

Quality Assurance and Regulatory Affairs  
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October 6, 2021

**UN/DOT Design Type Certification**

<b>Report No:</b>	P-249-XX-211005	<b>Test Type:</b>	New Variation
<b>Test Date:</b>	October 5, 2021	<b>Expiration Date:</b>	October 5, 2022
<b>Test Facility:</b>	Greif – Alsip, IL Technical Center 4300 W 10th Street Alsip, IL 60803		

Attached are our laboratory test result sheets of the UN/DOT Performance Test on the plastic drums that were conducted at the above test facility location.

This design is manufactured at the following location(s): Lockport.

These sample containers, that were made with the proper components, passed the required tests for the following UN Marking(s):

1H2/X150/S 1H2/Y150/S 1H2/Z150/S

Thank you and best regards.

A handwritten signature in black ink, appearing to read "P. Zamperin", written over a horizontal line.

Phil Zamperin  
Director, Quality Assurance and Regulatory Affairs

This test report is the property of Greif. The know-how, methods and techniques disclosed in this report are confidential information which can only be used by those persons with specific written authorization from Greif.

**Quality Assurance and Regulatory Affairs  
United Nations/IMO/DOT  
Performance Test**



**DESIGN TYPE Details**

**Report No:** P-249-XX-211005  
**Date Tested:** October 5, 2021  
**Qualification Date:** March 5, 2010  
**Drum Style:** OS55  
**Drum Type:** Plastic Open Head Straight  
**UN Certified Marking(s):**



1H2/X150/S



1H2/Y150/S



1H2/Z150/S

**Diameter:** 23 inches  
**Overall Height:** 36.8 inches  
**Tare Weight:** 20.2 lbs  
**Gallon Capacity:** 55 gal  
**Resin:** GB1  
**Lifting Ring:** None  
**Poly Bag:** None  
Additional components - see next page

**Drum Construction:**

Drum is blow molded by forming a molten tube (referred to as the parison or preform) of thermoplastic resin which is placed within a drum mold cavity and inflated with compressed air to take the shape of the cavity, which is then cooled before removing from the mold. If present in the design, the mold has inserted collars that are preformed to shape the molded threaded inserts. When top is removable, the cover will have a sealing gasket inserted in the channel around the periphery of the cover. Covers are fixed with a locking ring.

**Quality Assurance and Regulatory Affairs  
United Nations/IMO/DOT  
Performance Test**



**DESIGN TYPE Details - Additional Components**

**Report No:** P-249-XX-211005

**Date Tested:** October 5, 2021

**UN Certified Marking(s):**



1H2/X150/S



1H2/Y150/S



1H2/Z150/S

The following components have undergone DOT qualification testing as described in the Original Design Type Result Sheet using the same conditions and procedures, and meet the requirements of §178.601(g)(5):

**COVER**

<u>Material</u>	<u>Description</u>	<u>Thickness</u>
Plastic	Rib w/2" & 2" w/Flowed-in Gasket	.090
Plastic	Rib w/2" & 2" Combo w/Flowed-in Gasket	.090
Plastic	Rib Plain w/Flowed-in Gasket	.090
Plastic	Hi-Tech Plain w/Flowed-in Gasket	.090
Plastic	Rib w/2" & 2" Combo Vented w/Flowed-in Gasket	.090
Plastic	Hi-Tech Plain w/Chlorine Resistant Gsk	.090

**CLOSING RINGS**

<u>Material</u>	<u>Style / Thickness</u>
Steel	Exl 16ga
Steel	BR 16ga

**Notes:**

1. Plug elastomer gaskets include EPDM, BUNA and Viton. All other gasket materials should be denoted in the tested design. For specific plug gasket and torque instructions, please refer to your product specific closure instruction on the packing slip.
2. See attached closure notification for torque values for applicable rings on test drum.
3. If torques for components are not included on the attached closure, the components were supplied by the customer for testing. Proper closure of the unit is the responsibility of the shipper.
4. Closures supplied by Greif for this design have been fully qualified throughout the packaging design history, and the closures on this report may not include all qualified closures for this design. Please consult Greif Quality Assurance and Regulatory Affairs for specific question regarding closure qualification. In the event a closure that is not qualified by Greif is substituted by the customer, the certified mark should be voided and removed from the package. It is the responsibility of the customer to ensure that any substituted closures meet the requirement of CFR 49 178.601 and this report cannot be used as evidence of compliance to the certified marking.

**Quality Assurance and Regulatory Affairs  
United Nations/IMO/DOT  
Performance Test**



**NEW DESIGN RESULT SHEET**

**Report No:** P-249-XX-211005  
**Date Test:** October 5, 2021  
**Qualification Date:** March 5, 2010  
**Drum Style:** Plastic Open Head Straight  
**UN Certified Marking(s):**



1H2/X150/S



1H2/Y150/S



1H2/Z150/S

<b>Maximum Capacity:</b>	208.5 Litres	55 Gallons
<b>Capacity:</b>	208.5 Litres	55 Gallons
<b>Test Mass - Gross:</b>	150.0 KG	330.7 Lbs
<b>Tare:</b>	9.5 KG	21.0 Lbs
<b>Net:</b>	140.5 KG	309.7 Lbs

**Static Compression Test (49 CFR 178.606)**

Package Preparation: Drums filled to 95% minimum capacity, with material similar in density sufficient to represent the gross mass package weight indicated in the certification, min grain size 125 micrometers

Conditioning: Ambient

Total Mass:	346 KG ( 2.3 Units x 150.0 KG each)
Duration:	24 Hours
Results:	3 Units Passed

**Drop Test (49 CFR 178.603)**

Package Preparation: Drums filled to 95% minimum capacity, with sand and sawdust (min grain size 125micrometers)

Conditioning: Container and contents at -18°C (0°F)

Drop Height:	1.8 Metres / 70.9 Inches
Diagonal Top Drop   On closure handle:	3 Units Passed
Flat Drop   On sidewall, On closure handle:	3 Units Passed

**Vibration Test (49 CFR 178.608)**

Capable of withstanding, without rupture or leakage, the vibration test procedure In 49 CFR 178.608.

**Leakproofness (49 CFR 178.604)**

Not Applicable

**Hydraulic (Hydrostatic) (49 CFR 178.605)**

Not Applicable

**TEST RESULTS CERTIFIED BY:**

**Quality Assurance and Regulatory Affairs**

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**Phil Zamperin**  
**Director, Quality Assurance and Regulatory Affairs**

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## OPEN HEAD CLOSURE NOTIFICATION

**Product Type:** P11

**Country:** USA

Pursuant to the requirements of the Department of Transportation in CFR 49 Part 178.2(c)(1), this is your notification of the closing method used for the containers sold to you. This method of closure should be used to ensure that your containers have been closed in the same manner as when they were initially tested.

To be UN certified, this drum must be closed with the same cover and closing ring used for certification. If drum is purchased without these parts, contact the supplying Greif plant for the correct cover and closing ring.

Your product may adversely affect container materials, bung threads, or closing devices. Product compatibility with the container is the shipper's responsibility.

These instructions for closure are based upon the closure methods used to enable these containers to pass the United Nations test requirements as outlined by the UN marking on the package.

The closure recommendations do not take into account any hazards present at your facility, or the handling, filling or shipping of your product.

Any container used for packaging hazardous materials should be inspected before filling and shipment. Containers with obvious damage or deterioration should not be filled or shipped.

### To Close:

1. Covers supplied with the drums must be attached to the drums with lever-action or bolt ring locking bands, as supplied with the drums.
2. Place the plastic cover on the top of the open head plastic drum.
  - a. Steel lever-action locking band – The channel shaped locking band is drawn around the cover by the lever closing device and secured in place with a latch device. Snap the latch into the lever until it locks, then apply a sealing wire or other sealing device through the holes on the latch lever.
  - b. Plastic lever-action locking bands – The channel shaped locking band is drawn around the cover by the lever closing device. The lever closing device is secured in place with the locking tab that protrudes through a slot in the handle. Snap the latch into the lever until it locks, then apply a sealing wire or other sealing device through the holes on the latch lever.
  - c. Bolt-Ring locking band – Place the locking band around the cover and top lip of the drum with the ring's lugs pointing down.
    - i. If one of the lugs is threaded, insert the bolt first through the unthreaded lug, then screw on the jam nut, if included. Then thread the bolt through the threaded lug. Jam nut should be between the lugs.
    - ii. If both lugs are unthreaded, insert the bolt completely through both lugs and screw on the jam nut to the outside of the second lug.
    - iii. If a shoulder bolt is used, insert the bolt completely through both lugs.Once the bolt and nut, if used, are in place, tighten the bolt until the ends of the locking band (not lugs) is no more than 1/2". Also verify that the cover and ring do not spin.

3. For covers with fittings: 2" fittings bearing NPS thread must be tightened to a torque level of 9 FT-LBS, and 3/4" fittings bearing NPS threads must be tightened to a torque level of 3 FT-LBS.
4. Drums closed in this manner have met the UN performance test requirements as specified in the container markings.