

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

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Sub-Committee of Experts on the Transport of Dangerous Goods

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Item 2 (d) of the provisional agenda

**Recommendations made by the Sub-Committee
on its forty-seventh, forty-eighth and forty-ninth sessions
and pending issues: electric storage systems**

UN 3536 and Special provision 389

Transmitted by the expert from Switzerland

Summary

- Executive summary:** In order to allow the implementation of the new entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT some additional texts should be introduced in the Regulations
- Action to be taken:** Add The entry 3536 under the heading “Lithium batteries” of 2.9.2; Add special provisions 188, 230, 310, 348, 360, 376 and 377 in column (6) OF THE Dangerous goods list of Chapter 3.2. Amend special provisions 388, 389, of chapter 3.3; add a new special provision 390.

Introduction

1. The special provision 389 adopted during the session of June of the Sub-committee requires some explanations. It was assigned to the entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT. In the Dangerous goods list, this entry is not subject to any other transport condition. We present hereafter some points we believe should be discussed in relation to this new entry in order to allow a correct implementation of the rules. At the same time we make some proposals in order to give answers to the detected difficulties. The difficulties we are faced with are the following:

- (a) How to assign a given cargo transport unit to the entry UN 3563?
- (b) How to distinguish between the entries for equipment with lithium batteries UN 3091, 3481 and the new entry UN 3563? How to consign equipment with lithium batteries UN 3091, 3481 containing also lithium batteries corresponding to UN 3563?
- (c) How to distinguish between a vehicle which should be assigned to UN 3161 or 3171 containing also lithium ion batteries or lithium metal batteries designed only

to provide power external to the cargo transport unit? This question arises from the fact that a vehicle is also a cargo transport unit.

- (d) How to consign a vehicle (which per definition is a cargo transport unit) which at the same time has equipment designed in accordance with the SP389?
- (e) How to carry defective and damaged lithium batteries and how will they be disposal when they are installed in cargo transport unit assigned to UN 3563?
- (f) Is the last sentence in SP389 really necessary?

How to assign a given cargo transport unit to the entry UN 3563?

2. The new entry does not appear in the list of the Lithium batteries in 2.9.2. It is thus not possible to classify the cargo transport unit in question according to chapter 2.9. One can do it only through the alphabetical list. (Proposal 1).

How to distinguish between the entries for equipment with lithium batteries UN 3091, 3481 and the new entry UN 3563? How to consign equipment with lithium batteries UN 3091, 3481 containing also lithium batteries corresponding to UN 3563?

3. Beside the difficulty to find the new entry UN 3536 the Model Regulations it seems difficult to distinguish this kind of equipment from the other equipment already existing in the Regulations UN 3091 LITHIUM METAL BATTERIES CONTAINED IN EQUIPMENT and UN 3481 LITHIUM ION BATTERIES CONTAINED IN EQUIPMENT. Only once one has found it in the regulation and read the special provision 389 it becomes possible to correctly assign the UN entry. But this is only possible if one knows about the existence of the new entry. There is a big probability to make a mistake and to consign this kind of "equipment" under UN 3091 or 3481. Maybe some text could help not to fall in this confusion. This could be introduced for UN 3091 and 3481 in order to address the new entry UN 3536.

4. Simultaneously cargo transport units containing at the same time lithium batteries installed only to provide power external to the cargo transport unit together with other lithium batteries not foreseen to provide power external to the cargo transport unit have not been yet considered in the texts adopted.

5. We observe that the SP388 describes the relationship between UN 3171 and UN 3091 and 3481. In the same way this should be done for UN 3536. The same should be done between UN 3536 in relation with the other two entries for equipment (UN 3091 and 3481). In presence of different kinds of lithium batteries for different purposes in the cargo transport unit only one entry of the possible entries should be chosen for the consignment.

6. In Proposal 2 we have tried to distinguish the equipment consisting of a cargo transport unit, which is not a vehicle, equipped with the two different kinds of lithium batteries, those providing power internal to the cargo transport unit UN 3091 and 3481 together with those providing power external to the cargo transport unit (UN 3536). When present together in the same cargo transport unit, both kind of lithium batteries should be consigned under the entry UN 3536 (Proposal 2).

Two possibilities have to be considered:

- (a) The cargo transport unit is not a vehicle as defined in special provision 388 and has to be assigned to UN 3536 even in presence of other lithium batteries conforming to the definition of UN 3091 and UN 3481. In order to decide on a

single entry for the consignment a new special provision assigned to UN 3091 and 3481 shall be introduced (Proposal 2).

(b) The cargo transport unit is a vehicle as defined in SP388 and, in case of lithium batteries corresponding to UN 3563 irrespective of the existence of equipment with lithium batteries providing power internal to the vehicle (UN 3091 and 3481), should be assigned to UN 3171 or UN 3161 (Proposal 3 and Proposal 4).

How to distinguish between a vehicle which should be assigned to UN 3161 or 3171 containing also lithium ion batteries or lithium metal batteries designed only to provide power external to the cargo transport unit?

7. The SP388 for the entries UN 3166 and 3171 enumerates in the 6th paragraph the equipment containing lithium batteries of UN 3091 and 3491 but omits UN 3536. Since entries UN 3166 and 3171 relate to the vehicles and, by definition, a vehicle is also a cargo transport unit, it would be necessary to clarify the relation between the two entries UN 3166, 3171 and the entry UN 3536. By analogy with the SP363, considering that the “cargo transport unit” in question are not those of entries UN 3166 and 3171, we should also add in SP389 at the end of the first sentence after “... installed in a cargo transport unit ...” the words “, except those which are assigned under UN No. 3166 or UN No. 3171”. This because the UN Nos 3161 and 3171 are by definition also cargo transport units (Proposal 3);

8. In order to assign correctly a vehicle only powered by lithium batteries (UN 3171) we believe the SP360 should also be assigned to UN 3563. (Proposal 4)

How to consign a vehicle (which per definition is a cargo transport unit) which at the same time has equipment designed in accordance with the SP389?

9. For a given consignment we think that only one entry should be chosen. In case of a battery-powered vehicle or equipment (UN 3171) which at the same time contains lithium batteries conforming to SP389 only the entry UN 3171 should apply. For the same reason in case of a motor vehicles with combustion engine containing at the same time lithium batteries conforming to SP389 it would be necessary to envisage either another special provision or to add in the SP389 a text explaining this circumstances (Proposal 5). Simultaneously this case should be described in the SP388 for the vehicles (Proposal 6).

How to carry defective and damaged lithium batteries and how will they carried for disposal when they are installed in cargo transport unit assigned to UN 3563?

10. The other special provisions which usually are applicable to the entries of the lithium cells and batteries do not appear assigned to the entry UN 3536. Consequently it is not possible to know what to do in case that the cells and batteries are damaged or for their disposal. It would be necessary that relevant provisions SP376 and 377 are applicable to them. Alternatively instead of these SP376 and 376 the same last sentence as in SP388 should be added in SP389: “Where a lithium battery installed in a cargo transport unit is damaged or defective, the cargo transport unit shall be transported as defined by the competent authority.” (Proposal 7).

Is the last sentence in SP389 really necessary?

11. We are not sure of the need of the last sentence in SP389 repeating what is already applicable for every cargo transport unit in chapter 5.3. On the other hand if the question would be to exempt this equipment of the regulation, then it would be necessary to say this in the SP389 in the same way as this is done in the case of SP363 for the machines with liquid fuels. With regard to the last point, it should be considered if these cargo transport units presents more dangers that those concerned with the SP363 for machinery with liquid fuels? Couldn't they be treated in the same manner as the latter and thus benefit from a similar exemption? If such an exemption were to be envisaged then the last sentence of the SP389 concerning marking would be fully justified. Otherwise this sentence seems superfluous (Proposal 7).

Proposal 1

12. In 2.9.2 add the following entry under the heading “Lithium batteries” (eventually to the heading “other substances or articles presenting a danger during transport, but not meeting the definition of another class”):

«3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT».

Proposal 2

13. Add a new special provision 390 for UN 3091 and 3481 with the following wording:

“Cargo transport units, except those which are assigned under No. 3166 or UN No 3171, equipped with lithium ion batteries or lithium metal batteries designed only to provide power external to the cargo transport unit shall be consigned under the entry UN 3536, irrespective of whether the cargo transport unit is in addition equipped with lithium batteries corresponding to UN 3091 or 3481.

Proposal 3

14. Add in SP389 at the end of the first sentence after “... installed in a cargo transport unit ...” the words “, except those which are assigned under UN No. 3166 or UN No. 3171.”.

Proposal 4

15. For UN 3563 add “360” in column (6) of the Dangerous goods list in chapter 3.2.

Proposal 5

16. Add a new paragraph at the end of special provision 389 (the new paragraph appears in bold) :

«389 ...(rest of SP389 unchanged)

The batteries inside the cargo transport unit are not subject to marking or labelling requirements. The cargo transport unit shall display the UN number in accordance with 5.3.2.1.2 and be placarded on two opposing sides in accordance with 5.3.1.1.2.

“Vehicles containing those lithium ion batteries or lithium metal batteries installed, powered in addition either by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries transported with these batteries installed, or powered by flammable liquid or gas internal combustion engines or fuel cells shall, be consigned under the entries UN 3171 BATTERY-POWERED VEHICLE, UN 3166 VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED, UN 3166 VEHICLE, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FLAMMABLE LIQUID POWERED, as appropriate.”.

Proposal 6

17. Add a new paragraph after the 6th paragraph in the special provision 388 as follows:

« Lithium ion batteries or lithium metal batteries installed in a cargo transport unit and designed only to provide power external to the cargo transport unit shall be consigned under the entry UN 3536 LITHIUM BATTERIES INSTALLED IN CARGO TRANSPORT UNIT . This entry only applies to cargo transport units containing only lithium ion batteries or lithium metal batteries installed and designed only to provide power external to the cargo transport unit. Vehicles containing those lithium ion batteries or lithium metal batteries installed and powered in addition either by wet batteries, sodium batteries, lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries transported with these batteries installed, or powered by flammable liquid or gas internal combustion engines or fuel cells shall be consigned under the entries UN 3171 BATTERY-POWERED VEHICLE, UN 3166 VEHICLE, FUEL CELL, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FUEL CELL, FLAMMABLE LIQUID POWERED, UN 3166 VEHICLE, FLAMMABLE GAS POWERED or UN 3166 VEHICLE, FLAMMABLE LIQUID POWERED, as appropriate.».

Proposal 7

18. For UN 3536, in column (6) of the Dangerous goods list of Chapter 3.2 add « 188, 230, 310, 348, 360, [376, 377] ».

As an alternative to SP376 and 377 the following sentence could be added at the end of SP389:

“Where a lithium battery installed in a cargo transport unit is damaged or defective, the cargo transport unit shall be transported as defined by the competent authority.”

Proposal 8

19. Delete the last sentence of SP389.
