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**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****Fifty-first session**

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Item 4 (f) of the provisional agenda

**Electric storage systems: Miscellaneous****UN No. 3536 and Special provision 389****Transmitted by the expert from Switzerland\*****Introduction**

1. Special provision 389, adopted at the June 2016 session of the Sub-Committee, requires some clarification. It was assigned to entry UN No. 3536 LITHIUM BATTERIES INSTALLED IN A CARGO TRANSPORT UNIT. This entry itself is not subject to any other transport conditions under to the Dangerous Goods List (no packing instructions). We presented a few points at the December session in informal document INF.43. After discussion, the first proposal concerning the reference to this entry in 2.9.2 was adopted, but the other questions remained pending to allow delegations to have a more thorough discussion.

2. In February, we sent e-mails asking some experts their opinion on a draft proposal for the July session. The proposals below are the result of the comments made and discussions that have taken place since the December session.

3. The answers to the following questions should allow a correct interpretation of the rules:

(a) Under which entry should a cargo transport unit containing lithium batteries of UN No. 3536 that also contains lithium batteries of UN Nos. 3091 or 3481 be consigned?

(b) How should the entries for equipment containing lithium batteries of UN Nos. 3091 and 3481 be distinguished from the new entry UN No. 3536?

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\* In accordance with the programme of work of the Sub-Committee for 2017-2018 approved by the Committee at its eighth session (see ST/SG/AC.10/C.3/100, paragraph 98 and ST/SG/AC.10/44, paragraph 14).



- (c) Should a vehicle (which by definition is a cargo transport unit) that also contains equipment designed in line with SP389, that is, the vehicle also contains lithium batteries designed only to provide power external to the cargo transport unit, be consigned under UN No. 3166, UN No. 3171 or UN No. 3536?
- (d) How should defective or damaged lithium batteries corresponding to entry UN No. 3536 be transported?
- (e) Is the final sentence in SP389 really necessary?

**Under which entry should a cargo transport unit containing lithium batteries under UN No. 3536 that also contains lithium batteries of UN Nos. 3091 or 3481 be consigned?**

4. From discussions held in December with experts in the field, it seems that this situation does not actually occur. It also emerged from the plenary discussion that the issue is connected with the more general question of how to declare dangerous goods carried together in the same transport unit. In principle, each of the different types of dangerous goods should be shown in the transport document and the transport unit should be marked and placarded accordingly. This basic principle thus resolves the matter and there is no need for any change to the Model Regulations. We will therefore no longer consider this possibility, which was presented in December in informal document INF.43, proposal 2, that any consignment with lithium batteries in different types of equipment (UN Nos. 3536, 3091 and 3481) should be assigned to entry UN No. 3536.

5. We note that, while we accept the principle that the transport unit must be documented and marked according to the different types of dangerous goods and UN numbers transported, the requirement in the final sentence of SP389 that UN numbers should be displayed in line with 5.3.2.1.2 could be dispensed with because, according to this principle, all persons concerned are required not only to complete the documentation for the dangerous goods being carried, but also to placard the transport unit in line with chapter 5.3. We will return to this issue below.

**How should the entries for equipment containing lithium batteries of UN Nos. 3091 and 3481 be distinguished from those for equipment with batteries of the new UN No. 3536?**

6. It would be useful for users of the Regulations if they were helped to distinguish between the various types of equipment with lithium batteries, as has already been done in other cases, for the following reasons:

(a) The term “*engin*” in the French name of entry UN No. 3536 (lithium batteries installed in a cargo transport unit) is not specific enough and, in French (and possibly in other languages), it could easily be confused with the term “*équipement*” used in the other two entries for lithium batteries (UN No. 3091 lithium metal batteries contained in equipment and UN No. 3481 lithium ion batteries contained in equipment).

(b) These batteries in “cargo transport units” might also be installed in equipment, which could add to the confusion.

(c) For the entries UN Nos. 3091 and 3481, where the designations are more specific because the type of cells — “metal” or “ion” — is included in the name, it may be expected that a user of the Regulations who has equipment installed in a cargo transport unit designed according to SP389 would choose one of the more specific entries — UN No. 3091 or UN No. 3481 — rather than the less specific UN No. 3536. This is due to the fact that it is only possible to decide that UN No. 3536 is the correct choice after having chosen it and read SP389. But that will not need to be done if either UN No. 3091 or UN No. 3491 has already been chosen because they are more specific to the type of battery (metal or ion) concerned.

For these reasons and also because it has been done in other cases, it should be made clear in the text for each entry which entry should be used. This explanation could be included in relation to entries UN No. 3091 and UN No. 3481 in order to deal with the new entry UN No. 3536.

7. For those two entries, UN No. 3091 and UN No. 3481, special provision 360 already directs users to entry UN No. 3171 for vehicles. Similarly, it would suffice to add a reference to entry UN No. 3536 for cargo transport units to SP360 (Proposal 1).

**Should a vehicle (which by definition is a transport unit) that also contains equipment designed in line with SP389, that is, the vehicle also contains lithium batteries designed only to provide power external to the cargo transport unit, be consigned under UN No. 3166, UN No. 3171 or UN No. 3536?**

8. Some experts are of the opinion that there can be no confusion, since, in all cases, the transport unit is a trailer towed by a towing vehicle. Aside from the fact that, in both the Model Regulations and in the modal regulations for land transport, trailers are treated as vehicles and, in the case of RID/ADR/ADN, are subject to the same provisions as the “self-propelled apparatus” defined in SP388 for the entries UN No. 3166 and UN No. 3171, it must also be remembered that the Regulations do not exclude the possibility of installing batteries of UN No. 3536 on towing vehicles. Since that possibility does exist, either the Regulation should describe how to distinguish between the different types of equipment in vehicles, whether they are towing vehicles or trailers, or it should prohibit the transport of towing vehicles containing batteries of UN No. 3536.

9. For vehicles, the Regulations provide an example in SP388 of how to direct users to the correct entries. That text makes it possible to distinguish between UN No. 3171 and UN Nos. 3091 and 3481. This should also be done for UN No. 3536.

10. According to the penultimate paragraph of SP388, in contrast to the relationship between the different types of battery installed in a cargo transport unit mentioned in paragraph 4, if the cargo transport unit is a vehicle, and if the lithium batteries, even those corresponding to UN No. 3091 or UN No. 3481, are an integral part of the vehicle and are necessary for its operation or for the safety of its operator or passengers, they are not subject to the Model Regulations. They do not appear in the transport document. However, when the same types of battery correspond to UN No. 3536, they are not part of the equipment necessary to the operation of the vehicle’s safety equipment during carriage or the operation of the vehicle itself, and therefore may not be exempted from the Model Regulations.

11. The third paragraph before the end of SP388 may be taken as a basis to facilitate the assignment of a particular entry. It specifically describes equipment powered by lithium metal batteries or lithium ion batteries that are not part of the vehicle equipment mentioned in the previous paragraph and indicates the entries under which they must be consigned. It would seem useful to include lithium batteries of UN No. 3536 in the list of equipment referred to in this paragraph. (Proposal 2)

12. In order to properly assign a vehicle (i.e. a cargo transport unit) powered by lithium batteries (UN No. 3171) that also contains lithium batteries corresponding to SP389, we believe that SP360, as amended, should also appear in respect of UN No. 3536. (Proposal 3)

**How should defective or damaged lithium batteries corresponding to UN No. 3536 be transported?**

13. In the texts adopted so far (see document ST/SG/AC.10/44/Add.1), only DS389 has been assigned to the entry UN No. 3536. The other special provisions (188, 230, 310, 348, 376 and 377) that are usually applicable to entries for lithium cells and batteries are not assigned to it. Accordingly, it is not possible to know what should be done if the batteries

are damaged or how to dispose of them. The appropriate provisions should be made applicable in this case. In proposal 4, we have introduced the relevant provisions that are missing from UN No. 3536. We have decided not to include a reference to SP188 because it seems that all batteries installed in cargo transport units exceed the limits of 2g for lithium metal batteries and 100 Wh for lithium ion batteries. SP230 was not included either because it refers to the whole of section 2.9.4, while cargo transport units of UN No. 3536 only have to comply with 2.9.4 (a) to (e).

14. We retain the reference to SP360 because a vehicle is also a cargo transport unit and, regardless of whether the load contains batteries of UN No. 3536, it must comply with the conditions for the entry UN No. 3171 when powered by lithium batteries. Furthermore, according to SP388, as amended in proposal 2, equipment containing lithium batteries designed only to provide power external to the transport unit that correspond to the specifications of SP389 must be classified under entry UN No. 3536 and must be transported in compliance with the applicable provisions of the Model Regulations even when the vehicle itself is transported under entry UN No. 3171. A person reading SP389 must be able to distinguish easily between batteries for the propulsion or the operation of equipment during transport and batteries intended for use at destination external to the vehicle. We are helping to ensure the correct classification of vehicles and batteries corresponding to the entry UN No. 3536 by introducing SP360 as amended in proposal 1. Special provisions 310, 376 and 377 are discussed below.

15. Some experts suggested that what is understood as equipment installed in a cargo transport unit in UN No. 3536 is not compatible with the packing instructions referred to in SP310, SP376 and SP377. For the disposal of batteries, instead of SP310, SP376 and SP377, a sentence similar to the final sentence of SP388 could be added to SP389: "When a cell or battery installed in a transport unit is damaged or defective, the transport unit must be transported as defined by the competent authority." (Proposal 5).

16. However, we do not think that proposal 5 is the only solution for the following reasons:

(a) It only addresses the case of a transport unit as a whole and not that of batteries transported separately when they are damaged or for their disposal;

(b) The competent authority should not intervene systematically in all cases of damaged or defective batteries. That should happen only when there is a real risk of an uncontrollable dangerous reaction, as described in the final paragraph of SP376;

(c) If the batteries are indeed damaged and present an additional danger, it would seem more prudent to separate them from the transport unit and transport them in accordance with the specific packing instructions given in SP376 and SP377, without automatically involving the competent authority;

(d) The text does not specify the UN entry under which carriage will take place if the battery is separated from the transport unit. Depending on the decisions of the competent authority, it might, for the same type of transport, be either UN No. 3536 or one of four other entries.

This is also true for SP310.

17. The experts should define the conditions in which the carriage of a cargo transport unit that is defective or for its disposal do not systematically involve the competent authority.

18. This may be a trivial matter and it may be understood implicitly that, when batteries that are incorporated in a UN No. 3536 cargo transport unit are separated from the unit and transported separately, they must be carried in accordance with the relevant provisions of entries UN Nos. 3090, 3091, 3480 or 3481. However, that is not clear from the text of SP389 as adopted. For separate transport, under SP376, the carriage of lithium batteries separated from the transport unit takes place in accordance with the provisions applicable to UN Nos. 3090, 3091, 3480 or 3481. For disposal and recycling, SP377 does not specify the entries under which carriage should take place. Given that the applicable packing instructions — P908, P909 and LP904 — are applicable only to entries under UN Nos.

3090, 3091, 3480 and 3481, it should be specified that there must be a change in classification for the separate carriage of a lithium battery that has come from a transport unit corresponding to entry UN No. 3536. That is the purpose of proposal 6. This proposal allows classification for the purposes of disposal or recycling in line with one of the entries given for batteries from a cargo transport unit of UN No. 3536. Proposal 6 leads automatically to the application of SP310, SP376 and SP377, the relevant provisions for disposal and recycling.

### **Is the final sentence of SP389 really necessary?**

19. As noted in paragraph 5, it seems that the final sentence, as it is worded, is unnecessary because, since the transport unit is itself a dangerous good, and given the principle that all dangerous goods must be marked in accordance with the Regulations, there is no further need to specify that once again in SP389. Moreover, the inclusion of the final sentence in SP389 may lead persons concerned to wonder whether regulatory provisions other than those in chapter 5.3 are applicable.

20. The only new information given in the final sentence is that it is sufficient to placard two opposing sides of the transport unit rather than all the outer walls, as required under 5.3.1.1.2. For containers, 5.3.1.1.2 means that four placards must be used, as is the case for maritime transport (IMDG Code, 5.3.1.1.4.1). However, the reference to 5.3.1.1.2 in SP389 is confusing because, according to 5.3.1.1.2 of the Model Regulations, there should be four placards, not only two.

21. With regard to the obligation to affix the UN number in accordance with 5.3.2.1.2, either the statement is pointless because 5.3.2.1.2 always applies to transport units, or the idea is to have only two markings on two opposing sides, as is done for placards, in which case the statement is useful.

22. It would seem that the intention was not to comply with all the provisions of chapter 5.3 but only to specify that the placards and the UN numbers should conform to the colour and form requirements in 5.3.1.1.2 and 5.3.2.1.2 respectively. We have redrafted the sentence in proposal 7.

### **Proposal 1**

23. At the end of SP360, add the following sentence:

“Lithium batteries installed in cargo transport units, including vehicles, designed only to provide power external to the transport unit must be classified under entry UN 3536 LITHIUM BATTERIES INSTALLED IN A CARGO TRANSPORT UNIT.”

### **Proposal 2**

24. In SP388, at the end of the third paragraph beginning “Examples of equipment are lawnmowers, ...”, add the following text:

“ ... 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 must be classified and transported under UN No. 3536.”

### **Proposal 3**

25. For UN No. 3536, in column (6) of the Dangerous Goods List (Chapter 3.2), add “360”.

## **Proposal 4**

26. For UN No. 3536, in column (6) of the Dangerous Goods List (Chapter 3.2), add “348, 360”.

## **Proposal 5**

27. After the penultimate paragraph of SP389, add the following text:  
“Where a lithium battery installed in a vehicle or equipment is damaged or defective, the cargo transport unit shall be transported as defined by the competent authority.”

## **Proposal 6**

28. After the penultimate paragraph of SP389, add the following text  
“Batteries transported separately from the cargo transport unit in which they were installed that are identified as being damaged or defective such that they no longer conform to the type tested according to the applicable provisions of the Manual of Tests and Criteria or are transported separately for disposal or recycling must be transported according to the provisions applicable to UN Nos. 3090, 3091, 3480 or 3481, as appropriate.”

## **Proposal 7**

29. Amend the final sentence of SP389 to read as follows:  
“The transport unit shall display placards on two opposing sides conforming to 5.3.1.1.2 and the UN number in accordance with 5.3.2.1.2.”
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