

## Economic Commission for Europe

### Inland Transport Committee

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

109<sup>th</sup> session

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Item 5 (b) of the provisional agenda:

**Proposals for amendments to annexes A and B of ADR:  
miscellaneous proposals**

### Temperature controlled transport

**Transmitted by the Government of the Netherlands and the European  
Chemical Industry Council (CEFIC)**

#### Introduction

1. After discussion in the November 2020 session of WP.15 on documents ECE/TRANS/WP.15/2020/1 and INF.11 (United Kingdom) it was felt that further consideration should be given to Section 7.1.7 and the coherence with Chapter 9.6.
2. The proposals below represent the outcome of the discussions between CEFIC and the Netherlands. The proposals are for consideration by WP.15 and are intended to be forwarded as official proposals for a future session.
3. In addition to the proposals it may be discussed in WP.15 if Chapter 9.6 could be deleted altogether and the only two remaining relevant vehicles provisions also transferred to Section 7.1.7. This may simplify the regulations.

#### Proposals

##### Proposal 1

4. Amend the heading of Chapter 7.1 to read (deleted wording stricken through):

**~~GENERAL PROVISIONS AND SPECIAL PROVISIONS FOR  
TEMPERATURE CONTROL~~**

##### Proposal 2

5. Amend subsection 7.1.7.4.5 to read (new wording underlined, deleted wording stricken through and note that for 7.1.7.4.5 (c), (d), and (e) the amended text as given in this proposal was already adopted based on document INF.11, proposal 2, see ECE/TRANS/WP.15/251, paragraphs 27 and 28):

6. **7.1.7.4.5**

Suitable methods for preventing the control temperature being exceeded are, in order of increasing control capability:

- (a) Vehicle, container or packaging (e.g. overpack) with thermal insulation provided that the initial temperature of the substance(s) to be carried is sufficiently below the control temperature;
- (b) Vehicle, container or packaging (e.g. overpack) with thermal insulation with coolant system provided that:

- (i) An adequate quantity of non-flammable coolant (e.g. liquid nitrogen or solid carbon dioxide), allowing a reasonable margin for delay, is carried or a means of replenishment is assured;
  - (ii) Liquid oxygen or air is not used as coolant;
  - (iii) There is a uniform cooling effect even when most of the coolant has been consumed; and
  - (iv) The need to ventilate the transport unit before entering is clearly indicated by a warning on the door(s) of the transport unit;
- (c) Vehicle or container with thermal insulation and single mechanical refrigeration provided that for substance(s) to be carried with a flash point lower than the sum of the emergency temperature plus 5 °C explosion-proof electrical fittings, EEx IIB T3 are used within the cooling compartment to prevent ignition of flammable vapours from the substances;
- (d) Vehicle or container with thermal insulation and combined mechanical refrigeration system with coolant system; provided that:
- (i) The two systems are independent of one another;
  - (ii) The provisions in (b) and (c) are complied with;
- (e) Vehicle or container with thermal insulation and dual mechanical refrigeration system; provided that:
- (i) Apart from the integral power supply unit, the two systems are independent of one another;
  - (ii) Each system alone is capable of maintaining adequate temperature control; and
  - (iii) For substance(s) to be carried with a flash point lower than the sum of the emergency temperature plus 5 °C explosion-proof electrical fittings, EEx IIB T3, are used within the cooling compartment to prevent ignition of flammable vapours from the substances.

### Proposal 3

7. Amend subsection 7.1.7.4.7 to read (new wording underlined, deleted wording stricken through);

8. **7.1.7.4.7**

The overall heat transfer of an insulated container or load space of a vehicle shall be not more than 0.4 W/m<sup>2</sup>/K;

The refrigerant used shall not be flammable;

Where containers or load spaces of vehicles are provided with vents or ventilation valves care shall be taken to ensure that refrigeration is not impaired by the vents or ventilation valves;

Where substances are required to be carried in insulated, refrigerated or mechanically-refrigerated vehicles ~~or containers~~, these vehicles ~~or containers~~ shall satisfy the requirements of Chapter 9.6.

### Proposal 4

9. Delete (a), (c), (d) and (e) of section 9.6.1 and renumber the remaining requirements (b) as (a) and (f) as (b) (new wording underlined, deleted wording stricken through).

## 10. 9.6.1

Insulated, refrigerated and mechanically-refrigerated vehicles intended for the carriage of temperature controlled substances shall conform to the following conditions:

~~(a) the vehicle shall be such and so equipped as regards its insulation and means of refrigeration, that the control temperature prescribed in 2.2.41.1.17 and 2.2.52.1.15 and in 2.2.41.4 and 2.2.52.4 for the substance to be carried is not exceeded. The overall heat transfer coefficient shall be not more than 0.4 W/m<sup>2</sup>K;~~

~~(a**b**)~~ the vehicle shall be so equipped that vapours from the substances or the coolant carried cannot penetrate into the driver's cab; and

~~(c) a suitable device shall be provided enabling the temperature prevailing in the loading space to be determined at any time from the cab;~~

~~(d) the loading space shall be provided with vents or ventilating valves if there is any risk of a dangerous excess pressure arising therein. Care shall be taken where necessary to ensure that refrigeration is not impaired by the vents or ventilating valves;~~

~~(e) the refrigerant shall not be flammable; and~~

~~(b**f**)~~ the refrigerating appliance of a mechanically refrigerated vehicle shall be capable of operating independently of the engine used to propel the vehicle.

## Justification

11. For the 20<sup>th</sup> edition of the UN Recommendations for the Transport of Dangerous Goods (Model Regulations) new requirements were introduced in 7.1.5 for the carriage of substances that require temperature control. These requirements, that overlapped similar requirements in ADR, were included in the 2019 version of ADR in a new Section 7.1.7. The existing Section 7.2.4 "V8" was deleted and an explanatory note was included instead.

12. In the discussion for inclusion in the ADR the Netherlands made remarks that "insulation" should be added to the measures given in the new Subsection 7.1.7.4.5 which led to actions and amendment of the recommendations but also to further discussion on the difference between the carriage of insulated packages in non-insulated transport units and non-insulated packages in insulated transport units.

13. A long running discussion is on the applicability of Subsection 9.6.1 in ADR of which some sections are very difficult to comply to for containers.

14. Justification to Proposal 1: With the introduction of the new Section 7.1.7 the title of Chapter 7.1 of ADR was amended as well. However, Section 7.1.1 to 7.1.6 deals with containers in general. By changing the title, the whole of Chapter 7.1 applies to provisions for temperature control and no longer to containers in general. As this would have legal consequences a correction is suggested.

15. Justification to Proposal 2: To clarify the use of "insulation", as already done by the adoption of document INF.11, proposal 2 for subsection 7.1.7.4.5 (c), (d) and (e), it is proposed to use the same text with the addition of insulated packaging for subsection 7.1.7.4.5 (a) and (b).

16. Justification to Proposal 3: Some requirements in Section 9.6.1 of ADR are applicable to vehicles as well as containers. As discussed earlier in WP.15, Section 9.6.1 should not be applicable to containers and it is proposed to bring the intention of the requirement of Section 9.6.1 (a) and (e) into subsection 7.1.7.4.7.

17. Justification to Proposal 4: In the proposals in this document the requirements of Section 9.6.1 (a), (d) and (e) are transferred to subsection 7.1.7.4.7. The subsection 7.1.7.4.7 is specific for ADR and do not interfere with the UN Model Regulations.