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

Type A 7A Drums – 55 Gallon Size

ORNL-PKG-05, Rev. 2

Issued: 2/27/1997

Revised: 12/12/2005

Page 1 of 3

INSTRUCTIONS: Complete the activities requested below following the instructions below.

NOTE 1: Type A 7A Drums are used for *solid material only*.

NOTE 2: The maximum weight is 900 pounds for Form 1 and 1,000 pounds for Form 2 and 3, or the weight as specified from the manufacturer if the Type A documentation is received with the order, for Type A use. [ORNL drum UN marked 320 kg (700 lb) minimum.]

NOTE 3: The 55 gallon open head drum has the correct gauge, bolt closure, and gasket to meet Type A requirements. The drum matches specifications in the "Test and Evaluation Documentation for DOT Specification 7A, Type A Packaging," DOE/RL-96-57, Westinghouse Hanford Company test report book. The DOE/RL-96-57 has test documentation and user requirements for DOT Specification drums (17H) which are no longer manufactured. Since ORNL TPM has procured UN1A2 drums to match the specifications of the tested drum(s), the DOE/RL-96-57 documentation also applies to this drum.

NOTE 4: The drum needs to retain its original configuration as purchased.

NOTE 5: The DOE/RL-96-57 test report book defines three forms of solid materials. The shipper must determine the most appropriate form for the contents to be shipped. The three forms are as follows:

- Form No. 1 - Solids: any particle size.
- Form No. 2 - Solids: large particle size only (e.g., sand, concrete, debris, soil).
- Form No. 3 - Solids: objects with no significant dispersible or removable contamination (see 49 CFR §173.443).

**A. PRE-LOADING INSTRUCTIONS FOR
UN1A2 (55 Gallon Size)
Stores Catalog No. 02-112-6400 (CS OH Drum)
Stores Catalog No. 02-112-6085 (SS OH Drum)**

**Operating
Personnel**

1. Visually inspect the drum, lid, and locking ring for rust, damage, dents, and defects.
2. Visually inspect the lid gasket for wearing or tears.
3. Report any deficiencies to the Packaging Supervisor.
4. Securely position the contents.

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Page 2 of 3

**B. CLOSING INSTRUCTIONS FOR
UN1A2 (55 Gallon Size)
Stores Catalog No. 02-112-6400 (CS OH Drum)
Stores Catalog No. 02-112-6085 (SS OH Drum)**

**Operating
Personnel**

1. For containers from *Skolnik Industries* (drums marked **SDCC**) see [Attachment #1](#).
2. For all other drums, use the following Hanford documentation:
 - a. **IF** the contents are "Form No. 1," **THEN**
Apply the RTV Sealant (or equivalent) to the surface of the gasket in contact with the drum body.
 - b.. Place cover on drum.
 - c. 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.
 - d. Insert the bolt through the lug without threads, screw on the jam nut, and screw the bolt into the threaded lug.
 - e. Tap around the closing ring with a hammer and tighten the bolt to less than 40 ft-lb torque (but not less than 15 ft-lbs).

The jam nut should be tightened to prevent unintentional loosening during transit.


**C. POST-LOADING INSTRUCTIONS FOR
UN1A2 (55 Gallon Size)
Stores Catalog No. 02-112-6400 (CS OH Drum)
Stores Catalog No. 02-112-6085 (SS OH Drum)**

1. Mark the drum to indicate "USA DOT 7A TYPE A."
2. Attach plain wire seal for non-accountable materials or a controlled numbered seal for accountable materials, if required.

Seal wires should be threaded through the lugs in the closing ring or through holes provided in the bolt and/or lugs as appropriate for each container. The seal must be installed so that it has to be broken to open a container.

3. Record the controlled, numbered seal information on the Seal Log Sheet.

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Approved by: 
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ORNL TPM - Packaging Operations

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ORNL-PKG-05, Rev. 2
 Page 3 of 3

ATTACHMENT #1



CLOSING INSTRUCTIONS

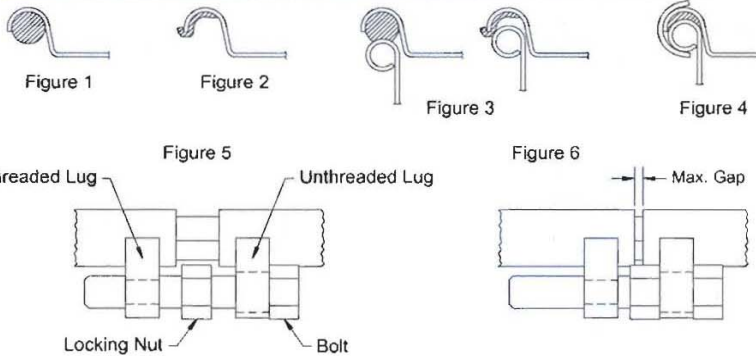
CARBON & STAINLESS STEEL DRUMS with BOLT RING CLOSURES
 — READ ALL INSTRUCTIONS COMPLETELY —

OPEN HEAD DRUM - BOLT RING CLOSURE

- In compliance with **DOT 49 CFR §178.2 (c)**, persons shipping Skolnik drums must comply with the following closure instructions. Failure to do so will invalidate the UN and 7A ratings of Skolnik drums.
- Use of components other than those supplied with the drum (or identical replacement parts from Skolnik) will also invalidate the UN rating.

- STEP 1: CHECK GASKET** – inspect cover gasket is properly fitted in cover groove (fig 1 or 2).
- STEP 2: PLACE COVER ON DRUM** – (fig 3) being careful to properly seat gasket around curl.
- STEP 3: POSITION & SEAT RING** – with lugs downward. Ensure the inner channel of the closure ring engages entire drum curl and cover (fig 4). Apply downward pressure on cover, use a rubber mallet to hammer ring to further seat ring, cover & drum curl into inner channel of ring.
- STEP 4: INSTALL BOLT** – insert bolt through unthreaded lug, screw bolt into locking nut, then into threaded lug (fig 5).
- STEP 5: CLOSE DRUM** – tighten bolt (using downward pressure on the cover and hammering outside of ring with a rubber mallet will assist closing process). Continue tightening and hammering ring until the ends of the ring reaches the maximum gap shown in the chart below.
- NOTE:** Ring ends should not touch and ring must be in a fixed position. The lock nut must be tightened against the un-threaded lug. (fig 6)

| RING GAP REQUIREMENTS | | |
|-----------------------|----------------|---|
| DRUM SIZE | U.N. MARKINGS | MAX GAP |
| 5 – 16 gal | liquid & solid | .500" (12.70 mm) |
| 20 – 110 gal | liquid & solid | .125" (3.175 mm) |
| 5 – 110 gal | solids only | 1.00" (25.4 mm) |
| 55 gal composite | liquid | .850 (21.95 mm) |
| 55 gal 7A rating | solids only | OPTION A: close to 1" gap, then torque to 25 ft-lbs OPTION B: close to .125" gap |



PERFORMANCE NOTICE

Ring gap compliance is critical for the performance of Skolnik drums. Closure is assured by compressing the cover and gasket to the drum body. This is achieved when the final tightened ring gap (therefore final ring diameter) meets the specifications listed.

IMPORTANT

Please contact Skolnik Industries for further instructions if encountered with difficulties in meeting the above requirements.
 Do not ship the drum.

OPEN AND CLOSED HEAD DRUMS WITH FITTINGS

- STEP 1: CHECK GASKETS** – inspect plugs for proper gasket seating
- STEP 2: INSTALL PLUG** – do not cross thread
- STEP 3: TIGHTEN** – use specification listed below:

| PLUG TYPE | Tri-Sure | | PE/PP (composite drums) | Rieke (plastic) | Rieke (steel) | | Nuc-Fil filters |
|-----------|-----------|----------------|----------------------------|-----------------|---------------|-----------|--------------------|
| | Buna | poly or Teflon | | | poly | all other | |
| ¾" plug | 12 ft-lbs | 20 ft-lbs | — | 9 ft-lbs | 20 ft-lbs | 15 ft-lbs | 8 - 12 ft-lbs |
| 2" plug | 20 ft-lbs | 30 ft-lbs | 10 ft-lbs | 20 ft-lbs | 40 ft-lbs | 30 ft-lbs | — |

IMPORTANT

- 1 Under the applicable DOT regulations, any changes made to the method of closure or closure components constitute a change in the design type of this packaging, and invalidate the embossed certification.
- 2 After filling and prior to transport, the shipper should check the tightness of closures to determine if the effects of heating, cooling or gasket relaxation have resulted in the need to tighten the closure.
- 3 Drums (other than the composites) are tested at room temperature.
- 4 Skolnik Industries can supply torque wrenches for plugs.

Please contact Skolnik Industries with questions regarding this information.

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