

**Oak Ridge National Laboratory (ORNL)
Transportation and Packaging Management (TPM)
Container Preparation and Filling Instructions/Checklist**

UN 55 Gallon Open Head (OH) Steel Drum

ORNL-CHK-10, Rev. 5

Issued: 5/15/1997

Revised: 7/10/2002

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INSTRUCTIONS: Complete the activities below following the instructions in Section A. Activities should be checked off as performed. The completed checklist should then be signed by the Operating Personnel completing the checklist and submitted to the Operations Supervisor for approval for shipment.

NOTE 1: The 55 gallon open head drum is UN marked for filling with either liquid or solid hazardous materials.

NOTE 2: The maximum allowable gross weight is embossed (bottom) and marked (side) on each drum in kilograms [e.g., 320 kilograms (700 lbs)]. Allowable weight applies to Packaging Groups I, II, or III solid materials.

NOTE 3: The maximum allowable specific gravity is embossed (bottom) and marked (side) on each drum [e.g., 1.4]. Allowable specific gravity applies to Packaging Groups II and III liquid materials. [PG I not authorized]

NOTE 4: The maximum allowable vapor pressure is embossed (bottom) and marked (side) on the drum in kilopascals [e.g., 100 kPa (15 psig)]. Allowable vapor pressure applies to Packaging Groups II and III liquids.

NOTE 5: Drum lids used during in-house storage containing vents/pressure relief devices must be removed and replaced with the original lid, which does not contain such additions, prior to offering for shipment. *The drum needs to retain its original configuration as purchased.*

NOTE 6: Drums must be closed in accordance with the specific instructions furnished, and tested, by the manufacturer for each specific type/size drum, in order to be in compliance with DOT HAZMAT regulations. [49CFR, ¶178.2(c)(1)]

**A. UN 1A2/X - UN 1A2/Y 55 Gallon Carbon Steel Drum
Stores Catalog No. 02-112-6400**

Note: Items marked (#) are solely generator's/filler's responsibility.

**Operating
Personnel**

- _____ 1. **(#)** Inspect the drum to be filled to ensure that it is in good physical condition and that no critical dents/damages, severe corrosion, etc. exist that could cause or develop into a leak during normal storage or in transportation.
- _____ 2. **(#)** Ensure that the material being filled in the drum is compatible with (will not react, soften, or attack) the drum's internal epoxy-phenolic lining.
- _____ 3. **IF** the hazardous materials/wastes is solid, **THEN** fill the drum according to the requirements/limitations specified in [NOTE 2](#) above.

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Operating
Personnel

- _____ 4. IF the hazardous materials/wastes is liquid, **THEN** fill the drum according to the requirements/limitations specified in [NOTE 3](#) and [NOTE 4](#) on page one.
- NOTE:** For liquid hazardous materials/wastes, sufficient outage *MUST BE* left in the drum such that the drum will not completely fill if the contents were to reach a temperature of 55°C (131°F) in storage or transit.
- _____ 5. Ensure that the drum lid does not contain vents/relief devices when offered for shipment. Refer to [NOTE 5](#) on page one.
- _____ 6. (#) Ensure that the gasket is in place, is in good condition, and is adhered to the drum lid on filled drums *prior* to placing the lid on the filled drum.
- _____ 7. Place cover on drum.
- _____ 8. Snap closing ring over the cover and top lip of the drum. Ensure the bolt section of the locking ring is extended below the ring and *not* protruding above the drum lid.
- _____ 9. Insert the bolt through the lug without threads, screw on the jam nut, and screw the bolt into the threaded lug.
- _____ 10(a). [*General*¹] Tap around the closing ring with a heavy rubber mallet/hammer and, and at the same time, tighten the bolt with a torque wrench. The bolt should be tightened to 45, +/- 5-foot lb torque. The lid/locking ring must be tight such that it will not rotate/turn.

¹These "Closing Instructions" are specifically for 55 gallon steel drums manufactured by General Steel Drum—Identification marking code on drum side is: M4065. [see [NOTE 6](#) on page one]

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Operating Personnel

_____ 10(b). [*Greif*²] While tightening the bolt, tap the entire perimeter of the ring using a mallet, starting directly across from the bolt. Tighten the bolt until 75 ft-lb of torque is reached. The cover and ring should not spin, but the free ends of the rim should have a 1/4" maximum distance.

_____ 10(c). [*Skolnik*³] *For Liquids* -Tighten bolt while tapping ring, as necessary, until a minimum torque of 55 ft-lb and a maximum 1/8" gap is achieved, but the ring ends should not touch.

For Solids – Tighten bolt while tapping ring, as necessary, until a minimum gap of 1" is achieved and then continue torquing until a minimum torque of 25 ft-lb is achieved, but the ring ends should not touch.

NOTE: If the locking ring butts itself when completely tightened, in lieu of leaving a gap, the ring is too large or the gasket is too thin--making the lid/locking ring unusable. The lid and/or the locking ring must then be replaced.

_____ 11. Tighten the "jam nut" to prevent unintentional loosening of the closure during handling/transit; tighten against the lug without threads. ("Jam nut" must be located in between the two locking ring lugs.)

_____ 12. **IF** generator/filler is responsible for preparing package for transport, **THEN**
Label and mark the drum in accordance with the current ORNL/Department of Transportation (DOT) requirements. For off-site shipments, contact the ORNL Transportation and Packaging Management organization for appropriate DOT marking and labeling.

IF generator/filler is *not* responsible for preparing package for transport, **THEN**

This item is not applicable and should be marked **N/A**.

²These "Closing Instructions" are specifically for 55 gallon steel drums manufactured by Greif Brothers Corp.—Identification marking code on drum side is: GBC. [see [NOTE 6 on page one](#)]

³These "Closing Instructions" are specifically for 55 gallon steel drums manufactured by Skolnik Industries, Inc.—Identification marking code on drum side is : SDCC [see [NOTE 6 on page one](#)]

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Stores Catalog No. 02-112-6400**

**Operations
Supervisor**

- _____ 13. Sign and date the checklist in the appropriate signature block verifying that the activities have been performed and the checklist completed.

- _____ 14. Submit this completed checklist to the Operations Supervisor for approval for shipment.

- _____ 15. Verify that all defined activities have been successfully completed.

- _____ 16. Sign and date the checklist in the appropriate signature block, approving the container for shipment.

APPROVED FOR SHIPMENT:

Operating Personnel:	Date:
Operations Supervisor:	Date:

Prepared by: ORNL TPM Organization

Approved by: Jeff Shelton July 10, 2002
Jeff Shelton, Manager (576-6401) Date
ORNL TPM - Packaging Operations