



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

JUL 18 2017

Brian Adams  
Avalon Battery Corporation  
1226 Frances Street  
Vancouver, BC V6A 1Z5  
Canada

Reference No. 17-0032

Dear Mr. Adams:

This letter is in response to your March 29, 2017, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to wet batteries. In your letter, you note that you have classified your product as "UN2794, Batteries, wet, filled with acid." You also confirm that the transportation of this material meets all of the conditions in § 173.159(e). You ask whether the product requires additional packaging to comply with the HMR.

The answer is no. If the shipment of a wet battery meets all of the conditions in § 173.159(e), it is not subject to any other HMR requirements. Additional packaging is not required beyond the method you use to meet the conditions.

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

Sincerely,

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

*Ciccarone  
§ 173.159(e)  
Packaging Specs  
17-0032*

**Dodd, Alice (PHMSA)**

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**From:** INFOCNTR (PHMSA)  
**Sent:** Thursday, March 30, 2017 12:23 PM  
**To:** Hazmat Interps  
**Subject:** FW: Request for Written Clarification  
**Attachments:** PHMSA Request.pdf

Hi Shante/Alice,

Please submit this as a letter of interpretation. Ms. Moritz is requesting a written response.

Please let me know if you have any questions.

Thanks,  
Jordan

**From:** Anna Moritz [mailto:amoritz@avalonbattery.com]  
**Sent:** Wednesday, March 29, 2017 3:11 PM  
**To:** PHMSA HM InfoCenter <PHMSAHMInfoCenter@dot.gov>  
**Subject:** Request for Written Clarification

Dear Sir or Madam,

herewith we would like to request clarification regarding the Hazardous Materials Regulations HMR; 49 CFR 173.159.

Please see the attached letter.

We appreciate your time in reviewing this request.

Best regards,

Anna Moritz

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**Anna Moritz**

Supply Chain Specialist

E-mail: [amoritz@avalonbattery.com](mailto:amoritz@avalonbattery.com)

U: [www.avalonbattery.com](http://www.avalonbattery.com)

T: [604.563.2144](tel:604.563.2144)

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**Avalon Battery Corporation**

1226 Frances St.

Vancouver, BC V6A 1Z5

Re: Request for Written Clarification

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To Whom It May Concern:

Our company Avalon Battery Corporation produces vanadium redox flow batteries for stationary electric energy storage. We are seeking confirmation of our interpretation as it relates to our product and its transportation in accordance with the HMR.

We have determined our battery to fall under UN 2794 Batteries, wet, filled with acid. In review of the application sections of the HMR, 49 CFR 173.159 we have confirmed that we meet all conditions under 173.159(e). The interpretation we seek confirmation upon is whether or not our battery requires additional packaging per the HMR. We request this confirmation because we have specifically designed our battery with the intent to transport it without the need of additional packaging. This is due to the fact that our battery includes an integrated steel enclosure that encompasses all internal components of the battery.

The enclosure, which encompasses packaging, consists of the following:

- 1) Steel skid / pallet (6 mm steel wall thickness, continuously welded)
- 2) Steel enclosure (3 mm wall thickness, welded to steel skid)
- 3) Battery electrolyte resistance spray coated lining inside steel enclosure
- 4) Lifting features rated for full load overhead lift
- 5) Tie down points for securing battery to transport vehicle

Your confirmation and comments on our interpretation is greatly appreciated.  
If you have questions, don't hesitate to contact us at 604-563-2144.

Sincerely,

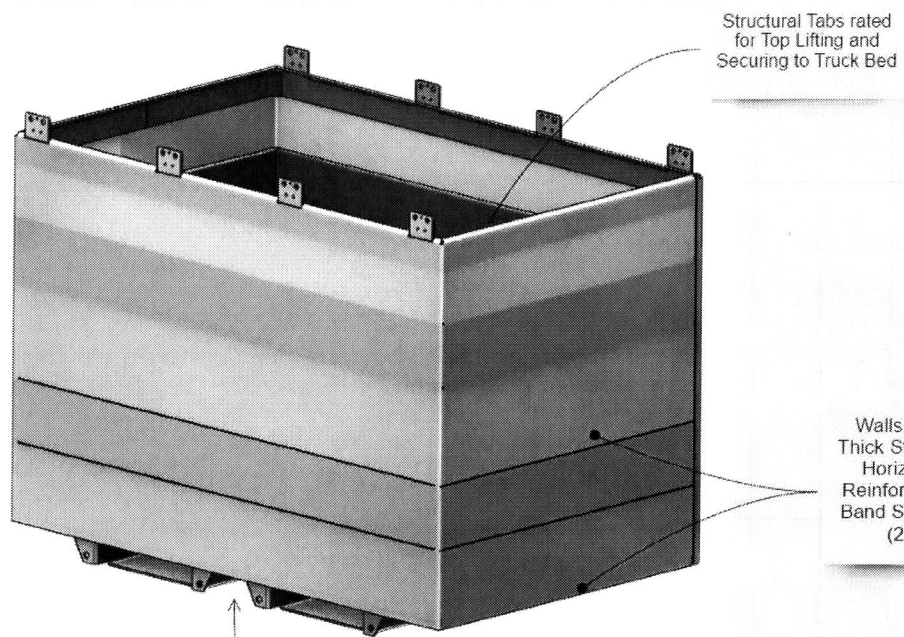


Brian Adams

Product Development Manager

Avalon Battery Corporation  
1226 Frances Street  
Vancouver, BC V6A 1Z5

Enclosure (1)



Base Skid 6 mm Thick Steel

Two tanks insert

