



Guide to Limited Quantities

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What are Limited Quantities?

All materials which meet the criteria of one of the nine (9) hazard classes are regulated as hazardous materials for transport. However, when the amount of certain hazardous material packed within a package is limited, the magnitude of the hazard is reduced but not eliminated. Thus, exceptions can be applied for packaging and hazard communication including package markings, labeling, container / vehicle placarding, and documenting as authorized for certain hazard classes in specific quantities, in various modes of transport.

In order to qualify for these exceptions, the US Hazardous Materials Regulations (49 CFR Parts 171-180; HMR), the International Maritime Dangerous Goods Code (IMDG Code), the International Civil Aviation Organization Technical Instructions on the Safe Transport of Dangerous Goods by Air (ICAO TI), Transport Canada's Transport of Dangerous Goods (TDG), and other international regulatory texts authorize specific quantity limitations per inner and outer packaging for each hazard class and packing group. If the quantity of material contained within the inner packaging is below these limitations, and the gross weight of the outer package is within the authorized limits the consignment may be offered for transportation as a limited quantity.

The HMR, IMDG Code, and TDG typically limit the amount of material allowed within the largest inner packaging in a combination package and limit the gross weight of the package, while the ICAO TI limits the net quantity of hazardous material in the package.

What is ORM-D?

ORM-D stands for Other Regulated Material, Category D. Many people mistakenly assume the marking indicates the material is not regulated for transport. Actually ORM-D is a hazard classification, just like flammable liquids, corrosives, or radioactive materials. However, the ORM-D hazard class is only recognized in the United States, US territories, and US possessions, and is not identified in international regulatory texts.

Material reclassified as ORM-D are recognized as representing a very limited risk in transport. This conclusion is based on the fact that ORM-D materials are hazardous materials packed in accordance with the Limited Quantity provisions in the HMR *and* meet the HMR definition of a *consumer commodity*. 49 CFR Part 171, §171.8 defines a consumer commodity as:

“Consumer Commodity means a material that is packaged and distributed in a form intended or suitable for sale through retail sales agencies or instrumentalities for consumption by individuals for purposes of personal care or household use. This term also includes drugs and medicines.”

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Therefore, an ORM-D is a hazardous material which is packaged as authorized within the Limited Quantity provisions and is intended or suitable for sale at retail agencies and for use in households. Since Limited Quantities are already afforded packing and hazard communication exceptions, ORM-D materials are provided *additional* exceptions. For example, ground shipments of Limited Quantities previously required shipping papers. The ORM-D exceptions in the HMR eliminated the requirement for shipping papers for ORM-D shipments (as previously noted in §§173.306(i), 173.150(c), 173.151(c), 173.152(c), 173.153(c), 173.154(c), and 173.155(c)).

ORM-D-Air was a previously authorized hazard class. However, ORM-D-Air was eliminated in 2013. Therefore ORM-D-Air is no longer an authorized hazardous material classification.

What has changed?

The Pipeline and Hazardous Materials Safety Administration (PHMSA) recognized that the ORM-D hazard class created significant confusion when shipments were offered internationally, often leading to undeclared or mis-declared shipments. Citing the long safety record of both ORM-D and Limited Quantity shipments, PHMSA determined that the exceptions should not be based on the end use of the hazardous material and that Limited Quantity shipments should be afforded the same exceptions previously provided for ORM-D shipments. The shipping paper exception for road and rail previously authorized for ORM-D shipments has been extended to Limited Quantities.

On January 19, 2011, PHMSA issued the Harmonization Rule HM-215K which detailed the eventual elimination of the ORM-D classification, but also extended many of the ORM-D exceptions to limited quantity shipments. Further changes were published on December 30, 2011 in a corrections document to HM-215K. The discussions below reflect the conditions detailed in the December 30, 2011 document and subsequent clarifications from PHMSA, Transport Canada, and Mexico.

Classification

ORM-D is still a recognized a hazard classification until December 31, 2020. A shipper can reclassify a limited quantity of a hazardous material if the ORM-D exception is noted within the applicable section of Title 49 CFR, Part 173 as referenced in Column (8A) of the Hazardous Materials Table in §172.101. With the transitional elimination of the ORM-D hazard class, the material being shipped cannot be reclassified as ORM-D after December 31, 2020. If packaged as authorized for a limited quantity, the exceptions as provided for a Class 2, 3, 4, 5, 6, 8, or 9 can be used.

Certain Division 1.4S explosives, including cartridges, small arms and cartridges, power devices, are also eligible for reclassification as ORM-D materials by Title 49 CFR, Part 173, §173.63(b). However, prior to 2011, these materials were not eligible for packing as limited quantities. In the Final Rule HM-215K, PHMSA extended the limited quantity provisions to cartridges, small arms and cartridges, power devices and modified §173.63(b) accordingly. These materials will remain classified as Division 1.4S but are now eligible for other limited quantity exceptions.

Marking

Currently, materials classified as ORM-D are required to have the ORM-D mark and the proper shipping name "CONSUMER COMMODITY" marked on the package in a clearly visible manner. The size of the mark is not specified, although §172.316 indicates the ORM-D designation must be within a rectangle that is approximately 6.3 mm (0.25 inches) larger on each side than the designation. The markings must on a contrasting background, but may be of any color. Examples of the markings are shown below:



The application of this mark certifies the shipper has properly classified, packed, marked and labeled (when appropriate), and described the material as required by the Hazardous Materials Regulations (HMR). As a reminder, the ORM-D mark is only eligible for use until December 31, 2020.

As of Jan 1, 2021, *in lieu* of the ORM-D mark, consignments packed in compliance with the applicable limited quantity provisions must be marked as limited quantities. Limited Quantity marks are described later in this document.

Shipping Papers

One of the advantages for reclassifying a material as an ORM-D was the exception from shipping papers, unless the material met the definition of a hazardous substance, hazardous waste, marine pollutant, or was offered and transported by aircraft. Ground, and rail and domestic vessel shipments were therefore excepted from shipping papers for ORM-D shipments. PHMSA, recognizing the long safety record of class ORM-D and Limited Quantity shipments and that the end use of the hazardous material had little or no impact on transportation safety, extended the shipping paper exception to limited quantity shipments by highway and rail. Until December 31, 2020, a package of ORM-D material authorized by 49 CFR prior to October 1, 2010 is not required to be described on a shipping paper when shipped by highway, rail, or domestic transport by vessel.

The Table of Potential Limited Quantity Packaging Scenarios in the preamble to the HM-215K Corrections document of December 30, 2012 suggested PHMSA did not intend to require shipping papers for domestic shipments by vessel. However, PHMSA has subsequently clarified Limited Quantities by vessel do require shipping papers (noting the table in the HM-215 Corrections document is incorrect). Thus the shipping paper requirements are now harmonized with international standards.

If the limited quantity consignment is offered by air or by vessel, a shipping paper is required. Similarly, if the material meets the definition of a hazardous substance or a hazardous waste, or marine pollutant, a shipping paper is also required.

How does this affect International Shipments?

The elimination of the ORM-D hazard class was partly to address the disharmony between the HMR and international regulatory texts. The ORM-D hazard class was not recognized outside the U.S., and resulted in global shipments being routinely reclassified and remarked for international destinations. With significant changes to the international regulatory texts regarding Limited Quantities, PHMSA decided the time was appropriate to harmonize. While ORM-D shipments are not recognized internationally, it is important to note the changes to limited quantities in various texts and their relationship with the new HMR requirements. The good news is that after January 1, 2021, the

regulations applicable to all limited quantity shipments will be significantly harmonized for domestic and international transportation.

International Maritime Dangerous Goods Code

With the 35th Amendment to the IMDG Code, the International Maritime Organization (IMO) made several significant changes to limited quantity shipments. First, IMO eliminated the marking exception for consumer commodity products. In previous Editions of the IMDG Code (such as the 34th Amendment), Section 3.4.7 included a marking exception for limited quantity shipments which were packed in a form intended or suitable for sale at retail locations. This exception was eliminated with the 35th Amendment which became effective January 1, 2011 and mandatory January 1, 2012.

Second, IMO adopted the new limited quantity mark (described below) for all shipments packed and offered in compliance with the limited quantity provisions in the IMDG Code Chapter 3.4. Both package and cargo transport unit markings are defined.

A consignment prepared in accordance with the HMR limited quantity provisions and marked as required by §172.315 would be acceptable as a limited quantity shipment under the IMDG Code. As a reminder, limited quantity shipments by vessel offered in accordance with the IMDG Code require shipping papers and would be acceptable as a limited quantity shipment under the HMR. These provisions did not change in subsequent amendments of the IMDG Code (Amt. 36-12, Amd. 37-14).

International Civil Aviation Organization Technical Instructions

The ICAO TI includes the Proper Shipping Name CONSUMER COMMODITY and assigns the identification number ID8000 as described below. However the ICAO TI also recognizes the authorization of limited quantity shipments. Shipments by air are more restrictive than by other modes, this includes limited quantity shipments. The maximum quantity of material permitted in both inner and outer packagings are less, and marks and hazard class labels required for fully regulated shipments are still required (for example, proper shipping name, identification number, hazard class labels). Shipping papers providing hazardous materials information are also necessary. By air, the only significant exception provided is United Nations performance oriented packagings. Packaging for limited quantities by air must meet certain construction and test conditions, but are not required to be “UN Certified” by the manufacturer.

Due to the more restrictive conditions for materials packed in accordance with the air limited quantity provisions, a special limited quantity mark was developed. *In addition* to all other required marks and labels, packages prepared in accordance with the limited quantity packing instructions in the ICAO TI must include the air limited quantity mark (described below) which includes a “Y” inside the standard limited quantity mark. The “Y” limited quantity mark certifies the package has been prepared in accordance with the ICAO TI limited quantity packing instructions for air shipment as designated by a “Y” before the packing instruction number.

Packages prepared in accordance with the ICAO TI limited quantity provisions generally contain less material than is authorized by other modes, and the packaging materials must be more robust, passing pressure differential testing as well as having secondary closures for inner packagings containing liquids. Shipments prepared for air meet all the surface transport requirements. Therefore, shipments prepared and marked for air are also acceptable for shipment by other modes. A “Y” limited quantity mark means the shipment is *packed* in accordance with the ICAO TI, not that it must be offered only for transport by air.

Transport Canada's Transport of Dangerous Goods

The Canadian TDG regulations have long recognized the limited quantity provisions by all modes. However, the TDG provides broad exceptions by road, and therefore is often less restrictive than the US HMR.

Under the current Transportation of Dangerous Goods Act (revision 11), TDG recognizes the limited quantity provisions used in the US HMR, and as mandated in the IMDG Code. Further, ORM-D shipments are also authorized under Chapters 1.9 and 1.11 of TDG. Therefore, shipments offered in compliance with the applicable version of the US HMR, or IMDG Code, are authorized for transport to or through Canada. However, shipments originating in Canada must be prepared in compliance with the current version of the TDG.

This requirement has particular significance when reviewing the marking requirements for limited quantities in Canada. Chapter 1.17 indicates each package or "means of containment" must be marked with the words "Limited Quantity", "LTD QTY", "Consumer Commodity", or the equivalent translation in French. Paragraph (4) of the chapter allows the words to be replaced by a mark consisting of the applicable UN number inside a diamond (the older limited quantity mark). However, this version of The Act does not include reference to the new limited quantity mark.

Transport Canada has clarified on their website that they are in the process of adopting the new LQ mark. Even though the new LQ mark is not mentioned in the TDG Chapter 1.17, packages marked with ***ONLY*** the new LQ mark *are* acceptable for transport to, from, and within Canada. This clarification means the marking requirements of Chapter 1.17 including the words "limited quantity", "Ltd Qty", or the French equivalents are met by the application of the new LQ mark.

Per paragraph 1.17(5), a shipping paper is not required when the gross mass of limited quantity shipments offered by one consignor to one destination is equal to or less than 500 kg.

European Road Transport (ADR)

The European Dangerous Goods by Road Regulations (ADR) are very similar to the IMDG Code. Shipments packed in compliance with the limited quantity provisions detailed in Chapter 3.4 are authorized for transport by road in Europe. The marking of such packages is identical to the marking required under the IMDG Code as well as the new marking adopted by the US in HM-215K. Therefore, a package prepared for road or vessel transport in the US may be offered and transported by road in the US, by vessel across the Atlantic Ocean, and by ground to a destination in Europe with the same marks.

Mexico

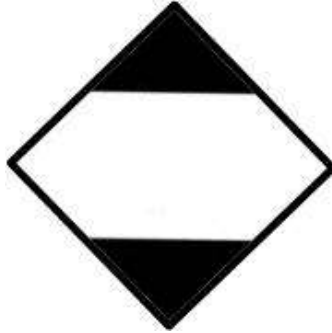
In 2012, Mexico revised their Norma Oficial Mexicana (NOMs) or Mexican Official Regulation to harmonize with international standards including the 17th Amendment of the UN Model Regulations (NOM-011-SCT2/2012). As a result, Mexico now recognizes Limited Quantities by all modes. To ship limited quantities in Mexico, the relevant international texts (ICAO TI by air, IMDG code by vessel) should be consulted.

As a consequence of the harmonization, recognition of ORM-D shipments has been removed. Therefore ORM-D shipments are no longer permitted for transport into, through, or from Mexico.

It is worth noting that Mexico maintains a requirement to placard vehicles transporting more than 454 kg of dangerous goods, even materials packed in limited quantities. This requirement is found in NOM-004-SCT/2008.

What are the New Marking Requirements?

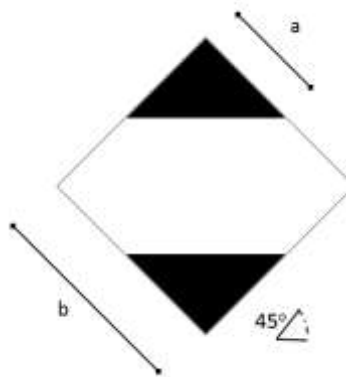
The design of the new limited quantity mark originated at the United Nations. The mark was then adopted by all the international modal bodies and eventually by the US DOT PHMSA in the HM-215K Final Rule. The mark is specified as follows:



The mark must be durable, legible, and must be of a size relative to the size of the package such that it is readily visible. Only one mark is required, however it must be applied on at least one side or end of the package. Additionally, the mark *must* be applied as a square on point at a 45° angle.

The dimensions of the mark are consistent across all sets of regulations. The mark must be a square-on-point with a border of at least 2 mm. Each side must have a minimum dimension of 100 mm. Small packages which cannot reasonably accommodate a 100 mm square-on-point mark may be marked with a square-on-point mark with a minimum side dimension of 50 mm. Note however that the reduced size marking is only allowed when the package size requires a smaller mark. Product or company marks taking up available space would not be considered a reason for using the smaller mark.

Detailed Explanation



$$b = 100 \text{ mm}$$

$$a = 50 \text{ mm}$$

For packages not able to accommodate 100 mm mark, then

$$b \geq 50 \text{ mm}$$

$$a = 1/2b$$

Mark must be placed at a 45° angle

Line must be black with minimum 2 mm thickness

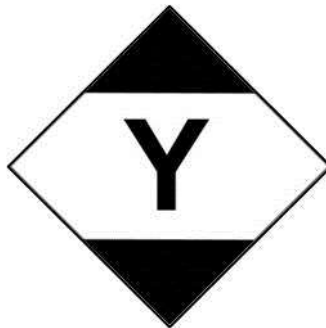
Top and bottom shaded areas must be black

Center section may be white or a suitable contrasting color

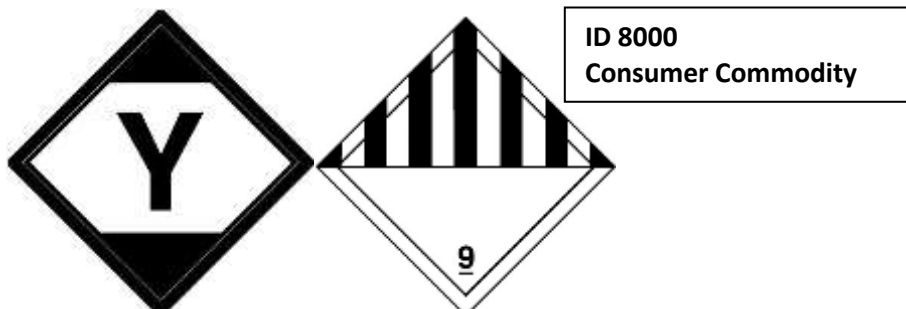
Text of other marks inside the diamond are not permitted



For air shipments, the following mark must be used:



The dimensions of the Y limited quantity mark are the same as the surface limited quantity mark. The Y limited quantity mark signifies the material has been *packed* in accordance with the air limited quantity provisions. While additional marks and labels are required to be placed on a package to be offered for air transport, a package with only the Y limited quantity mark is acceptable for surface transport. But the shipper can only apply the Y mark *if* the material is packed in accordance with the limited quantity by air provisions (i.e. ICAO TI, HMR §173.27). Although there are no specific criteria for where the Y limited quantity mark must be applied on the package, if the package dimensions are adequate, the recommended practice is to place the Y limited quantity mark on the same side of the package as the other required marks and labels for air transport. If sufficient space is not available, the mark should be placed on an adjacent side of the package.



Under the IMDG Code, cargo transport units (CTUs) containing Dangerous Goods in only limited quantities are also required to be marked. The marking is the same design as the surface package marking (no “Y”), but significantly larger. The minimum side dimension for the CTU limited quantity marking is 250 mm, the same size as a placard. The CTU mark must be applied on both sides and both ends of the CTU. The air limited quantity mark (“Y” mark) is not acceptable as a CTU marking.

If the CTU contains other Dangerous Goods requiring placarding, then the other placards would be applied instead of the limited quantity CTU marking. The purpose of the CTU marking is to communicate that hazardous materials/Dangerous Goods are contained within. If the CTU were packed with non-regulated goods, and one or more packages displaying the limited quantity was also packed therein, the limited quantity marking would be required on the CTU.

Can I have Dual Markings?

PHMSA has already issued a number of interpretations on whether dual markings are permitted. Specifically, PHMSA has been asked whether a package could be marked with the limited quantity mark AND the ORM-D mark. If the package is packed in compliance with both the applicable limited quantity provisions AND the ORM-D requirements, then the answer provided is yes. However, after December 31, 2020, the term “Consumer Commodity” may no longer be used to describe an ORM-D shipment. The proper shipping name “Consumer Commodity” will then be used to describe a material meeting the description of ID8000. Therefore, dual marked packages would be prohibited after December 31, 2020.

What is the Difference Between Limited Quantities and ID8000 by Air?

COSTHA has received a number inquires as to whether ORM-D materials can simply be called ID8000 for air transport. The entry for Consumer Commodities has existed in the ICAO TI for a number of years. The idea is that finished products intended or suitable for retail sales would have significant consumer safety standards regarding packaging. Further, many of these materials are packed in small quantities, reducing the risk of a dangerous occurrence in the event of a release. While not completely excepted from all packaging requirements, the packing instructions for ID8000 materials are less stringent than for other air packaging.

The entry ID8000 Consumer Commodity includes Special Provision (A112) in Column (M) of the List of Dangerous Goods in the ICAO TI which limits the classes of hazardous materials which may be offered under this entry. The ICAO TI Special Provision states:

A112 Consumer commodities may only include substances of Class 2 (non-toxic aerosols only), Class 3, Packing Group II or III, Division 6.1 (Packing Group III only), UN 3077, UN 3082, and UN 3175, provided such substances do not have a subsidiary risk. Dangerous goods that are forbidden for transport aboard passenger aircraft must not be transported as consumer commodities.

The entry ID8000 is therefore limited to certain Class 2, Class 3, Division 6.1, and certain Class 9 materials. ORM-D may currently be used to reclassify a number of different hazard classes not included in the A112 list. Thus ORM-D materials cannot automatically be identified as ID8000 Consumer Commodities. While similar, the ID8000 is a smaller subset of hazard classes and requires additional packing requirements as set out in ICAO TI Packing Instruction Y963 and HMR §173.167. If a material is authorized as a limited quantity under the HMR but does not meet the conditions of ICAO Special Provision A112, the hazardous material must be identified and shipped using the original hazard classification.

When Do All of These Changes Become Effective?

PHMSA provided a relatively long transition dates for many of these changes. Since publishing the HM-215K Final Rule, PHMSA has further extended the transition dates for the previous limited quantity mark. In 2013, PHMSA extended the transition date for ORM-D to December 31, 2020 (HM-215K, Final Rule).

Use of the UN number inside the diamond Limited Quantity mark

During a transitional period until December 31, 2014, the limited quantity marking in effect on October 1, 2010, with the UN number displayed in the square on point diamond may continue to be displayed as an alternative to the limited quantity mark with the black at the top and bottom and white in the middle for transportation by road, rail, and domestic vessel transport.

Use of the new limited quantity mark

Domestic - The new surface limited quantity mark (without the “Y”) is required by the HMR for all surface shipments (road, rail, and vessel) of limited quantities effective January 1, 2014, although it is acceptable for use immediately. For air shipments, the Y limited quantity mark is required by the US HMR by January 1, 2013. As a reminder, shipments packed in compliance with the air requirements and marked with the Y limited quantity mark are acceptable for carriage by highway, rail car, or vessel.

International – The 35th Amendment of the IMDG Code and the 2011-2012 ICAO TI adopted the new limited quantity marks, eliminating the previous UN number inside a diamond. Therefore, all limited quantity shipments prepared in accordance with either the IMDG Code or the ICAO TI must have the new limited quantity mark as appropriate by mode.

Use of ORM-D marks

In the HM-215K Final Rule, PHMSA allowed for a multi-year transition period. Effective January 1, 2013, the ORM-D-Air classification has been eliminated. For surface transportation, materials may continue to be reclassified as ORM-D until December 31, 2020. Effective January 1, 2021 the ORM-D hazard class will no longer be recognized.

It is important to note that as these transition dates approach, carriers by all modes may decide to be more restrictive (apply shorter transition periods). Check with your carrier to determine if shorter transition periods will be applied for carriage on their rail cars, vehicles, ships, and aircraft.