DOT HM-215N Hazardous Material Shipping Rule – Quick Tips

In March of 2017, the U.S. Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) published a final rule, HM-215N, intended to harmonize U.S. regulations on shipping hazardous materials with the United Nations Recommendations on the Transport of Dangerous Goods – Model Regulations (UN Model Regulations), International Maritime Dangerous Goods Code (IMDG Code), and the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions).The update impacted 49 Code of Federal Regulation (CFR) Parts 107, 171, 172, 173, 175, 176, 178 and 180.

In the Executive Summary for the update, the DOT explained why the revisions to the rule on hazardous material shipping were needed: "Harmonization facilitates international trade by minimizing the costs and other burdens of complying with multiple or inconsistent safety requirements for transportation of hazardous materials. Safety is enhanced by creating a uniform framework for compliance, and as the volume of hazardous materials transported in international commerce continues to grow, harmonization becomes increasingly important."

Among the updates of significance were changes to the hazard class shipping labels, as well as the creation of a new class 9 lithium battery shipping label. Other updates within HM-215N included:

- The incorporation by reference of the most current versions of the international hazardous materials shipping standards
- Amendments based on input from the U.S. – Canada Regulatory Cooperation Council (RCC)
- Amendments to the 49 CFR 172.101 Hazardous Materials Table (HMT)
- New requirements for polymerizing substances
- A modification to the marine pollutant list
- Amendments to the requirements for transporting water reactive materials by ship

See the regulation in its entirety here.

Hazardous Materials Shipping Label Design Change

Changes to the hazardous materials shipping labels were originally approved in a DOT rulemaking in 2013. The design changes brought the U.S. into synch with the international requirements for labels used in shipping hazardous materials. An extension to the original two-year compliance transition period was incorporated into HM-215N as part of the March 2017 final rule. This allowed those shipping domestically to continue using existing hazardous material shipping labels until December 31, 2018.

The specific change to the hazardous material shipping labels involved the requirement for an inner border of at least 2 millimeters (mm) on the label. Under 49 CFR 172.407(c)(1) it states, “Each diamond (square-on-point) label prescribed in this subpart must be at least 100 mm (3.9 inches) on each side with each side having a solid line inner border 5 mm inside and parallel to the edge. The 5 mm measurement is from the outside edge of the label to the outside of the solid line forming the inner border. The width of the solid line forming the inner border **must be at least 2 mm**.”

The increased width of the border line was designed to help make the labels more pronounced and to attract attention. Most U.S. hazardous materials shipping labels didn’t meet this new requirement.

Although this ruling intended to improve consistency in labeling specifications worldwide for hazardous material shipping, the language caused confusion. Shippers were experiencing inflexible interpretations on the language, particularly in the air mode. Both enforcement officials and international air operators accepting cargo in the U.S. were indicating the width of the border must be at least 2 mm and measuring the thickness during the acceptance process. Shipments were being rejected and the associated costs were significant.

At the July 2017 Session of the United Nations Sub-Committee of Experts on the Transport of Dangerous Goods it was agreed that specifying a minimum thickness for line width was not necessary for safety reasons. New language was adopted to clarify the width of the line may be “approximately” 2 mm instead of “at least” 2 mm. Effective January 1, 2019, the ICAO and IMO rescinded the size requirements adopted in the July 2015 United Nations Model Regulations. PHMSA supports this action and will be implementing amendments in future rulemakings.

Example of hazardous material shipping label with more pronounced 2 mm border

Lithium Battery and Cell Labeling Update

In recent years, the popularity of lithium batteries/cells has increased significantly. There have also been numerous fire-related incidents linked to these batteries/cells during airborne transport. Because of this, HM-215N created a new Class 9 label specifically for “fully regulated” lithium batteries/cells. Fully regulated lithium batteries and cells are those that exceed either the established gram (g) threshold of lithium (5-g for cells and 25-g for batteries) or a watt-hour (wh) rating (60-wh for cells and 300-wh for batteries). For more details see 49 CFR 173.185.

The label consists of the existing class 9 label with the addition of a figure depicting a group of batteries with one broken and emitting a flame in the lower half (see image below). This label will appear on packages containing lithium batteries that are required to display hazard warning labels and is intended to better communicate the specific hazards posed by lithium batteries.

The specific design requirements as well as a visual representation of lithium battery label are referenced under 49 CFR 172.447. Shippers were allowed to use the old Class 9 labels for lithium batteries that were not otherwise excluded from this labeling requirement until December 31, 2018, for domestic shipments.

Example of class 9 lithium battery label found under 49 CFR 172.447

For smaller lithium batteries/cells that do not exceed the lithium content criteria discussed above, HM- 215N established an exemption from the Class 9 lithium battery/cell labeling requirement. This is in sync with what international codes have been requiring for several years. The qualification and labeling requirements for these smaller lithium batteries/cells are found under 49 CFR 173.185. As with the new labeling requirements for the larger lithium batteries/cells, the regulation did not require shippers to use this new label until after December 31, 2018, for domestic shipping.

Example of small size lithium battery label found under 49 CFR 173.185

Other Notable Updates

With the goal of harmonizing the U.S. hazardous material transportation regulations with those of the rest of the world, HM-215N incorporated by reference (i.e., makes them part of the 49 CFR regulations) the 2017 – 2018 Edition of the ICAO Technical Instructions; Amendment 38-16 of the IMDG Code; the 19th Revised Edition of the United Nations (UN) Model Regulations; the Sixth Revised Edition of the UN Manual of Tests and Criteria; and the Sixth Revised Edition of the Globally Harmonized System of Classification and Labeling of Chemicals.

In keeping with the international theme, the rule also improves the flow of compressed gas cylinders and cargo tanks between the U.S. and Canada. The U.S. adopted provisions for recognition of Transport Canada (TC) cylinders, equivalency certificates (permit for equivalent level of safety), and inspect and repair of cargo tanks. Canada in return adopted similar regulatory changes that provided reciprocal recognition of DOT cylinders and DOT special permits.

The HMT was updated to make the entries consistent with the Dangerous Goods List found in the international guidelines. Among the new entries to the HMT were those for polyester resin kits (UN3527) and three separate additions for engines (UN3528, UN3529, and UN3530).

Significant changes related to polymerizing substance were made under Division 4.1 in HM-215N. Changes of note included the following:

- Overhauled the definitions of classification criteria for Class 4 materials at 49 CFR 173.124
- Amended 49 CFR 173.124(a)(4)(iii) to exclude polymerizing substances that meet the criteria for inclusion in DOT Hazard Classes 1 to 8
- Added a definition for “polymerizing substances” at 49 CFR 173.124(a)(4)and criteria for testing and identifying these substances
- Added four UN numbers and Proper Shipping Names for polymerizing substances that do not meet the definition of any other hazard class

For all of the provisions concerning polymerizing substances, HM-215N provided a sunset period of two years (effective until January 2, 2019).

HM-215N also modified the Marine Pollutant List that appears in Appendix B to 49 CFR 172.101 and amended the packaging requirements for vessel (seafaring) transportation of water-reactive substances to align the U.S. with international rules.

Compliance Dates

The regulation’s effective date was March 30, 2017, with the exception of an update to 49 CFR 173.21 (Forbidden materials and packages) that was effective January 2, 2019. The voluntary compliance date was January 1, 2017, with a full compliance date of January 1, 2018.

Again, for those interested in the full scope of this regulation please review it in its entirety: HN-215N (Hazardous Materials: Harmonization with International Standards).

Commonly Asked Questions

1. **Where can I go for more information and training on hazardous material shipper requirements?**

See the outreach training resource created by PHMSA, an agency of the DOT.

Sources

HN-215N (Hazardous Materials: Harmonization with International Standards)

49 CFR Subchapter C, Hazardous Materials Regulations