UN Markings for Tight-Head Steel Drums (Liquids)

How to read the UN mark on a **1A1** non-removable-head steel drum certified for liquids: specific gravity, test pressure, and the checks that keep a fill legal.



Example mark. Read it as: a steel tight-head drum, tested for Packing Group II and III liquids up to specific gravity 1.4 and a 150 kPa hydrostatic test, made in 2026, certified in the USA by registrant M1234, with a 1.2 mm body.

READING THE MARK, FIELD BY FIELD

	FIELD	EXAMPLE	WHAT IT MEANS
1	**UN packaging symbol**	`u/n`	Certifies that the drum design passed UN performance tests. Embossed metal drums may show the capital letters “UN” instead of the circled symbol.
2	**Packaging type code**	`1A1`	**1** = drum · **A** = steel · **1** = non-removable head (tight head), filled and emptied through bungs. A `1A2` is the removable-head version.
3	**Packing group rating**	`Y`	The highest hazard level the design was tested for: **X** = PG I, II and III · **Y** = PG II and III · **Z** = PG III only.
4	**Specific gravity**	`1.4`	The relative density of the liquid the design was drop-tested with, to one decimal. It may be left off when that value is 1.2 or less.
5	**Hydrostatic test pressure**	`150`	The internal pressure the design held in testing, in **kPa**, rounded down to the nearest 10. It must cover the vapor pressure of what you fill.
6	**Year of manufacture**	`26`	The last two digits of the year the drum was made.
7	**Country**	`USA`	The country (state) that authorized the mark, shown with its international vehicle registration code.
8	**Manufacturer / certifier**	`M1234`	The name or registered symbol of the manufacturer or approval agency. In the U.S., symbols are registered with PHMSA.
9	**Metal thickness**	`1.2`	Nominal body thickness in mm, required on metal drums meant for reuse or reconditioning. When the heads are thinner than the body, all three are shown as top–body–bottom, e.g. `1.0–1.2–1.0`.

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DRUM TYPE CODES

CODE	DRUM
1A1	Steel, non-removable head (tight head)
1A2	Steel, removable head (open head)
1B1 / 1B2	Aluminum, non-removable / removable head
1N1 / 1N2	Other metal, non-removable / removable head
1H1 / 1H2	Plastic, non-removable / removable head
1G	Fiber
1D	Plywood

LIQUIDS MARK VS. SOLIDS MARK

LIQUIDS `1A1/Y1.4/150/26/…`
max specific gravity + hydrostatic test pressure (kPa)

SOLIDS `1A2/Y400/S/26/…`
max gross mass (kg) + “S”

RULES TO CHECK FOR LIQUIDS

- **Specific gravity is a ceiling.** Your liquid’s specific gravity must not exceed the marked value. If none is marked, the limit is 1.2.
- **Test pressure must cover vapor pressure.** The marked kPa has to be high enough for the liquid’s vapor pressure at 50–55 °C. The calculation is in the UN Model Regulations, Part 4.1, and 49 CFR 173.24a.
- **Leave room to expand.** Fill so the drum is not liquid-full at 55 °C (131 °F).
- **Leakproof by design.** Liquid designs pass a leakproofness test at 20 kPa for PG II and III, or 30 kPa for PG I.
- **Bungs are part of the test.** Use the specified 2-inch and ¾-inch bung closures and gaskets, tightened to the closure instructions.
- **Permanent on the bottom.** Metal drums over 100 L must carry the mark on the bottom head in permanent form, such as embossing. A printed or labeled mark on the side or top is extra.
- **The rating is a ceiling.** A **Y** drum may carry PG II or III material, never PG I. An **X** drum covers all three.

BEFORE YOU FILL: A FOUR-STEP CHECK

1
Find the packing group
Look up the UN number and PG in the Hazardous Materials Table (49 CFR 172.101) or Section 14 of the SDS.

2
Check specific gravity
Section 9 of the SDS gives the liquid’s specific gravity. It must be at or below the marked value (or 1.2 if none is shown).

3
Check vapor pressure
Compare the liquid’s vapor pressure at 50–55 °C with the marked test pressure, using the regulation’s formula.

4
Fill and close as tested
Leave ullage for expansion, then torque bungs with the specified gaskets per the closure instructions.

Sourcing UN-rated tight-head drums?
Compare steel and plastic drum suppliers in the Packaura directory, or send one RFQ to vetted manufacturers and reconditioners.

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