



U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

April 24, 2024

Jim Powell
Transportation Development Group
190 West Continental Road, Suite 216-401
Green Valley, AZ 85622

Reference No. 23-0093

Dear Mr. Powell:

This letter is in response to your October 25, 2023, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) concerning the application of the term “vehicle” in § 172.102, special provision 134, currently assigned to the proper shipping name “UN3171, Battery-powered vehicle *or* Battery-powered equipment.” You state it is your understanding that the language in special provision 134 would apply to four-wheeled robots as a “vehicle,” and ask whether a “humanoid-looking” robot that carries totes or boxes in a warehouse would be applicable to the term “vehicle” as it relates to special provision 134.

In accordance with § 173.22 of the HMR, it is the shipper’s responsibility to properly class and describe a hazardous material. This Office does not generally perform that function. However, it is the opinion of this Office that the intent of the term “vehicle” in § 172.102, special provision 134 is to include self-propelled apparatus designed to carry one or more persons or goods. Therefore, humanoid-looking robots powered by lithium ion batteries and designed to carry one or more persons or goods would be consistent with the description of a “vehicle” in § 172.102, special provision 134 and thus be transported as “UN3171, Battery-powered vehicle.”

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

Sincerely,

Steven Andrews
Acting Chief, Regulatory Review and Reinvention Branch
Standards and Rulemaking Division

Jones, Jessie Jane CTR (PHMSA)

From: INFOCNTR (PHMSA)
Sent: Thursday, October 26, 2023 3:27 PM
To: Dodd, Alice (PHMSA)
Cc: Hazmat Interps
Subject: FW: Interpretation request special provision 134 Robots as Vehicles
Attachments: PHMSA_Interpretation_Request_ROBOTS.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Alice,

Please see the below interpretation request. Let us know if you need anything.

Sincerely,
Janaye

From: Jim Powell <jim@dgtraining.com>
Sent: Wednesday, October 25, 2023 2:37 PM
To: PHMSA HM InfoCenter <PHMSAHMInfoCenter@dot.gov>
Cc: Support <support@dgtraining.com>
Subject: Interpretation request special provision 134 Robots as Vehicles

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Attached is an interpretation request for the term “vehicles” as defined in 49 CFR 172.102 SP 134, as it relates to “robots” designed to transport/convey cargo.

It seems easy to envision that four-wheeled robots scooting around a warehouse floor with a tote on top, that it’s clearly a vehicle. But what about a humanoid-looking robot carrying totes or boxes in it’s arms and placing on a conveyer?

Seems like that would also meet the definition of a vehicle. I would just like a written interpretation on this. It will come up again, sooner rather than later as the new UN number 3556 will be in use in 2025.

Jim Powell

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October 25, 2025

Pipeline Standards and Rulemaking

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

1200 New Jersey Avenue, SE

Washington, DC 20590

Email pdf to infocntr@dot.gov Phone: 202-366-8553

Interpretation request – Are lithium battery-powered bipedal robots considered “vehicles?”

In 49 CFR 172.102(c)(1) Special Provision 134 it defines a “vehicle” as the following:

[https://www.ecfr.gov/current/title-49/part-172/section-172.102#p-172.102\(c\)\(1\)](https://www.ecfr.gov/current/title-49/part-172/section-172.102#p-172.102(c)(1))

a. For the purpose of this special provision, vehicles are self-propelled apparatus designed to carry one or more persons or goods...

Upon conducting a quick search of the internet for “human shaped bipedal robots in the warehouse” you’ll find numerous examples of robots carrying totes around a warehouse, putting them on a conveyer, etc. **Since this battery-powered apparatus is transporting cargo**, would it be correct to classify it as a Battery Powered Vehicle? This would be UN3171 or Internationally under the new UN 3556, Vehicle, lithium-ion battery powered as codified in the UN Orange book and ICAO TI for 2025.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jim Powell'.

Jim Powell, DGSA, CDGP

President

Transportation Development Group LLC

jim@dgtraining.com 1-808-280-6047