

ORNL Fiber 41 Gallon Drum Specification

Press  to see Check List only.

Description	Specification Catalog Number	Packaging Filling Instructions	Plant
Drum, Fiber, open head, 41 gallon, 21 1/2 in. ID x 26, UN 1G/Y 189/S , 900 lb. sidewall, Natural Kraft	02-113-5755	ORNL-CHK-35	ORNL (Also available at Y-12)

Mfg. Details Per: ORNL Packaging Specifications
No. 200-1G0-0003
Issue Date: April 15, 1994
Revised Date: November 15, 1999



- [1.0 GENERAL DESCRIPTION](#)
- [2.0 MATERIAL DETAILS](#)
- [3.0 CONTAINER PERFORMANCE CRITERIA](#)
- [4.0 QUALITY ASSURANCE](#)
- [5.0 MARKING](#)
- [6.0 INTENDED USE](#)
- [7.0 SUGGESTED MANUFACTURERS](#)
- [8.0 AUTHORIZED CHANGES](#)
- [9.0 DISTRIBUTION OF UN PERFORMANCE TEST REPORTS \(per ¶ 3.1\)](#)

Oak Ridge National Laboratory

Packaging Specifications

Open Head Fiber Drum

Specification No. 200-1G0-0003

Issued: April 15, 1994

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Page 1 of 7

1.0 GENERAL DESCRIPTION

Open head fiber drum, lever-lock locking ring closure, water resistant fiberboard exterior, varnished metal lid and locking ring, fiberboard bottom; for dry solid product/material.

1.1 United Nations Designation - 1G /Y **/ S * [per 49 CFR, &178.503]

- 1G** = Open head fiber drum.
- Y** = Suitable for Packing Group II, and III materials.
- **** = Maximum allowable gross weight in kilograms for which the drum was tested .
- S** = Designation indicates packaging is for solid materials [*or combination packaging*].
- *** = The last two (2) digits of the calendar year in which the container was manufactured.

Specific UN Markings are specified in the Catalog Description for the referenced catalog number for each specific drum, which are the ORNL "minimum" UN requirements.

1.2 Size:

Inside Diameter (in inches) x Inside Height (in inches) [as specified in the Catalog Description for the referenced catalog number]

1.3 Capacity:

Drum capacity (volume) of 7, 11½, 12, 16½, 17, or 41 gallon as specified in the Catalog Description for the referenced catalog number.

2.0 MATERIAL DETAILS

Drum construction must comply with Title 49, Code of Federal Regulations (49 CFR), &178.508 (latest edition) for fiber drums, and the following minimum requirements. Manufacturer shall document appropriate quality control on incoming raw material. No significant changes to the manufacturing process or raw material is allowed without prior approval of the Company.

2.1 Drum Body:

Laminated kraft fiberboard--see Catalog Description for sidewall strength.

2.2 Drum Head:

24 gauge cold rolled steel, ASTM A 366 or equivalent. Reference [Appendix B](#).
Varnish/laquer coated (interior/exterior).

2.3 Drum Bottom:

Laminated kraft fiberboard.

2.4 Body Seams:

Laminated, water-proof adhesive.

OPEN HEAD FIBER DRUM

Specification No. 200-1G0-0003

Issued: April 15, 1994

Revised: November 15, 1999

Page 2 of 7

2.5 Chimes:
24 gauge steel.

2.6 Gasket:
Rubber, flowed-in latex type material.

2.7 Rolling Hoops:
None (straight sided).

2.8 Closure:
Lever-locking ring, varnished or galvanized metal.

Manufacturer/supplier must furnish ORNL, in writing, closure requirements, as performed for the UN design test per 49 CFR, &178.2(c)(1). It must be identified on the closure instructions specifically as to the ORNL drum to which the instructions apply. Ref: &9.0 for distribution.

2.9 Surface Preparation:
Water resistant to the exterior surface of the fiberboard.

2.10 Interior finish:
None; natural fiber interior.

2.11 Exterior finish:
Natural kraft, spray coated for water resistance [exterior surface must be capable of meeting the DOT 7A, Type A water-spray test {49 CFR, &173.465(b)} as previously tested.]

2.12 Printing:
None.
[See &5.0, Marking]

2.13 Seaming Compound:
None.

2.14 Cleanliness:
Finished drums must be free of rust, dirt, oil, solvents, or metal shavings, and interior moisture.

3.0 CONTAINER PERFORMANCE CRITERIA

Manufacturer shall successfully test and certify that containers meet or exceed the requirements of 49 CFR, &178.600 - 178.608, for the Packing Group II level.

3.1 Performance Test Documentation:
Upon request, the manufacturer must be capable of providing copies of the performance test documentation for purchased packagings, as required by 49 CFR, &178.601(1) for the UN certification marked packaging. Periodic audit copies will be requested randomly on purchased UN packagings. Ref: &9.0.

3.2 Performance Tests:
The specified drums require the **US Department of Transportation** UN performance criteria for design qualification testing, periodic retesting, and production tests established in 49 CFR, &178.600 - 178.608.

NOTE TO SELLER: The UN test/markings Certifications must be made by the drum manufacturer or a Department of Transportation approved third party tester.

OPEN HEAD FIBER DRUM

Specification No. 200-1G0-0003

Issued: April 15, 1994

Revised: November 15, 1999

Page 3 of 7

4.0 QUALITY ASSURANCE

The Seller shall assure, and be responsible, that the quality of the drums furnished under this document are of good quality, as pursuant to industry standard manufacturing practices for fiber drums, including the materials/components used in the manufacturing of the stated fiber drums.

The Seller shall meet the requirements stipulated in this document and the specific requirements of the Catalog Description for the specific drum as specified in the Purchase Order.

4.1 Manufacturer's Certification:

By the act of placing the UN performance criteria markings on each drum purchased, the manufacturer acknowledges he has certified, and accepted responsibility, that the stated drum design meets or exceeds the U.S. Department of Transportation's UN performance requirements as stipulated in §3.2 of this document and in accordance with the markings prescribed in 49 CFR, §178.503.

In addition, this certification marking acknowledges that the drum manufacturer has complied with the specific standards for fiber drums specifically listed in 49 CFR, §178.508.

4.2 Receiver Inspections:

The following inspections will be performed on the incoming drums by receiver to determine the drums meet quality standards and the requirements of this document. However, the receiver is not limited to the following inspections to determine quality and specification conformance. Conformance will be indicated by a Y or N in the "Y/N" column, and negative responses documented on the Nonconformance Report (NCR), *UCN 11457*, (items 3-21b), attached to the checklist, and submitted to ORNL's Packaging Operations (PkgOps) for necessary action.

NOTE: Checklist for this specification on following page.

OPEN HEAD FIBER DRUM

Specification No. 200-1G0-0003

Issued: April 15, 1994

Revised: November 15, 1999

Page 4 of 7

This checklist is to be reproduced for QC Inspections.

Receiver Inspection Quality Control (QC) Checklist for Incoming Fiber Drums

	QC Conformance	Y/N	<< "No's" to be documented on form UCN-11457, with checklist
1	Drum condition		Drums in good physical condition; are dry, no physical damage.
2	Capacity		Drum is capacity specified in Order/Catalog Description (<i>marked on drum side</i>).
3	Fiberboard Surface		Clean, no significant scuffing, breaks or cuts in exterior surface, nor interior surface of the drum. Exterior has protective coating.
4	Locking rings, chimes		Lever locking rings, and metal chimes are painted or varnished and show no significant rusting /corrosion.
			Lever locking rings close tightly; not loose around drum lid.
5	Drum lids		Lids are varnished, and show no significant rusting/corrosion.
6	Markings <i>(on side)</i>		Drums marked (as a minimum) with ORNL specified UN markings, per Catalog Description.
			Drums legibly marked (printed) in accordance with required 49 CFR UN markings, and specified gross test weight, below top chime.
			Markings include the manufacturer's identification -- company name or registered symbol (initials or M-number), or test agency code; after USA. Ref: 49 CFR, &178.503(a)(8).

Catalog Number _____

P.O. Number _____

Total Units Received _____

Inspection Method: Per ORNL PkgOps QC Inspection Plan

Sample Size _____ [Based on ANSI/ASQC Z1.4-1993]

NCR No. _____

Inspector/Date _____

Additional comments provided on back: _____ check if yes.

The above QC inspection check list shall be accomplished for each order based on random samples of incoming fiber drums, by QC Personnel to determine manufacturer's conformance to these specified Packaging Specifications document.

Shipments of fiber drums not meeting specified requirements will be returned to the seller for credit.

QC inspections resulting in non-compliance with these Packaging Specifications will be cause for rejection of the entire shipment.

OPEN HEAD FIBER DRUM

Specification No. 200-1G0-0003

Issued: April 15, 1994

Revised: November 15, 1999

Page 5 of 7

5.0 MARKING

As a minimum, each drum shall be marked in accordance with 49 CFR, &178.2, 178.3 and 178.503 **on the side of the drum**, just below the drum top chime. Markings shall have a minimum letter height of ½ inch. Markings must include the manufacturer's identification -- company name or registered symbol (initials or M-number), or test agency code, per 49 CFR, &178.503(a)(8).

Additionally, drums are to be marked with CATN--(dash) plus the last four (4) numbers of the catalog number below the UN markings:

7 gallon = CATN--5737

16½ gallon = CATN--5740

11½ gallon = CATN--5815

17 gallon = CATN--5820

12 gallon = CATN--5738

41 gallon = CATN--5755

6.0 INTENDED USE

Containers are intended for Packing Group II and III hazardous materials in **solid** form. Maximum capacity of the container shall not exceed the tested gross weight marked on the drum.

7.0 SUGGESTED MANUFACTURERS

The following list of suggested manufacturers have demonstrated ability to comply to the requirements set forth in this document. However this list does not guarantee current or continued availability as a suggested manufacturer source:

- Greif Bros. Corp., Kingsport, Tennessee
- Skolnik Industries (General Cooperage Co.), Chicago, Illinois

The Seller must advise the Company prior to any change in the current source (manufacturer) of packaging materials described in this Packaging Specification.

Any Manufacturer that satisfactorily demonstrates to the Company the capability to furnish packaging in compliance with this Packaging Specification, may be added to the above listing.

8.0 AUTHORIZED CHANGES

Changes/revisions in the requirements specified in this document will only be authorized by ORNL PkgOps as coordinated with Oak Ridge facilities packaging operations.

OPEN HEAD FIBER DRUM

Specification No. 200-1G0-0003

Issued: April 15, 1994

Revised: November 15, 1999

Page 6 of 7

9.0 DISTRIBUTION OF UN PERFORMANCE TEST REPORTS (per &3.1) and CLOSURE INSTRUCTIONS (per &2.8)

A) Closure instructions must be furnished for each initial order, and annually (at the minimum) for each type/size package purchased by ORNL, directly to the Packaging Operations Manager at the address below.

B) Upon specific request, UN performance test documentation for each specified order/shipment will be submitted directly to the Packaging Operations Manager at the address below.

**Oak Ridge National Laboratory
Packaging Operations Manager
Bldg. 7001, MS 6288
P.O. Box 2008, 1 Bethel Valley Road
Oak Ridge, Tennessee 37831-6288**

Oak Ridge National Laboratory (ORNL)

Steel Gauge Tolerances For Steel Drum QC Evaluation

Appendix B

Issued: February 24, 1995

Revised: June 15, 1999

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 "White 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, I7E, 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).