

Alert 19-01: Shipment Frustrations Due to Incorrect Understanding of Requirements for Steel Drum Embossment and Marking

Recently, there have been reports that shipments of steel drums containing hazardous materials (dangerous goods) have been frustrated at the port of entry in mainland China on the basis that a full United Nations (UN) mark is not embossed on the bottom of the drum. The reported reason is in conflict with international regulations and corresponding requirements as implemented by the U.S. Department of Transportation (DOT) in the Hazardous Materials Regulations (HMR).

The embossment of an incomplete UN mark on the bottom is based on a UN requirement, which as given in the International Maritime Dangerous Goods (IMDG) Code states in 6.1.3.2:

“In addition to the durable markings prescribed in 6.1.3.1 [i.e., the complete UN mark], every new metal drum of a capacity greater than 100 L shall bear the marks described in 6.1.3.1 (a) to (e) on the bottom, with an indication of the nominal thickness of at least the metal used in the body (in millimetres, to 0.1 mm), in permanent form (such as embossed).The marks indicated in 6.1.3.1 (f) and (g) shall not be applied in a permanent form (such as embossed) except as provided in 6.1.3.5.”

This marking requirement was introduced into the UN Model Regulations to accommodate reconditioning/remanufacture. The same requirement appears in the DOT HMR in §178.503(a)(10) which states:

“(10) In addition to the markings prescribed in paragraphs (a)(1) through (a)(9) of this section, every new metal drum having a capacity greater than 100 L must bear the marks described in paragraphs (a)(1) through (a)(6), and (a)(9)(i) of this section, in a permanent form, on the bottom. The markings on the top head or side of these packagings need not be permanent, and need not include the thickness mark described in paragraph (a)(9) of this section. This marking indicates a drum's characteristics at the time it was manufactured, and the information in paragraphs (a)(1) through (a)(6) of this section that is marked on the top head or side must be the same as the information in paragraphs (a)(1) through (a)(6) of this section permanently marked by the original manufacturer on the bottom of the drum.”

Note that two elements are excluded from the embossed bottom marking and these two elements may not be embossed on the bottom. For USA-marked drums, these two elements are described in the HMR as:

“(a)(7) The state authorizing allocation of the mark. The letters ‘USA’ indicate that the packaging is manufactured and marked in the United States in compliance with the provisions of this subchapter;



(a)(8) The name and address or symbol of the manufacturer or the approval agency certifying compliance with subpart L and subpart M of this part. Symbols, if used, must be registered with the Associate Administrator.”

As noted in the HMR, the embossed marking is to identify the characteristics at the time of manufacture (i.e., the drum’s “birth marks”). This marking is intended as an aid for reconditioning and remanufacturing. The embossed mark is not intended as the drum’s UN certification mark, which is required to be on the side in the case of a packaging with a mass of more than 30kg/L. Identification of the manufacturer and the country of origin was intentionally excluded from the embossed marking because once the drum has been used, the original manufacturer is no longer responsible for its performance.

As such, compliance with the purported Chinese requirement of embossing “USA” and the identity of the manufacturer on the bottom is in violation of the UN requirements and corresponding requirements as implemented by DOT, the competent authority in the United States.

For your reference, §178.503(a) outlines the marking requirements for packaging as follows:

“A manufacturer must mark every packaging that is represented as manufactured to meet a UN standard with the marks specified in this section. The markings must be durable, legible and placed in a location and of such a size relative to the packaging as to be readily visible, as specified in §178.3(a).”

Who may test and certify drum compliance?

In addition, questions have been raised about the international shipment and certification of U.S.-manufactured packagings. The IMDG Code and the UN Model Regulations do not require a UN packaging to be certified by a government test laboratory. Under U.S. regulations UN packagings manufactured in the United States may be tested and certified by the manufacturers in accordance with the HMR, which are based on the UN Model Regulations. Application of the UN mark certifies compliance with the regulations. A government certification is not required and the DOT has not designated a government laboratory for testing and certifying UN packagings.

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