioning purposes when carried as a consignment of dangerous goods, *save for transport of dry ice (UN 1845)*. When they are carried as a consignment, these substances shall be carried under the relevant entry of Table A Chapter 3.2 in accordance with the associated conditions of carriage.

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

## **Annex: Modifications introduced for RID/ADR 2015 by Joint Meetings held in March and September 2013**

March 2013, (ECE/TRANS/WP.15/AC.1/130, annex II)

5.5.3.1 Add the following paragraph:

"5.5.3.1.4 Sub-sections 5.5.3.6 and 5.5.3.7 only apply when there is an actual risk of asphyxiation in the wagon/vehicle or large 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 and the types of containment to be used. As a rule, it is assumed that packages containing dry ice (UN 1845) as a coolant do not present such a risk."

*(Reference document: informal document INF.49/Rev.1)*

September 2013, (ECE/TRANS/WP.15/AC.1/132/Add.2, part C)

Chapter 5.5

5.5.3.3.3 Amend to read as follows:

"5.5.3.3.3 Packages containing a coolant or conditioner shall be carried in well ventilated vehicles/wagons and containers. This provision does not apply when such packages are carried in insulated, refrigerated or mechanically refrigerated equipment, as defined in the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for such Carriage (ATP)."

*(Reference documents: ECE/TRANS/WP.15/AC.1/2013/44 and informal document INF.59/Rev.1, as amended)*