

Quality Assurance and Regulatory Affairs  
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June 3, 2021

**UN/DOT Design Type Certification**

<b>Report No:</b>	P-308-XX-210602	<b>Test Type:</b>	Periodic Retest
<b>Test Date:</b>	June 2, 2021	<b>Expiration Date:</b>	June 2, 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): Bradley Pd, Hazleton, Houston-Plastic, Lavonia, Lockport, Merced, Mt. Sterling.

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

1H1/Y1.9/150

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-308-XX-210602  
**Date Tested:** June 2, 2021  
**Qualification Date:** June 22, 2016  
**Drum Style:** GP55-3  
**Drum Type:** Plastic 1 Pc Tight Head  
**UN Certified Marking(s):**  1H1/Y1.9/150

**Diameter:** 23 inches  
**Overall Height:** 34.8 inches  
**Tare Weight:** 20.3 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.

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**DESIGN TYPE Details - Additional Components**

**Report No:** P-308-XX-210602  
**Date Tested:** June 2, 2021  
**UN Certified Marking(s):**  1H1/Y1.9/150

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):

**FITTINGS**

<u>Size</u>	<u>Plug Description</u>	<u>Plug Material</u>	<u>Plug Gasket</u>
2"	NPS	Poly	EPDM Gasket
2"	BTR	Poly	EPDM Gasket
56x4	BTR	Poly	EPDM Gasket


**Notes:**

1. 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**



**RETEST DESIGN TYPE RESULT SHEET**

**Report No:** P-308-XX-210602  
**Date Test:** June 2, 2021  
**Qualification Date:** June 22, 2016  
**Drum Style:** Plastic 1 Pc Tight Head  
**UN Certified Marking(s):**  1H1/Y1.9/150

<b>Maximum Capacity:</b>	215.7 Litres	56.9 Gallons
<b>Capacity:</b>	208.5 Litres	55 Gallons
<b>Test Mass - Gross with water:</b>	220.9 KG	486.8 Lbs
<b>Tare:</b>	9.7 KG	21.4 Lbs
<b>Net:</b>	211.2 KG	465.4 Lbs

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

Package Preparation: Empty Package  
Conditioning: Ambient

Total Mass: (2.4 Units \* 411 KG Each) 1.5 x Static Load = 1,479 KG  
Results: 3 Units Passed

**Drop Test (49 CFR 178.603)**

Package Preparation: Fill to 98% minimum capacity, Anti-freeze solution of specific gravity no less than 0.95  
Conditioning: 24 Hrs container and contents at -18°C (0°F)

Drop Height: 1.9 Metres / 74.8 Inches  
Diagonal Top Drop | On fitting at 6 o'clock: 3 Units Passed  
Flat Drop | On sidewall, with fitting at 6 o'clock : 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 Test (49 CFR 178.604)**

Package Preparation: Drums are to be empty  
Conditioning: Ambient

Air Pressure Applied: 20 kPa / 3 psi  
Duration: 5 Minutes  
Results: 3 Units Passed

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

Package Preparation: Filled with ambient temperature water greater than 12 degree celsius  
Conditioning: ambient

Internal (Hydraulic) Pressure: 150 kPa  
Duration: 30 Minutes  
Results: 3 Units Passed

**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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## TIGHT HEAD CLOSURE NOTIFICATION

**Product Type:** PTH

**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.

Your product may adversely affect container materials, bung threads or closing devices. Product compatibility with the container is the customer(s)/filler(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 in your facility, or the handling, filling or shipping methods used by your facility.

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

### To Close:

1. Openings in tight head plastic drums **must be** fitted with plugs bearing NPS and/or buttress threads.
2. Plugs must be fitted with gaskets appropriate to the plug size and design.
3. Plugs must be placed into the appropriate openings and tightened to the following torque levels:
  - a. 2" NPS or Buttress = 20 ft-lbs
  - b. 2.6" NPS or Buttress = 18 ft-lbs
  - c. 56x4 European Buttress = 20 ft-lbs
  - d. 3/4" NPS or Buttress = 9 ft-lbs

Manufacturer Specific:

  - e. Micromatic 2" poly fittings = 20 ft-lbs
  - f. Micromatic 2" steel Buttress dip tube valve = 25 ft-lbs
  - g. Taylor Cain 2" Buttress, micro valve or dry break valve = 25 ft-lbs
  - h. Taylor Cain 2" NPS or 2" Buttress agitator fitting = 20 ft-lbs
  - i. Taylor Cain 3/4" or 1" fitting = 2 ft-lbs
  - j. Dynamix 2" Buttress agitator fitting = 20 ft-lbs
  - k. AS Plastics 2" Buttress dip tube plug or 2" NPS Combo plug = 24.34 ft-lbs
  - l. AS Plastics 3/4" fitting = 3.69 to 4.43 ft-lbs
  - m. ASV Plastics 2" Buttress Dry Break, Microvalve or Agitator fitting = 25 ft-lbs
  - n. Colder Products DrumQuik Buttress drum insert = 20 ft-lbs
4. Drums closed in this manner have met the UN performance test requirements as specified in the container markings.