
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

Sixtieth session

Geneva, 27 June-6 July 2022

Item 6 (a) of the provisional agenda

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

Consideration of the use of the lithium battery Class 9 hazard label (Model No. 9A) on vehicles powered by lithium batteries

Submitted by the International Air Transport Association (IATA)

Introduction

1. At the forty-sixth session of the Sub-Committee in December 2014, the Sub-Committee agreed to adopt into the nineteenth revised edition of the Model Regulations a new hazard label (Model No. 9A) specifically for lithium batteries, UN Nos. 3090, 3091, 3480 and 3481. The new hazard label became effective in the modal regulations from 1 January 2017 with a transitional period until 31 December 2018, after which time it became mandatory.
2. The purpose of the new hazard label was to provide better hazard communication for consignments of lithium batteries, including when packed with equipment and contained in equipment, recognising that the hazards associated with lithium batteries in the event of a fire are very different and require specific consideration.
3. In the intervening period, there has been a very significant increase in the volume of lithium batteries being transported as industries have recognised that lithium batteries provide an excellent source of power with a much higher power to weight ratio compared to other battery technologies, such as nickel-metal hydride and wet, non-spillable batteries.
4. One area that has seen significant innovation with the use of lithium ion batteries is the massive growth in personal mobility devices, such as e-bikes, e-scooters, e-skateboards and other lightweight vehicles.
5. These lightweight vehicles are typically shipped from the manufacturer and distribution centres packed in fibreboard boxes with potentially hundreds or even thousands of small vehicles in a consignment moving in air, maritime and road transport.
6. The issue though is that these are classified as UN 3171, BATTERY-POWERED VEHICLE and therefore while the hazard is the same as for UN Nos. 3090, 3091, 3480 and 3481, this hazard is not identified when the consignments are in transport. In air and maritime transport, the packages bear just the Class 9 hazard label, and there is no indication of the presence of lithium batteries.
7. For air transport, airlines have implemented a systems approach to safety, including the performance of safety risk assessments to identify the hazards associated with goods being transported and then the potential risks that arise from these in air transport. The purpose being to understand the likelihood and potential consequences of the risk. Based on the identified risks, the airlines then develop mitigation strategies to reduce the risk to a level that is acceptable to ensure a safe operation.

8. For UN 3171, while it is known that for BATTERY-POWERED EQUIPMENT the power source cannot be a lithium battery, as equipment containing lithium batteries must be assigned to UN 3091 or UN 3481, the same differentiation is not available for UN 3171, BATTERY-POWERED VEHICLE where the power source could be any type of battery, including a lithium battery.

Actions requested

9. The Sub-Committee is invited to consider some options to clearly identify battery-powered vehicles when powered by a lithium battery and therefore provide clear identification of the hazard as being lithium batteries and not just a “miscellaneous” hazard. These are presented for discussion to gauge the potential level of support. If there is sufficient support from the Sub-Committee a fully detailed proposal will be submitted to the next session.

Option 1

10. Develop a new special provision or amend an existing special provision to require that for vehicles powered by lithium ion batteries, when the vehicles are placed into a packaging, the label to be used is Model No. 9A. A possible option would be to amend special provision 388 to add this condition as follows (new text in bold underlined):

“... Entry UN 3171 only applies to vehicles powered 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.

Where vehicles powered by lithium metal batteries or lithium ion batteries are placed into a packaging, the label to be used shall be Model No. 9A, see 5.2.2.2.2.

For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods. Examples of such vehicles are cars, motorcycles, scooters, three- and four-wheeled vehicles or motorcycles, trucks, locomotives, bicycles (pedal cycles with a motor) and other vehicles of this type (e.g. self-balancing vehicles or vehicles not equipped with at least one seating position), wheelchairs, lawn tractors, self-propelled farming and construction equipment, boats and aircraft. This includes vehicles transported in a packaging. In this case some parts of the vehicle may be detached from its frame to fit into the packaging. ...”

Option 2

11. Separate vehicles powered by lithium batteries from those powered by other battery technologies to assign a new UN number to vehicles powered by lithium batteries. This would provide a clear differentiation between lithium battery powered vehicles and other battery powered vehicles. An indication of this is as follows:

UN No.	Name and description	Class or division	Subsidiary hazard	UN packing group	Special provisions	Limited and excepted quantities		Packagings and IBCs		Portable tanks and bulk containers	
						(7a)	(7b)	Packing instruction	Special packing provisions	Instructions	Special provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7a)	(7b)	(8)	(9)	(10)	(11)
35XX	LITHIUM BATTERY-POWERED VEHICLE lithium metal or lithium ion battery	9			123 384 388	0	E0	NONE			

12. If this approach is favoured there would be consequential amendments required to perhaps add lower case text to UN 3171, BATTERY-POWERED VEHICLE to identify “other than lithium battery” and amend several special provisions, including 360 and 388.
