

Hazardous Materials Bulletin

NON-BULK MARKING AND LABELING

May 2011

Non-bulk packages are those packages that have a capacity of less than 119 water gallons for liquids (See definitions, Section 171.8 for solids and gases). The requirements for package markings are found in Subpart D of Part 172. Refer to other guidance for Limited Quantity marking requirements.

General Marking Provisions Section 172.301

Except for limited quantities and ORM-D materials, all non-bulk packages must be marked with the **identification number** (including NA or UN) and the **proper shipping name**. **Technical names**, if required to appear on the shipping paper by Column 1 of the HM Table, must also appear on the package in relation to the proper shipping name (except for Division 6.2 materials). The **consignee's or the consignor's name and address** must also appear on the package, unless part of a large lot going to one location, or transported by highway and not transferred from one motor carrier to another (see Section 172.301(d)).

Requirements and Prohibitions

Markings for non-bulk packages must appear once on the package, must be durable, in English, and printed on the package or affixed with a tag or sign (Section 172.304). There is no size requirement, but it must be displayed on a contrasting background, be unobscured, and located away from other markings. Abbreviations must be authorized by the regulations (Section 172.308).

Packages may not be offered or transported with hazardous materials markings unless they actually contain that material or a residue of that material. This provision does not apply to packages that are not visible in transport and are unloaded by the shipper or consignee; to packages whose markings are securely covered in transportation; or a shipping name for a material not regulated under the FHMR (Section 172.303).

Section 173.29(b) provides some relief for empty non-bulk packages. Additionally, Section 173.29(g) and (h) allow the elevated temperature marking and hazardous substance marking, respectively, to remain on packages, even if the remaining quantity no longer meets that definition.

Orientation Arrows

Orientation arrows must be included on any non-bulk package with a liquid in an inner package (and certain other packagings). This requirement does not apply to cylinders inside another package. The arrows must be on **two opposing vertical sides in the correct upright direction** (Sections 172.312 and 177.834(b)).

Hazardous Substances

The letters "**RQ**" must be in association with the proper shipping name on a non-bulk package of a hazardous substance (hazardous substances are determined by Table 1 in Appendix A of Section 172.101). In addition, the technical name must be included if the hazardous substance is not identified by the proper shipping name (Section 172.324).

Liquefied Petroleum Gases (LPG)

DOT Specification Cylinders (except a Specification 2P or 2Q container or a Specification 39 cylinder), that contain an unodorized Liquefied Petroleum Gas (LPG) must be marked **NON-ODORIZED** or **NOT ODORIZED** in letters not less than 0.25 inches in height near the marked proper shipping name (Section 172.301(f)).

Radioactive Materials

In addition to other marking requirements, packages of radioactive materials with a gross mass over 110 lbs. (50 kg.) must have the gross mass marked on the outside of the package. Each radioactive material package must be marked with the appropriate TYPE ("TYPE IP-1," "TYPE IP-2," "TYPE IP-3," TYPE A," "TYPE B(U)," or "TYPE B(M)"). Type B packages must have the radioactive trefoil symbol as shown in Appendix B of Part 172. Each package which conforms to an IP-1, IP-2, IP-3 or a Type A package design must be legibly and durably marked on the outside of the package with the international vehicle registration code of the country of origin of the design. Also each Type B(U) and Type B(M) or fissile material package designed for export must be marked "USA" in conjunction with the specification marking, or other package certificate identification. (See Sections 173.471, 173.472, and 173.473.)

Explosives

Most explosives are required to be marked with their assigned "EX" number in addition to the general marking requirements. One of the alternatives allows the EX number, product code, or national stock number to be placed on the shipping paper. See Section 172.320 for all the exceptions.

Poisons

Packages of materials that meet the definition of poison inhalation hazard (PIH) are required to be marked "**Inhalation Hazard**". When the words "Inhalation Hazard" appear on the label or placard, the "Inhalation Hazard" marking is not required. Non-bulk plastic packages for poison materials must be **permanently** marked with the word "POISON" (Section 172.313).

Marking of Large Quantities of Non-Bulk Packages

A transport vehicle or freight container must be marked with the identification number if:

- transporting 8,820 lbs. or more aggregate gross weight of non-bulk packages of a hazardous material with a single identification number and the same proper shipping name (Limited quantities and ORM-D materials excepted). This provision applies only if it was loaded at one facility and no other materials, hazardous or otherwise, are in the vehicle or container (Section 172.301(a)(3)).
- transporting 2,205 lbs. or more aggregate gross weight of a Poisonous Inhalation Hazard (PIH) material, Zone A or B, in non-bulk packages with a single identification number and the same proper shipping name, when loaded at one facility (Section 172.313(c)).

Special Permit Marking

Special Permit markings are required if USDOT/PHMSA has issued a special permit from one or more of the package specifications. The outside of the package must be marked plainly and durably with "DOT-SP" (or DOT-E, see Section 173.23), followed by the number assigned by PHMSA. It is the responsibility of the offeror to ensure that the package is authorized by the regulations and compatible for that hazardous material (Section 172.301(c)).

Marine Pollutants

When transported solely by highway, air, or rail, the marine pollutant marking is not required on non-bulk packages (Section 171.4(c)). If any part of the transportation is by water, then non-bulk packages must display the marine pollutant mark and the proper shipping name or technical name that makes it a marine pollutant (Sections 171.4(c) and 172.322(a)).

LABELING

The requirements for package labeling are found in 49 CFR, Part 172, Subpart E. Unless excepted, all packages must be labeled, or if allowed, placarded. Labels are based on Column 6 of the Hazardous Materials Table (Section 172.101). A package must be labeled for all of the hazards listed in Column 6 (Section 172.400). See the list of packages that are excepted from labeling in Section 172.400a.

Requirements, Prohibitions, and Placement

The label must correspond to the hazard, and the hazardous material must be present in the package (see Sections 172.401(d) and 173.29 for empty packages). There cannot be any other marking or symbol that may be confused with the label (Section 172.401). Text is optional on labels except for the Oxygen and Class 7 labels (Section 172.405). For a 6.1, PG III material, the poison label may have "PG III" in lieu of the text.

Labels must be placed on the same surface and as near as possible to the required markings, but labels for cylinders and small packages may be affixed using a tag. Primary and subsidiary labels must be within 6" of each other. Labels must be clearly visible and unobstructed (Section 172.406).

Only one label per package is required, except for the following packages, which require a label on two opposing sides or ends, unless placarding is authorized under Part 172 Subpart F:

Packages of 64 cubic ft. or more	Non-bulk packages of radioactive materials
DOT 106 or 110 tanks (one-ton cylinders)	Portable tanks of less than 1,000 gallons
Freight containers of 640 cubic ft. or more by volume	See Section 172.406(e)

Primary and Subsidiary Labels

The primary label is the hazard class that is listed first in Column 6 of the HM Table. All other hazards listed, if any, are subsidiary labels. Section 172.402 also includes additional subsidiary label provisions for Class 7: (d), Class 1: (e), Division 2.2: (f), and Division 2.3: (g).

Mixed and Consolidated Packagings

When materials of different hazard classes are packed in the same overpack, consolidated package, or mixed packaging, the outside of the packaging must be labeled for each class of hazardous materials that it contains (Section 172.404).

Radioactive Materials

The only authorized use for the Empty label is for packagings that previously contained radioactive materials (Section 173.428(e)). Since its only authorized use is for radioactive materials, using it on packages that contain or previously contained other hazardous materials is a violation of the communication standards (Section 173.22 requires the shipper to ensure a package is marked in accordance with the regulations).

Section 172.403 contains additional requirements for radioactive labels, including contents, activity, and transport index. Packages containing fissile materials must bear two FISSILE labels affixed to opposite sides of the package or overpack (Section 172.402(d)) and include the Criticality Safety Index (CSI) in addition to the Radioactive labels.

Useful Web Sites

www.fmcsa.dot.gov

www.phmsa.dot.gov

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