

Oak Ridge National Laboratory (ORNL)

Steel Gauge Tolerances For Steel Drum QC Evaluation

Appendix B

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STANDARD FOR QC INSPECTIONS OF GAUGE THICKNESS FOR PURCHASED STEEL DRUMS

The below table of metal gauge thickness dimensions, and tolerances is to be used when evaluating steel drums for compliance to the specified steel thickness (gauge) set forth in the ORNL Packaging Specifications for the purchase of steel drums at ORNL facilities.

This table is furnished, in that, the US DOT Hazardous Material Regulations (49 CFR) under the new UN Performance Packaging concept no longer specifies gauge thickness and tolerances for steel drums - only test criteria.

Oak Ridge National Laboratory, however, in the ORNL UN Hazardous Material Packaging Specifications, specifies specific steel thickness (gauges) for the UN steel drums to be purchased, as well as the required UN performance criteria. In addition, the past DOT gauge table is incorporated directly into the DOE "Blue Book" for the DOT 7A, Type A packaging.

GAUGE NUMBER	NOMINAL THICKNESS (Inches)	NOMINAL THICKNESS (Millimeters)	MINIMUM THICKNESS (Inches)	MINIMUM THICKNESS (Millimeters)
12	0.1046	2.6568	0.0946	2.4028
14	0.0747	1.8974	0.0677	1.7196
16	0.0598	1.5189	0.0533	1.3538
18	0.0478	1.2141	0.0428	1.0871
19	0.0418	1.0617	0.0378	0.9601
20	0.0359	0.9119	0.0324	0.8230
22	0.0299	0.7595	0.0269	0.6833
24	0.0239	0.6071	0.0209	0.5309
26	0.0179	0.4547	0.0159	0.4039
28	0.0149	0.3785	0.0129	0.3277

NOTES:

The above table of gauge values (in inches) were extracted from the past DOT specifications; 49 CFR, ¶173.24(a)(2) (pre-HM 181) for steel sheets; for the gauges as specified for DOT 17C, 17E, 17H, 37A, etc. steel drums.

Conversion to millimeters is: inches multiplied by 25.4000 mm/in = millimeters. [current 49 CFR, ¶171.10 (c)(2)]

Minimum Thickness for Reuse (reconditioning) is 1.1 millimeters (therefore, above 19 gauge steel).