



U.S. Department  
of Transportation  
**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

June 5, 2025

Ryan Bush,  
Engineering Supervisor, Tesla  
1 Electric Ave  
Reno, NV 89434

Reference No. 25-0031

Dear Mr. Bush:

This letter is in response to your March 17, 2025 email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to United Nations specification packaging exceptions for lithium cells and batteries. Specifically, is there a definition for “strong, impact-resistant outer casing” in the HMR?

No. There is not a specific definition for “strong, impact-resistant outer casing” in the HMR. Section 173.185(b)(5) allows shippers to package lithium cells or batteries, weighing 12 kg or more with strong, impact-resistant outer casing, using alternative packaging that demonstrates equivalency to the performance standards of Packing Group (PG) II. Furthermore, lithium cells or batteries must be secured to prevent damage caused by inadvertent shifting, the terminals must not support the weight of other superimposed elements, and the packaging must prevent short circuits.<sup>1</sup> Note that PHMSA has previously interpreted<sup>2</sup> the meaning of “strong, impact-resistant outer casing” for these batteries. It is the shipper’s responsibility to ensure the packaging, enclosures, or other handling devices meet necessary performance standards (*i.e.*, to withstand normal conditions incident to transportation).

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dirk Der Kinderen".

Dirk Der Kinderen  
Chief, Standards Development Branch  
Standards and Rulemaking Division

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<sup>1</sup> See also § 173.185(b)(2).

<sup>2</sup> See letters Ref. Nos. [19-0080](#), [23-0045](#), [23-0088](#), and [23-0091](#).

**From:** [INFOCNTR \(PHMSA\)](#)  
**To:** [Dodd, Alice \(PHMSA\)](#)  
**Cc:** [Hazmat Interps](#); [Baker, Yul \(PHMSA\)](#)  
**Subject:** FW: 173.185b Interpretation  
**Date:** Monday, March 17, 2025 16:08:28  
**Attachments:** [image001.png](#)

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Good Afternoon,

See the attached interpretation request. Let me know if anything else is needed.

Best,  
Aminah

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**From:** Ryan Bush <[rybush@tesla.com](mailto:rybush@tesla.com)>  
**Sent:** Monday, March 17, 2025 12:10 PM  
**To:** INFOCNTR (PHMSA) <[INFOCNTR.INFOCNTR@dot.gov](mailto:INFOCNTR.INFOCNTR@dot.gov)>  
**Subject:** 173.185b Interpretation

You don't often get email from [rybush@tesla.com](mailto:rybush@tesla.com). [Learn why this is important](#)

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Good morning,

I'm reaching out to request an interpretation on the exception for UN-specification packaging for Li-ion batteries.

It states "Lithium cells or batteries that weigh 12 kg (26.5 pounds) or more and have a strong, impact-resistant outer casing, may be packed in strong outer packagings; in protective enclosures (for example, in fully enclosed or wooden slatted crates); or on pallets or other handling devices, instead of packages meeting the UN performance packaging requirements in [paragraphs \(b\)\(3\)\(ii\)](#) and [\(b\)\(3\)\(iii\)](#) of this section. Cells and batteries must be secured to prevent inadvertent shifting, and the terminals may not support the weight of other superimposed elements. Cells and batteries packaged in accordance with this paragraph may be transported by cargo-only aircraft if approved by the Associate Administrator."

Specifically, I'm trying to understand the requirements/definition of the "strong, impact-resistant outer casing" statement. Is this arbitrary, to be determined (reasonably/in good faith) by the Shipper, or is there an exact definition of this somewhere?

Thank you for your time.

Respectfully,

Ryan Bush | Engineering Supervisor, Cell Quality & Field Reliability

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