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Small Vehicles Powered by Lithium Batteries – Cargo Provisions

This notice is in response to questions raised by operators regarding the classification of small vehicles that are powered by lithium ion batteries when shipped as cargo, specifically whether the classification should be UN 3171, **Battery-powered vehicle**, or UN 3481, **Lithium ion batteries contained in equipment**.

Some examples of these small lithium battery-powered vehicles are: airwheel, solowheel, hoverboard, mini-segway, balance wheel.

Discussion took place at the 25th meeting of the ICAO Dangerous Goods Panel (DGP/25) around changes proposed to the ICAO Technical Instructions based on changes arising from the 19th revised edition of the UN Model Regulations.

The discussions included consideration of changes to Special Provision A21, which is assigned against UN 3171, battery-powered vehicles, as well as specific considerations on changes proposed to Packing Instruction 952 to address small battery-powered vehicles.

The current wording of Special Provision A21 in the 57th edition of the DGR is as follows:

"***A21*** *(240) This entry only applies to vehicles powered by wet batteries, sodium batteries or lithium metal batteries or lithium ion batteries and equipment powered by wet batteries or sodium batteries which are transported with these batteries installed.*

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 electrically-powered cars, scooters, three- and four-wheeled vehicles or motorcycles, battery-assisted bicycles (e bikes), wheelchairs, lawn tractors, boats and aircraft. Examples of equipment are lawnmowers, cleaning machine, model boats and model aircraft.

Equipment powered by lithium metal batteries or lithium ion batteries must be consigned under the entries UN 3091 ***Lithium metal batteries contained in equipment*** *or UN 3091* ***Lithium metal batteries packed with equipment*** *or UN 3481* ***Lithium ion batteries contained in equipment*** *or UN 3481* ***Lithium ion batteries packed with equipment****, as appropriate.*

Vehicles or equipment which also contain an internal combustion engine must be consigned under the entries UN 3166, ***Engine, internal combustion, flammable gas powered*** *or UN 3166,* ***Engine, internal combustion, flammable liquid powered*** *or UN 3166,* ***Vehicle, flammable gas powered*** *or UN 3166,* ***Vehicle, flammable liquid powered****, as appropriate. Hybrid electric vehicles powered by both an internal combustion engine and wet batteries, sodium batteries or lithium metal batteries or lithium ion batteries, transported with the battery(ies) installed, must be consigned under the entries UN 3166* ***Vehicle, flammable gas powered*** *or UN 3166* ***Vehicle, flammable liquid powered, as appropriate****.*

Vehicles or equipment powered by a fuel cell engine must be consigned under the entries UN 3166, ***Engine, fuel cell, flammable gas powered*** *or UN 3166,* ***Engine, fuel cell, flammable liquid powered*** *or UN 3166,* ***Vehicle, fuel cell, flammable gas powered*** *or UN 3166,* ***Vehicle, fuel cell, flammable liquid powered****, as appropriate."*

For this purposes of this notice the relevant text is "For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods."

Classification

As these small lithium battery-powered vehicles do meet the definition of "vehicles" as set out in Special Provision A21, and as they are powered by a lithium ion battery then the correct classification for these small vehicles is UN 3171, **Battery-powered vehicle** and therefore must be packed in accordance with Packing instruction 952.

There are a number of important considerations with respect to the use of UN 3171 for these small vehicles, as follows:

1. the assignment to UN 3171 does not provide for any exception from the full application of the Regulations, i.e. there is no exception for vehicles that contain lithium ion batteries that do not exceed 100 Wh.
2. the net quantity required on the Shipper's Declaration for UN 3171 is the net weight of the complete vehicle. There is no limit on the weight of a lithium ion battery in a vehicle or in a package and there is no net quantity difference between passenger aircraft and Cargo Aircraft Only.
3. If the lithium ion battery is removed from the vehicle and packed separate from the vehicle in the same outer packaging, then the classification becomes UN 3481, **Lithium ion batteries packed with equipment** and Packing Instruction 966 applies.

Recommendations

In locations where these devices are readily available and being consigned as cargo, operators should engage with freight forwarders and their cargo ground service provider to clarify the classification of these small vehicles and the additional considerations that apply. Forwarders should be encouraged to reach out to shippers of these products to ensure that the shippers are made aware of the classification requirement as UN 3171.

You can contact the IATA Dangerous Goods Support team if you have questions or concerns that may not have been addressed in this document at: dangood@iata.org.