Quality Assurance and Regulatory Affairs
366 Greif Parkway
Delaware, Ohio 43015
Phone: 740 657 6500

November 4, 2024

UN/DOT Design Type Certification

Report No:	S-1307-AL-241101	**Test Type:**	New Variation
Test Date:	November 1, 2024	**Expiration Date:**	November 1, 2025
Test Facility:	Greif – Alsip, IL Technical Center 4300 W 130th Street Alsip, IL 60803	**Manufacturing Plant:** **Registered Symbol:**	Alsip Sd GBC

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

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

1A1/X1.8/300 1A1/Y1.8/300 1A1/Z1.8/300

Thank you and best regards.

Phil Zamperin
Sr. Director, Quality Assurance and Regulatory Affairs

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

DESIGN TYPE Details

Report No:	S-1307-AL-241101
Date Tested:	November 1, 2024
Qualification Date:	December 1, 2007
Drum Style:	TH
Drum Type:	Steel Tight Head
UN Certified Marking(s):	1A1/X1.8/300 1A1/Y1.8/300 1A1/Z1.8/300
Diameter:	22.5 inches
Overall Height:	34.75 inches
Tare Weight:	36.8 lbs
Gallon Capacity:	40 - 55 gal
Steel (T/B/B):	1.2 / .9 / 1.2
Hoops / Corrugations:	2 Hoops
Necked-In Top:	No
Necked-In Bottom:	No
Tapered:	No
Bag/Tubing/Liner Mil:	None
Seal Top:	None
Composite Bottle:	None
Agitator:	No
End Seam Type:	Triple
Chime Bands:	No
Cover Gasket:	None

Additional components - see next page

Drum Construction:
Shell body is formed with longitudinally welded side seam, bottom end is mechanically seamed as indicated to lock bottom and shell together. Top end is mechanically seamed as indicated, or rolled outward to form a curl that allows for the attachment of a cover and locking ring. When top is removable, the cover has a sealing gasket inserted in the channel around the periphery of the cover. The cover is fixed with a locking band. Body or cover may contain fittings that are mechanically inserted as described in this report.

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

DESIGN TYPE Details - Additional Components

Report No: S-1307-AL-241101
Date Tested: November 1, 2024
UN Certified Marking(s): 1A1/X1.8/300 1A1/Y1.8/300 1A1/Z1.8/300

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

Size	Flange Material	Plug Material	Plug Gasket	Location
2"	Steel	Steel	Poly Gsk	Head
3/4"	Steel	Nylon	Poly Gsk	Head
3/4"	Steel	Steel	Poly Gsk	Head
2"	Steel	Steel	EPDM Gasket	Side Btm
2"	Steel	Nylon	Poly Gsk	Head
3/4"	Steel	Steel	EPDM Gasket	Head
2"	Steel	Steel	EPDM Gasket	Head
2"	Steel	Nylon	EPDM Gasket	Head
3/4"	Steel	Nylon	EPDM Gasket	Head
2"	Steel	Steel	Viton Gasket	Head
3/4"	Steel	Steel	Viton Gasket	Head
2"	Steel	Nylon	EPDM Gasket	Head
3/4"	Steel	Nylon	EPDM Gasket	Head

Notes:

1. Plug elastomer gaskets include EPDM, BUNA. 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 Affair for specific questions 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:	S-1307-AL-241101
Date Test:	November 1, 2024
Qualification Date:	December 1, 2007
Drum Style:	Steel Tight Head
UN Certified Marking(s):	1A1/X1.8/300 1A1/Y1.8/300 1A1/Z1.8/300

Maximum Capacity:	219.1 Litres	57.8 Gallons
Capacity Range:	151.6 - 208.5 Litres	40 - 55 Gallons
Test Mass - Gross with water:	231.4 KG	510.0 Lbs
Tare:	16.8 KG	37.1 Lbs
Net:	214.6 KG	472.9 Lbs

Dynamic Compression Test (0)

Total Mass:	(2.5 Units * 596 KG Each) 1.5 x Static Load = 2,234 KG
Results:	3 Units Passed

Leakproofness Test (49 CFR 178.604)

Package Preparation: Drum are to be empty for the duration of the test
Conditioning: Ambient

Pressure Applied:	30 kPa / 4.4 psi
Duration:	5 Minutes
Results:	3 Units Passed

Hydraulic (Hydrostatic) Test (49 CFR 178.605)

Package Preparation: Brim full and purged of air
Conditioning: Ambient

Pressure:	300 kPa / 43.6 psi
Duration:	5 Minutes
Results:	3 Units Passed

Drop Test (49 CFR 178.603)

Package Preparation: Fill 98% minimum capacity with water
Conditioning: Ambient

Drop Height:	2.7 Metres / 106.3 Inches
Diagonal @ top chime and largest fitting:	3 Units Passed
Diagonal @ bottom chime and weld seam:	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.

TEST RESULTS CERTIFIED BY:
Quality Assurance and Regulatory Affairs

Phil Zamperin
Sr. Director, Quality Assurance and Regulatory Affairs

S77 Greif Packaging LLC

********** CLOSURE NOTIFICATION **********

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 the containers sold to you.

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. 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 plugs used for certification. If the drum is purchased without these parts, contact the supplying Greif plant for the correct components.

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

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.

NOTE: If drums are filled with products outside the marked rating, the warranty is null and void.

Plug Closing Instructions:

---

1) Place the plugs into the appropriate bung.
2) Turn the plug gently clockwise, making sure that the plug is entering the bung properly.
3) Using a torque wrench, tighten the plug according to the manufacturer's recommended torque below.

Drums with plugs closed in this manner have met the UN performance requirement as specified in the container markings.

January 26, 2023 - rev.1

SCAN QR CODE BELOW TO SEE VIDEO GUIDANCE MATERIALS ON HOW TO CLOSE YOUR PACKAGE

For Item # DRST00192NA20008

Plugs

Tri-Sure 2" Steel with EPDM	20	ft-lbs
Tri-Sure 2" Steel with EPDM	20	ft-lbs
Tri-Sure 2" Nylon with EPDM	22	ft-lbs
Tri-Sure 3/4" Steel with EPDM	13	ft-lbs
Tri-Sure 3/4" Nylon with EPDM	9	ft-lbs
Tri-Sure 2" Steel with Viton	20	ft-lbs
Tri-Sure 3/4" Steel with Viton	13	ft-lbs

S77 Greif Packaging LLC

********** CLOSURE NOTIFICATION **********

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 the containers sold to you.

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. 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 plugs used for certification. If the drum is purchased without these parts, contact the supplying Greif plant for the correct components.

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

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.

NOTE: If drums are filled with products outside the marked rating, the warranty is null and void.

Plug Closing Instructions:

---

1) Place the plugs into the appropriate bung.
2) Turn the plug gently clockwise, making sure that the plug is entering the bung properly.
3) Using a torque wrench, tighten the plug according to the manufacturer's recommended torque below.

Drums with plugs closed in this manner have met the UN performance requirement as specified in the container markings.

January 26, 2023 - rev.1

SCAN QR CODE BELOW TO SEE VIDEO GUIDANCE MATERIALS ON HOW TO CLOSE YOUR PACKAGE

For Item # DRST00192NA20003

Plugs

Tri-Sure 2" Steel with EPDM	20	ft-lbs
Tri-Sure 3/4" Steel with Poly Irradiated	16	ft-lbs
Tri-Sure 2" Steel with Poly Irradiated	20	ft-lbs
Tri-Sure 2" Nylon with Poly Irradiated	22	ft-lbs
Tri-Sure 3/4" Nylon with Poly Irradiated	9	ft-lbs

S77 Greif Packaging LLC

********** CLOSURE NOTIFICATION **********

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 the containers sold to you.

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. 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 plugs used for certification. If the drum is purchased without these parts, contact the supplying Greif plant for the correct components.

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

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.

NOTE: If drums are filled with products outside the marked rating, the warranty is null and void.

Plug Closing Instructions:

---

1) Place the plugs into the appropriate bung.
2) Turn the plug gently clockwise, making sure that the plug is entering the bung properly.
3) Using a torque wrench, tighten the plug according to the manufacturer's recommended torque below.

Drums with plugs closed in this manner have met the UN performance requirement as specified in the container markings.

January 26, 2023 - rev.1

SCAN QR CODE BELOW TO SEE VIDEO GUIDANCE MATERIALS ON HOW TO CLOSE YOUR PACKAGE

For Item # DRST00192NA20009

Plugs

Tri-Sure 2" Steel with EPDM	20	ft-lbs
Tri-Sure 2" Nylon with EPDM	22	ft-lbs
Tri-Sure 3/4" Nylon with EPDM	9	ft-lbs