



## Alert 14-09: U.S. Department of Transportation and United Nations Performance Marks for Steel Drums

Since the inception of performance-based packaging standards, first introduced and incorporated into Title 49 of the Code of Federal Regulations (49 CFR) in the early 1990s, there has been much confusion regarding container markings. The Industrial Steel Drum Institute (ISDI) has developed this bulletin in an effort to clear up the confusion and aid customers in container selection by providing clear, concise and accurate information so that informed decisions can be made regarding the markings required for the products you package. ISDI’s intent is to encourage customers to use markings that reasonably and accurately reflect the properties of the products drums will contain.

There is a general misconception that the higher the mark, the better the drum. While there may be some drums that are specially designed and constructed for products with extreme characteristics, most are not. In fact, ISDI estimates that more than 98 percent of all products packaged in steel drums are covered under the Y marking.

Generally speaking, steel container manufacturers employ the same manufacturing techniques for drums with a marking of Y1.8 as they do for ones that carry a mark of X1.8. Specifying a mark that is significantly higher than what is actually required by a filler’s product characteristics means only that the container has been tested to a higher level – a level of performance that the container most likely will not be able to maintain throughout its entire life cycle.

The following example can be considered a reasonable United Nations (UN) performance mark for most tight-head steel containers when displayed on the bottom of the drum. These markings may change depending on the container thickness specified.

### Sample Marking – Tight-head Steel Container



The diagram shows a sample marking: **UN 1A1/Y1.2/100/YR 0.0/0.0/0.0**. Labels with arrows point to the following parts:

- UN**: United Nations symbol
- 1A1**: Drum, Steel, Tight Head
- Y**: Packing Group
- 1.2**: Level Tested
- 100**: Hydrostatic Pressure (kPa)
- YR**: Year of Manufacture
- 0.0/0.0/0.0**: Specific Gravity, Nominal Steel Thickness\* in Millimeters (Head/Body/Bottom)

(For embossed metal drums, the letters "UN" may be applied to the bottom in place of the United Nations symbol. Letter height must be a minimum of 12 mm)

\* For steel drums that may be reused or reconditioned

Note: Marks illustrated above are located on the bottom of the drum.

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For markings placed on the side of the drum, the mark must also reference the country authorizing the mark (USA, for example), and the name and address of the manufacturer or symbol of the manufacturer.

To specify UN-marked packaging, purchasers of steel drums must supply the following information to their drum manufacturer, as found in the Hazardous Material Table (§172.101).

- **Packing Group §172.101**

Packing Group	Marking
Packing Group I	X
Packing Group II	Y
Packing Group III	Z

- **Specific Gravity (Liquids Only) §178.503 (a)(4)(i)**

Specific gravity of the material. The specific gravity marked on the drum will be rounded down to the first decimal.

- **Net Mass (Solids Only) §178.503 (a)(4)(ii)**

The total weight, in kilograms, of the material placed in the drum. The drum must be marked with the maximum gross mass.

- **Hydrostatic Pressure Test (Liquids Only) §178.503 (a)(5)(i)**

The pressure in kiloPascals (kPa) that the packaging must be capable of withstanding, which relates to the vapor pressure of the lading at a specific temperatures (50 degrees Celsius or 55 degrees Celsius).

The responsibility for proper container selection rests with the person offering the package for shipment. Title 49 CFR §173.22 (a)(2) stipulates that the person offering the package for shipment shall determine that the packaging or container is an authorized packaging, including §173 requirements, and that it has been manufactured, assembled and marked in accordance with §173.22 (a)(2)(i), §173.7(a) and parts 173, 178 or 179 of this subchapter.

Your container supplier can assist you in selecting the proper container, with the correct markings, for the products you package.

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This information is based on the Industrial Steel Drum Institute's best knowledge at time of issuance. It is the responsibility of any filler or user of steel drums and pails to ensure that the unique characteristics of products contained therein or any reformulation of products are accurately described to the drum and lining manufacturers. Customers, fillers and users should consult the appropriate professional for assistance in compliance with the responsibilities outlined hereunder.