

Requirements for Shipping Vehicles or Mechanical Equipment Powered by Internal Combustion Engines or Batteries by Water

The Classification for UN3166 now includes many descriptions to account for the changes in engineering designs and fuel technologies. These descriptions are the same for both the US Domestic Hazardous Materials Regulations in Title 49 of the Code of Federal Regulations (49CFR) and the shipments moving within the scope of the International Maritime Dangerous Goods Code (IMDG) as authorized under Amendment 35.

UN3166 - Authorized Descriptions:

- o Vehicles, Flammable Liquid Powered
- o Vehicles, Flammable Gas Powered
- o Vehicle, Fuel Cell, Flammable Liquid Powered
- o Vehicle, Fuel Cell, Flammable Gas Powered
- o Engine, Internal Combustion
- o Engine, Fuel Cell, Flammable Gas Powered
- o Engine, Fuel Cell, Flammable Liquid Powered



The entries include hybrid electric vehicles powered by both a fuel cell and an internal combustion engine with wet batteries, sodium batteries or lithium batteries, transported with the battery(s) installed.

Note:

1. There is no packing group assigned for either of these entries.
2. Cargo being shipped using either of these entries is not required to be labeled, placarded or marked with the previously required warning sign on the entry door
3. The hazardous materials shipping paper is not required to have an emergency response contact and phone number listed due to the exemption
4. There is no regulatory requirement to remove the key from the ignition
5. There is no regulatory requirement to disconnect the battery. Some railroad carriers have this requirement in their tariff but it is not a regulatory requirement of the DOT or the IMDG.

If a vehicle shipment meets the water regulatory requirements, it will also be ok for highway or rail transport as long as proper authorized modal blocking and bracing requirements are adhered to.

General Requirements

A motor vehicle or mechanical equipment must be inspected for fuel leaks and identifiable faults in the electrical system that could result in a short circuit or other unintended electrical ignition.

A motor vehicle or mechanical equipment showing any signs of leakage or an electrical fault may not be transported.

Vehicle Fuel Levels

Flammable Liquid:

For flammable liquid powered vehicles and equipment, the fuel tank(s) containing the flammable liquid fuel shall not contain more than 1/4th of a tank and if shipping under the IMDG International regulations, the 1/4th tank of flammable liquid fuel shall not exceed 250L (66 gallons).

Flammable Gas:

For flammable gas powered vehicles, and equipment, the fuel tank must be secured to the vehicle and the fuel shut-off valve of the fuel tank(s) shall be securely closed

Batteries

Installed batteries shall be protected from damage, short circuit, and accidental activation during transport. Lithium ion or lithium metal batteries shall meet the requirements of the United Nations Manual of Test and Criteria, Part III, subsection 38.3, unless otherwise approved by the competent authority. There is no requirement to disconnect the battery

Metal hydride storage system(s) installed in conveyances or in completed conveyances components or intended to be installed in conveyances shall be approved by the competent authority before acceptance for transport. The transport document shall include an indication that the package was approved by the competent authority or a copy of the competent authority approval shall accompany each consignment.

Note: Dangerous goods required for the operation of the vehicle or equipment such as fire extinguishers, compressed gas accumulators (shock absorbers), airbag inflators, etc., shall be securely mounted in the vehicle or equipment. These goods are excepted from the regulations if they are necessary for the operation of the vehicle or equipment or are for the safety of its operator or passengers.

Exceptions:

Exceptions allow you to move a hazardous materials shipment with less stringent requirements but within defined guidelines. In some cases, it can render a hazardous shipment as non hazardous.



These exceptions are allowed under the domestic regulation in 49CFR.

To take advantage of an exception, you must meet all of the requirements outlined. Failure to meet any point identified makes the shipment fully regulated.

1. **Non Hazardous Gasoline Powered Vehicle or Mechanical Equipment Requirements:** CFR49 176.905(i)(1) The motor vehicle or mechanical equipment has an internal combustion engine using liquid fuel that has a flash point less than 38C (100F), the fuel tank is empty, and the engine is run until it stalls for lack of fuel: *(This generally apply to gasoline powered vehicles)*
2. **Non Hazardous Diesel Powered Vehicles or mechanical equipment:** CFR 49 176.905(i)(2) The motor vehicle or mechanical equipment has an internal combustion engine using liquid fuel that has a flash point of 38C (100F) or higher, the fuel tank contains 418 L (110 gallons) of fuel or less, and there are no fuel leaks in any portion of the fuel system. Note that this fuel can exceed 1/4th tank.
3. **Non Hazardous Gasoline Engine Only Requirements:** CFR 49 173.220(a)(1) “The engine or fuel tank contains a liquid or gaseous fuel. An engine may be considered as not containing fuel when the fuel tank, engine components, and fuel lines have been completely drained, sufficiently cleaned of residue, and purged of vapors to remove any potential hazard and the engine when held in an orientation will not release any liquid fuel”
4. **Non Hazardous Battery Powered Vehicle or Mechanical equipment:** 49CFR176.9065(i)(3) The vehicle or mechanical equipment is electrically powered solely by wet electric storage batteries (including non spillable batteries) or sodium batteries, it may move as non regulated. **Note that if powered by other types of batteries, it may have to be classified under UN3171, Battery Powered Vehicles, or Battery Powered Equipment.**
5. **Flammable Gas Powered Vehicles or Mechanical Equipment:** 49CFR176.905(i)(4) A vehicle or mechanical equipment powered by a liquefied petroleum gas or other compressed gas fuel tank is excepted from the regulations if the tank is completely emptied of liquefied or compressed gas and the positive pressure in the tank does not exceed 2 bar (29 psig), the line from the fuel tank to the regulator and the regulator itself is drained of all traces of liquefied or compressed gas, and the fuel shut-off valve is closed.



Shipping Papers CFR 49 173.220(e)(1) & (2) “Exceptions. Except as provided in paragraph (d)(2) of this section, shipments made under the provisions of this section are not subject to any other requirements of this subchapter, for transportation by motor vehicle of rail car; and

(2) Are not subject to the requirements of subparts D, E, and F (marking, labeling and placarding, respectively) of part 172 of this subchapter or 172.604 of this subchapter (emergency response telephone number) for transportation by vessel or aircraft.

For transportation by aircraft, all other applicable requirements of this subchapter, including shipping papers, emergency response information, notification of pilot-in-command, general packaging requirements specified in 173.27 must be met.

Blocking and Bracing of Vehicles:

Vehicles can only be loaded one high in a container unless loaded within an authorized vehicle rack system. No vehicles can be suspended with wire / chains / nylon banding or blocking above the floor loaded vehicles.

The four tires of each vehicle must be blocked on the front, back (tread side) and on the outside (wall of tire) of each tire to prevent forward and back as well as lateral movement. Tire side blocking is to be positioned lengthwise to the container.

The blocking must be made of 2 x 6 x 24 " in dimension and laminated or double nailed (two high). A vehicle with four tires will require 24 chocks or 6 per tire.

Secure all blocking with sixteen penny nails to the floor of the container

Position the nails every four inches in an alternating pattern.

Apply nylon strapping with ratchet adjustments (four straps) to the frame of the vehicle and to the container anchor points on the floor along the side. Use only one strap per anchor point.

If two vehicles are shipped in a container, position dunnage material (panels of Styrofoam, honey comb panels of fiberboard) between rear of the nose vehicle and the front of the rear vehicle to prevent any contact with other cargo in the container if shifting does occur.

There is no regulatory requirement to disconnect the battery on the vehicle but the battery posts must be protected from a possible short circuit. Some railroads may require this based on their policy.



Note: Containers moving inland by rail will probably be inspected by the rail carrier and failure to properly secure the vehicle in the container to meet the AAR (American Association of Railroads) rules could result in delays and/or additional costs for reworking

Blocking and Bracing Other Motorized Items:

Secure motorcycles, jet skis, snowmobiles, equipment or engines to skids or pallets if possible. Block and brace the cargo securely in the container with sections of 2 x 6 on all sides to prevent movement. Ocean containers have anchor points along the bottom side rails to secure the cargo to the container. These work well with adjustable ratchet straps.



Sample Dangerous Goods Document
Shipper's Hazardous Cargo Declaration for Auto's/POV

Shipper: Matson Address: _____

Consignee: John Doe Address: _____

Vessel & Voyage: Anchorage 400N

Booking Number: TX2093902 Destination: Anchorage

Container Number: U432134-9 (if known) Port of Loading: Tacoma

Serial Number(s): _____

Seal # _____

Hazardous Description:

- 1. 1 – Unit - UN3166, Vehicle, flammable liquid powered, 9, - 3,800 Pounds
Make & Model: - Ford Mustang - VIN #2G100500300400
- 2. 1 – Unit - UN3166, Vehicle, flammable liquid powered, 9, - 3,200 Pounds
Make & Model: - Chevy Impala - VIN #2BRG 23596374

- X There are no fuel leaks present
- X There are no identifiable electrical shorts or problems that could short circuit or be a source of ignition
- X The gas in the tank is less than 1/4th of capacity and less than 66 gallons.

I HEREBY DECLARE THAT THE CONTENTS OF THIS CONSIGNMENT ARE FULLY AND ACCURATELY DESCRIBED ABOVE BY THE PROPER SHIPPING NAME AND ARE CLASSIFIED, PACKAGED, MARKED AND LABELLED/PLACARDED, AND ARE IN ALL RESPECTS IN PROPER CONDITION FOR THE TRANSPORTATION ACCORDING TO APPLICABLE INTERNATIONAL AND NATIONAL GOVERNMENTAL REGULATIONS"

Date: 1/1/2012 Signature: Jack Doe

(Legible signature of the shipper or their agent)

Company name (if applicable): Matson, LLC

Complete the following, ONLY if you are performing the loading of the vehicle inside the container:

It is declared that the packing of the container has been carried out in accordance with the provisions of 49 CFR

Date: 1/1/2012 Signature: Jack Doe

(Legible signature of the shipper or agent)



A sample of a non-hazardous certification statement that can be placed on the bill of lading if the vehicle is non hazardous

"I hereby certify that the vehicles or mechanical equipment are non regulated based on the exception listed in 49CFR176.905(i)"