

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 4 (d) of the provisional agenda

Electric storage systems:

Damaged or defective lithium batteries

Application of SP376 for critically damaged lithium batteries

Transmitted by the expert from Belgium

Introduction

1. Together with the rise in the production and use of lithium batteries, also the number of lithium batteries that is malfunctioning increases. To accommodate the need to have packagings for batteries that are critically defective and which are likely to go into thermal runaway during transport, packing instructions P911 and LP906 were introduced into the 20th revised edition of the Model Regulations (2017), together with amendments to special provision SP376.

2. These amendments were introduced on the basis of working document [ST/SG/AC.10/C.3/2016/67](#), and informal documents [INF.50](#) and [INF.55](#) during the 50th session of this Sub-Committee. As stated in the report of that session ([ST/SG/AC.10/C.3/100](#), paras. 41-43), the proposals in informal document INF.55 were verbally amended before being adopted.

3. As concerns packagings according to P911 or LP906, SP376 states the following:

“Cells and batteries identified as damaged or defective and liable to rapidly disassemble, dangerously react, produce a flame or a dangerous evolution of heat or a dangerous emission of toxic, corrosive or flammable gases or vapors under normal conditions of transport shall be packed and transported in accordance with packing instruction P911 of 4.1.4.1 or LP906 of 4.1.4.3, as applicable. Alternative packing and/or transport conditions may be authorized by the competent authority.”

4. In Belgium discussion has arisen what the intent of the last sentence of this paragraph is and more specifically, what is intended by the wording alternative "packing and/or transport conditions".

Discussion

5. It is interpreted that this sentence foresees to implement alternative transport conditions as compared to those transport conditions in the Dangerous Goods List (UN3090, UN3091, UN3480 or UN3481). As such, this would allow the competent authority to require necessary transport conditions via an approval according to special provision SP376.

6. Examples of such transport conditions which would mitigate the risk in the case of a dangerous event in the P911/LP906 packaging are the following:

- Necessity for free space around the P911/LP906 packaging such that materials next to it are protected from the outside temperature of the packaging (100 °C).

- Transport in a sufficiently ventilated means of transport to allow for smoke and possible toxic, flammable or asphyxiating components to be properly disposed of.
- For maritime transport, stowage above deck to allow easy access and also keeping these packagings away from the living quarters on a boat.

7. Others interpret the last sentence of this paragraph such that it allows the competent authority to authorize other packagings which do not meet the criteria in P911/LP906 for the transport of critically defective batteries. Consequentially, if a packaging meets the criteria of P911/LP906, this does not allow a deviation from the transport conditions in the Dangerous Goods List.

8. In this regard it should also be noted that point (f) of the assessment criteria, assigned to P911/LP906, require for the “surrounding conditions in which the packaging may be used and transported to be described, taking into account the possible consequences of gas or smoke emissions to the environment”. Nevertheless, neither P911 or LP906 impose that or indicate how the transport conditions of the packaging should be communicated towards the intervening parties during transport.

Questions

9. Belgium requests the Sub-Committee to give its views on this issue and welcomes information from other competent authorities how they ensure the safe transport of packagings for critically defective batteries.

10. More specifically, Belgium would like some feedback on the following questions that have arisen:

- What is the intent of the last sentence of the fifth paragraph of SP376?
- What is to be understood as alternative packing?
- What is to be understood as alternative transport conditions?
- How are the alternative transport conditions according to SP376 or P911 paragraph (f) communicated to the parties involved in the actual transport?

Proposals

11. Depending on the comments received and the outcome of the discussion, it could be of interest to:

- Reformulate the fifth paragraph of SP376 to more clearly reflect the intent.
- Make amendments to P911/LP906 to ensure proper communication throughout the transport chain of the applicable transport and usage conditions.

Sustainable Development Goals

12. This information document is linked to Sustainable Development Goal 12: Ensure sustainable consumption and production patterns, and more specifically its target 12.4: achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil to minimize their adverse impacts on human health and the environment.