



Committee of Experts on the Transport of Dangerous Goods and on the Globally Harmonized System of Classification and Labelling of Chemicals

Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 6 (d) of the provisional agenda

Miscellaneous proposals for amendments to the Model Regulations on the Transport of Dangerous Goods:

Other miscellaneous proposals

Transport under temperature control – requirements according to 7.1.5.4.2

Transmitted by the expert from Germany*

I. Introduction

1. After submitting document ECE/TRANS/WP.15/AC.1/2024/21 to the spring session of the RID/ADR/ADN Joint Meeting to seek interpretation on the requirements for temperature control according to ADR/ADN 7.1.7.4.2 which corresponds to paragraph 7.1.5.4.2 in the *Model Regulations*, Germany submitted an informal document INF.18 to the 64th session of the Sub-Committee of Experts on the Transport of Dangerous Goods and invited the Sub-Committee to consider the correct meaning of “independent sensors” and to decide whether a clarification in the text is necessary.

II. Discussion

2. During an inspection of a semi-trailer loaded with UN 3116 ORGANIC PEROXIDE, TYPE D, SOLID, TEMPERATURE CONTROLLED, (DIMYRISTYL PEROXYDICARBONATE), 5.2, control temperature 20 °C, emergency temperature 25 °C, compliance with the temperature control provisions in accordance with ADR/ADN was also checked. A thermally insulated semi-trailer with a refrigeration system in accordance with 7.1.5.4.5 (ADR/ADN 7.1.7.4.5) was used. The semi-trailer was equipped with two sensors. One was connected to the refrigeration unit, the other to an additionally installed temperature monitoring system. The power supply for both systems, including the sensors, was provided exclusively via the refrigeration system. There was no secondary power supply, so if the refrigeration system failed, the temperature could no longer be monitored.

3. If the temperature had been exceeded, the data from the sensor in the temperature monitoring system would have been transmitted to the system operator by mobile radio. From

* A/78/6 (Sect. 20), table 20.5.



there, these data would automatically have been transmitted to the carrier. The optical alarm on the navigation device would also be triggered by the carrier via mobile radio, which would then start flashing. The acoustic alarm would have sounded by means of a telephone call to the vehicle driver's mobile radio device. The temperature was checked using mobile radio via the navigation device. The driver was able to trigger a temperature query by entering the trailer's registration number into the device.

4. The assessment of this system showed that the main requirements of 7.1.5.4 were met, but there were different views with regard to the sensors. According to the second sentence of 7.1.5.4.2, the temperature of air space inside must be measured by two independent sensors. The requirement for independent sensors could be interpreted to mean that the sensors must have independent power supplies to ensure redundancy in the event of a power failure. On the other hand, this could also mean that the sensors must be fitted at different points in the transport unit so that the temperature measurement is taken at different places within the transport unit. What would support the latter is the fact that the air temperature is measured and different temperature zones can occur within the transport unit. In addition, the last sentence of 7.1.5.4.2 requires a power supply for the alarm system powered independently of the refrigeration system, which would suggest that the independence required in the second sentence does not refer to the power supply.

5. In order to facilitate the discussion of informal document INF.18 at the last session of the Sub-Committee, Germany presented three options to provide a clarification in the text of 7.1.5.4.2. "Two independent sensors" could either mean that the sensors shall simply be fitted at different points within a cargo transport unit (Option 1) or that the sensors shall be powered independently (Option 2) or that the sensors shall be fitted at different points within a cargo transport unit and be powered independently (Option 3).

6. The discussion of informal document INF.18 showed general support for a clarification in the text of 7.1.5.4.2. While Option 1 did not receive any support, a preference for Option 2 and Option 3 was observed. For further consideration of the Sub-Committee, only these two options are included in the proposals below.

7. Clarification on this issue intends to support United Nations Sustainable Development Goal 16, *Peace, justice and strong institutions*, by promoting consistent application of the regulations for the safe transport of dangerous goods.

III. Proposals

Option 2

8. "Two independent sensors" means that the sensors shall be powered independently.

9. Amend the second sentence of 7.1.5.4.2 to read as follows (new text is underlined, deleted text is strikethrough):

"The temperature of air space within the cargo transport unit shall be measured by two ~~independent~~ sensors powered independently and the output shall be recorded so that temperature changes are readily detectable."

Option 3

10. "Two independent sensors" means that the sensors shall be fitted at different points and shall be powered independently.

11. Amend the second sentence of 7.1.5.4.2 to read as follows:

"The temperature of air space within the cargo transport unit shall be measured by two ~~independent~~ sensors ~~and~~. The sensors shall be fitted at different points within the cargo transport unit and shall be powered independently. The output shall be recorded so that temperature changes are readily detectable."