

JOB AID

HAZMAT Transportation Part 4:
Marking

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You can find marking requirements in the Hazardous Materials Regulations (HMR).

General Marking Requirements

Marking requirements may vary according to the hazardous material and the type of packaging. The cutoff between non-bulk and bulk packaging is 119 gallons (450 L) for a liquid, a net mass of 882 pounds (400 kg) for a solid, or a water capacity of 1000 pounds (454 kg) for a gas. Non-bulk packages are below this threshold and bulk packages are at or above it. For all markings, the HMR requires us to:

- Enter all markings in English
- Print markings on durable materials or directly on the package
- Place the marking on a label, tag or sign and affix it to the package (if unable to apply it to the package's surface)
- Make certain markings stand out by:
 - Displaying them on a contrasting background
 - Placing them in a location away from any unrelated or non-essential markings
- Ensure all markings remain legible and readily visible during transportation
- Replace damaged or destroyed markings

We generally mark **non-bulk packaging** with the:

- Hazardous material proper shipping name and UN or NA identification number
 - If using a generic or n.o.s. shipping name, add the material's technical name(s) in parentheses after the shipping name
 - To identify hazardous waste materials, add the word "waste" to the proper shipping name or affix a hazardous waste code to the packaging
- Name and address of the consignor or consignee
- DOT special permit number, if an exemption applies

Due to the size of **bulk packaging**, we mark it with the:

- Hazardous material UN or NA identification number on two to four sides (not the bottom)
- Special permit number

Bulk containers and cylinders permanently installed on a tube trailer with a capacity at or above 1,000 gal. (3,785 L) require the identification number marking on each side and each end. Containers with a capacity less than 1,000 gal. (3,785 L) only require markings on two opposing sides.

When displaying a material's **identification number**, you can use

- Orange panels
- White square-on-point configuration
- Most placards, such as FLAMMABLE, but never on a DANGEROUS, EXPLOSIVES, RADIOACTIVE or SUBSIDIARY HAZARD placards

You can find prohibitions for displaying markings in **Section 172.334** of the HMR.

Marking Exceptions

We should always ensure the proper shipping name and identification number reflect the actual contents or residues found in the package. Exceptions apply when:

- You use a shipping name to describe a non-hazardous material or a hazardous material not regulated by the HMR
- You cover the marking securely so it's not visible during transportation
- The package (and marking) isn't visible during transport and it's both loaded and unloaded by the shipper or receiver

Special Provisions

Cargo Tanks, Tank Cars and Nurse Tanks

When portable tanks, cargo tanks or tank cars have multiple compartments of hazardous materials:

- Mark the sides (not the ends) with shipping name and identification number of the hazardous material and the owner or lessee's name
- Display the numbers in sequence with the compartments
- Consult **Section 172.336** of the HMR for additional special provisions

Liquid Hazardous Materials

For combination packages containing liquid hazardous materials, mark the outer packaging with orientation arrows on two opposite vertical sides. This requirement doesn't apply when:

- The inner packaging:
 - Is a cylinder
 - Is hermetically sealed
 - Contains 0.26 gal (1 L) or less of flammable liquids and is shipped by highway, rail or water
 - Contains 4 ounces (120 mL) or less of flammable liquids, is packed with sufficient absorbent materials, and is shipped by highway, rail or water
- Liquids are contained in leak-tight manufactured items
- The package contains 1.7 ounces (50 mL) or less of liquid infectious substances
- Transporting Class 7 radioactive materials in Type A, IP-2, IP-3, Type B(U) or Type B(M) packages

Limited Quantities

The HMR does NOT require us to mark packages containing limited quantities of hazardous materials with the proper shipping name, provided:

- We mark it with the material's UN or NA identification number
- It is not being transported by aircraft

When marking a limited quantity package:

- Place the identification number on a square-on-point border
- Affix the marking to at least one side or end of the outer packaging

If the package contains more than one type of hazardous material, mark the package with the different identification numbers by using one of the following:

- An individual square-on-point marking for each identification number

- One square-on-point marking large enough to include each applicable identification number

Non-Bulk Miscellaneous Hazardous Materials

Affix the limited quantity designation to non-bulk packages:

- Close to the proper shipping name
- On a tag attached to the package

If a limited quantity package is being shipped by air, add the word "AIR" to the end of the designation.

Non-Bulk Hazardous Substances

When transporting non-bulk packages of hazardous materials classified as a hazardous substance:

- Mark the package with the name of the hazardous substance and the "RQ" (reportable quantities) mark
- Place the technical name in parentheses after the proper shipping name (if not in the shipping name)
 - Radioactive material packages labeled under Section 172.403 of the HMR are exempt from this requirement
- When the hazardous material contains two or more hazardous substances:
 - Identify at least two of the technical names
 - Select the ones with the lowest RQs
- If shipping hazardous substances as hazardous waste, you may affix the hazardous waste code to the package to identify the hazardous substance

Marine Pollutants

When transporting marine pollutants, mark the packaging with the marine pollutant mark, as follows:

- Mark bulk packages containing less than 1,000 gal (3,785 L) of marine pollutants with the marine pollutant mark on two opposing sides (not the bottom)
- Mark bulk packages with a capacity equal to or greater than 1,000 gal (3,785 L) on four sides (each side and each end)
- Mark transport vehicles or freight containers containing marine pollutants on four sides

When transporting non-bulk packages of marine pollutants by vessel:

- Place the marine pollutant mark next to the associated hazard warning labels or, in the absence of any hazard labels, near the proper shipping name
- Mark the name of the marine pollutant (or at least two names of hazardous materials that make up a marine pollutant) in parentheses following the proper shipping name

Infectious Substances

When transporting infectious substances in bulk packages, place the BIOHAZARD marking on:

- Two opposing sides of packages containing less than 1,000 gal (3,785 L) of infectious substances
- Each side and each end of bulk packages containing larger amounts of these substances

- Each side and end of transport vehicles and freight containers carrying infectious substances when the marking on the package is not visible

Elevated Temperature Materials

To identify elevated temperature materials, mark bulk packages with the word "**HOT**":

- On two opposing sides, in black or white Gothic lettering on a contrasting background
- Using the same outside dimensions as a placard
- With "HOT" in the upper corner of white square-on-point ID number configurations

When the bulk package contains molten aluminum or molten sulfur, add the words "MOLTEN ALUMINUM" or "MOLTEN SULFUR" before the word "HOT."

Certain Hazard Classes

The HMR outlines detailed marking requirements for explosive materials, radioactive materials, and materials defined as poisonous by inhalation.

- **Explosives:** When offering Class 1, Explosives, for transportation, mark the package with the substance, article or device's EX-number. Fireworks are an exception; you can use a national stock number issued by the Department of Defense or identity information (such as a product code) in place of the EX-number. Refer to Section 172.320 of the HMR.
- **Radioactive Materials:** Any non-bulk or bulk package of Class 7, Radioactive Materials requires additional markings to indicate the radioactive nature of the package. Section 172.310 lists the specific marking requirements for these materials.
- **Materials Poisonous by Inhalation:** When required, mark "Inhalation Hazard" on two opposing sides of a package containing materials defined as inhalation hazards. Section 172.313 of the HMR further describes this marking requirement.