

Testing and Technical Service Office

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July 24, 2018

UN/DOT DESIGN TYPE CERTIFICATION

Report No: P-1308-XX-072318

Test Date: 7/23/2018

Expiration Date: 7/23/2019

Attached are our laboratory test result sheets of the UN/DOT Performance Test on the Plastic drums that were sent to the Greif - Alsip, IL Technical Center.

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

1H1/Y1.9/150/YR

Thank you and best regards.

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

Phil Zamperin

Director Product Technical and Regulatory Support

PZ:ch

Attachments: Performance Test Result Sheets (2)
Closure Notifications (1)

TESTING and TECHNICAL SERVICE OFFICE


UNITED NATION/IMO/DOT
PERFORMANCE TEST



Date Tested: 7/23/2018
Report #: P-1308-XX-072318
Closure Notification: 002-P

DESIGN TYPE RESULT SHEET

Drum Style: Plastic 1 Pc Tighthead UN Code: 1H1 Packing Group: II
GBC Code / Drum Type: PG553ABBDUFAXXXX / GP55-3 / TIGHTHEAD
Dimensions: O.D.: 591.820 MM / 23.3 In. O.H.: 883.920 MM / 34.8 In.

UN Certified Markings:  1H1/Y1.9/150/YR
USA/GBC

Maximum Capacity: 218.8 Litres / 57.8 Gallons
Capacity: 208.2 Litres / 55 Gallons
Test Mass - Gross: 217.3 KG / 479.1 Lbs.
Tare (min.nominal): 9.2 KG / 20.4 Lbs.
Net: 208.0 KG / 458.7 Lbs.

Package Preparation: Drums filled to a minimum of 98% capacity with an Antifreeze Solution of not less than 0.95 specific gravity.

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

Drop Tests (49 CFR 178.603)

Drop Height: 1.90 Metres / 74.8 Inches
Results Diagonal Top Drop: **3 Drums Passed**
Results Flat Drop: **3 Drums 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)

Air Pressure Applied: 20 kPa
Results after 5 minutes: **3 Drums Passed**

Hydraulic (Hydrostatic) Test (49 CFR 178.605)

Internal (Hydraulic) Pressure: 150 kPa for a period of 30 minutes
Results: **3 Drums Passed**

Static Compression Test (49 CFR 178.606)

Total Mass: 999.3 KG (2.4 Drums x 416.4 KG each)
Duration: 28 Day
Results: **3 Drums Passed**

TEST RESULTS CERTIFIED BY: **GREIF TESTING and TECHNICAL SERVICES**


Phil Zamperin

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.

Director, Product Technical
and Regulatory Support Page 2 of 4

TESTING and TECHNICAL SERVICE OFFICE

UNITED NATION/IMO/DOT

PERFORMANCE TEST




VARIATION TO DESIGN TYPE RESULT SHEET

Report #: P-1308-XX-072318

Drum Style: Plastic 1 Pc Tighthead UN Code: 1H1 Packing Group: II

GBC Code / Drum Type: PG553ABBDUFAXXXX / GP55-3 / TIGHTHEAD

Dimensions: O.D.: 591.82 MM / 23.3 In. O.H.: 883.92 MM / 34.8 In.

UN Certified Markings:  1H1/Y1.9/150/YR USA/GBC

For package preparation, weights and capacity information, consult the Original Design Type Result Sheet.

The following variations 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>Var #</u>	<u>Supplier/Fitting Type</u>	<u>Size</u>	<u>Thread</u>	<u>Flange</u>	<u>Plug</u>
Orig	Tri-Sure	2"	BTR	Poly	Poly
	Tri-Sure	2"	NPS	Poly	Poly

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Phil Zamperin
 Director, Product Technical
 and Regulatory Support

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GREIF
CLOSURE INSTRUCTIONS FOR FITTINGS

Pursuant to the requirements of the Department of Transportation in CFR 49 Part 178.2(c)(1), 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. If there is any question regarding proper closing methods, contact your local Greif salesperson or manufacturing facility. "Effective until further notice".

To Close:

- 1) Insert and tighten all fittings into their appropriate threaded flanges until snug.
- 2) Using a torque wrench, tighten each fitting to the correct torque. See the list below for correct torques. Torques are based on closure manufacturer's recommendations.
- 3) If this is an open head drum, follow the additional closing instructions for top head.
- 4) Drums closed in this manner have met the UN performance test requirements as specified in the container markings.

Fittings/Original Design Type:

<u>Brand</u>	<u>Size</u>	<u>Flange</u>	<u>Plug</u>	<u>Torque Foot Lbs</u>
Tri-Sure	2" BTR	Poly	Poly	20
Tri-Sure	2" NPS	Poly	Poly	20

Report #: P-1308-XX-072318
GBC Code / Drum Type: PG553ABBDUFAXXXX / GP55-3
Date Tested: 7/23/2018
Technician: MC (Sample drums were closed exactly as described above.)

This UN test certification report form is a sample of the closure notification form. The data on this form reflect the components of the tested sample drums; it details the closing methods followed at the lab for the fittings supplied.

The closure notification form should be completed using information from the actual customer specification, referencing fitting type, manufacturer and gasket, along with the associated torque values for the closures supplied. These values may differ from the sample closing instructions supplied with the UN

To obtain this form for your customer service use, contact: Greif -Testing and Technical Services
366 Greif Parkway, Delaware, OH 43015
(740) 657-6565