Certification of the

TH Series (1.8 SG) Non-removable Head Plastic Drum Under The Performance Requirements Of UN Code 1H1

Reference File #2-972

Note: The purchaser of this container must ensure

1) The vented closures are not approved for air shipments.
2) Chemical compatibility is the responsibility of the filler.
3) This UN Container is for a specific gravity of 1.8 (maximum), group II or group III chemicals.
4) Closing instructions noted in this report is the responsibility of the distributor and/or filler of this container.
5) Distributor must ensure filler is fully aware of requirements

Submitted By: Fadia Hakim, Quality Manager

Revision History

Item Revised	Level Revised	Description of Revision	Approved By	Date Approved
Date	1	Renewing file registration Mac 38mm 400 and 38mm Child Resistant Closures added	PRS	Aug 19, 2008
Report Template	2	Updated report and will send for re-certification	PRS	August 5, 2014
Report Template	3	Updated report and will send for re-certification	PRS	May 4, 2015
Report Template	4	Updated report with closing Tool FS-600 in place of FS 800	DLW	November 29, 2021
Form D	5	Removed form D	DLW	December 7, 2021
Various	6	- Updated Design Table - Added bottle 5-digit codes/drawing reference.	FH	July 9, 2026

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UN REPORT

Reference File #2-972
Revision: 6
Date: July 9, 2026

Introduction

The objective of this report is to certify the performance of our TH Series Containers; manufactured and tested at Silgan (Cousins- Currie) plant in Woodbridge, Ontario; to CAN/CGSB-43.150-M97 Standard. The package is defined as follows:

Packaging Designation	Packaging Groups	Specific Gravity	Transportation
1H1 - Non-removable head plastic drum	Group II & Group III	1.8 (Maximum)	Approved for transportation by air, land and marine.

The TH containers feature an interchangeable 63mm Tamper Evident neck finish or a 63mm threaded neck either with or without a no-glug feature. The referenced product drawings will show the design is the same for all sizes, where the length and width dimensions are constant and the height varies. All test drums were randomly selected from design qualification samples, which were manufactured to weight, wall thickness and neck finish specifications. All tests were performed according to UN 1H1 performance requirements standard, except for the chemical compatibility test, which is dependent on user experience and will be indicated as such to customers.

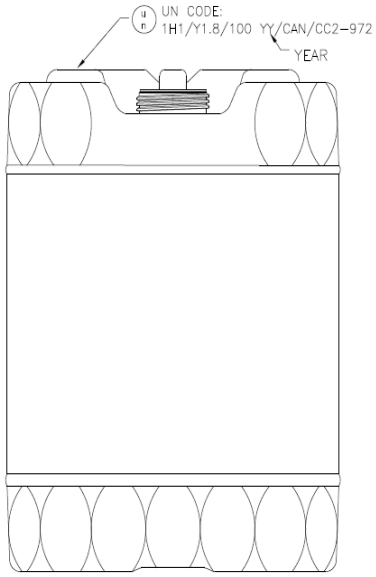
Customers Responsibilities:

- Chemical Compatibility – customer must assess the compatibility of their chemical with the container.
- Packaging – Customer must ensure compliance with the specified closures, recommended torque and closing instructions.

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Design

Capacity	Minimum Weight	Body Dimensions			Drawing
		H	Diameter	Label HT	
20 Litre	1100 grams	385mm	296mm	230mm	
5 US Gal	1100 grams	365mm	296mm	215mm	
8 US Gal/30L	1400	546	296mm	390mm	

Note: All containers listed were designed to the necks and closures listed on next page. A detailed engineering drawing of the container, referencing the required neck finish will be provided upon request.

Design

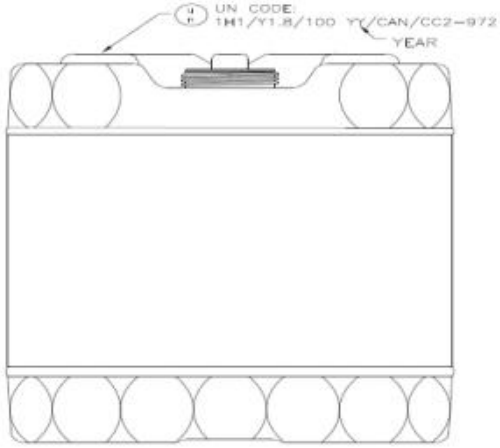
Packaging Designation	Container	Closures (with corresponding bottles)
1H1 - Non-removable head plastic jerrican	**TH** extrusion blow molded using HDPE regrind/virgin mixture resin of typical melt index of 15 to 25 dg/min and typical density of 0.95 g/cc. **<u>See 5 Digit Code/Drawings:</u>** - **33609** *(TH-20L-63SC)* - **33612** *(TH-30L-63SC)* - **33614** *(TH-5US-63SC)* - **33616** *(TH-5US-63 CN)* - **33618** *(TH-5IM-63SC)* - **33622** *(TH-20L-70mmR)* - **33624** *(TH-30L-70mmR)* - **34376** *(406120-01-B - 5US TH 70mmR)*	**C63420000B01 - SC63R – Rieke 63mm Cap** - 33609 - 33611 - 33612 - 33614 - 33618 **FS-10-10 & Uni Grip - 63MM Crimp Neck** - 33616 **C70140000B01 - 70mm Ratchet SC-76RTE 6TPI Neck** - 33622 - 33624 **C70130000B01 - 70 mm SC-76R 6TPI Neck** - 34376

Form A - Closing Instructions for Rieke Neck Finish: SC63R

Form A - Closing Instructions for 1H1 and 3H1 Containers:

Neck Finish: SC63R
UN File # for 3H1: 2-1746, 2-1483,
UN File # for 1H1: 2-972







SC-63R
Has a 3/4" (20mm) threaded opening for use with the FLO-RITE faucet (see Rieke/Englass catalog).

For effective application of the SC Closures, the W-400-5 Wrench shown below is recommended.



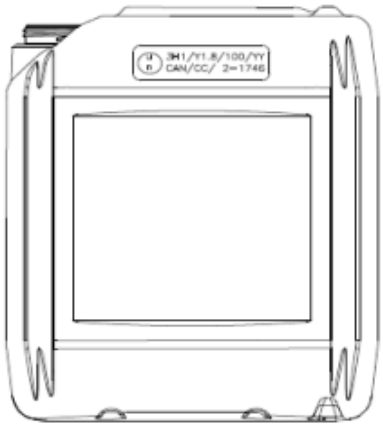
Closure may be applied manually or with the aid of automated equipment. Prior to production, recommendation is to calibrate as noted below to ensure proper cap seating and torque:

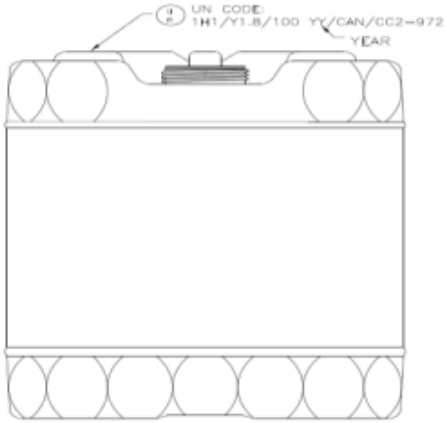
- **Place container on a level surface.**
- **Place closure parallel along Sealing Surface of Container.**
- **Turn closure in a clockwise direction along Neck Finish (*ensure that cross- threading does not occur)***
- **Apply 100 inch- pounds of torque to closure for effective sealing.**

Form B - Closing Instructions for Neck Finish: (8TPI) FS-60, FS-70, FS-80, FS-70-T, FS-80-T & (6TPI) SC76R

Form B - Closing Instructions for 1H1 and 3H1 Containers:

Neck Finish: Rieke Necks(8TPI) FS-60, FS-70, FS-80, FS-70-T, FS-80-T; (6TPI) SC76R
UN File # for 3H1: 2-1746, 2-1483,
UN File # for 1H1: 2-972





70mm Plastic Screw Caps (FS Series). For the easiest application and removal of these caps, the W-397 (see below) wrench is recommended.





Closure may be applied manually or with the aid of automated equipment. Prior to production, recommendation is to calibrate as noted below to ensure proper cap seating and torque:

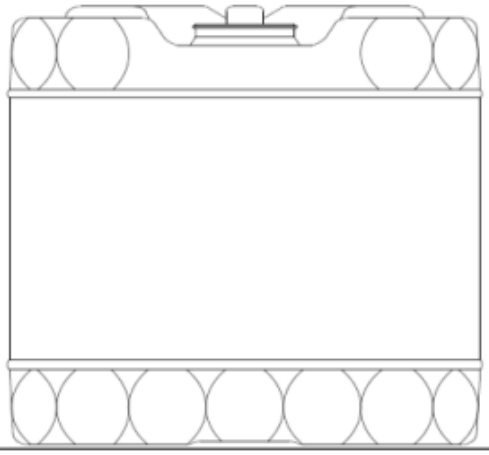
- **Place container on a level surface.**
- **Place closure parallel along Sealing Surface of Container.**
- **Turn closure in a clockwise direction along Neck Finish (*ensure that cross- threading does not occur)***
- **Apply 120 inch- pounds of torque to closure for effective sealing.**

Form C - Closing Instructions for Rieke 63mm Crimp Neck (Flex Spout) & Tri-Sure 63mm Grip

Form C - Closing Instructions for 1H1 and 3H1 Containers:

Neck Finish: Rieke 63mm Crimp Neck (Flex Spout) & Tri-Sure 63mm Grip
UN File # for 3H1: 2-1746, 2-1483,
UN File # for 1H1: 2-972





The Rieke FS Series Caps shown below can be applied to container neck finish using the FS-600 Manual Tool shown below. Tri-Sure has a similar tool for crimpling their caps onto our containers.





Closure may be applied manually or with the aid of automated equipment. Prior to production, recommendation is to calibrate as noted below to ensure proper cap crimping:

- **Place container on a level surface.**
- **Place closure parallel along Sealing Surface of Container.**
- **Place tool onto neck (jaws open) and ensure complete engagement with cap.**
- **Close jaws to ensure cap is fully crimped. If cap is not completely crimped, a second application with the tool may be required.**

Qualification Testing

1.0 Quality Audit

Fifteen Drums of each size were randomly selected for testing purposes and in order to ensure that the test samples conformed to relevant specifications an audit was performed as follows:

1. Tare weights were recorded with an electronic, digital scale.
2. Wall thickness measurements were taken using a Magna Mike wall thickness gauge.
3. Neck finish measurements were taken using a digital vernier caliper.

Necks finish and wall thickness data are attached.

2.0 Ambient Drop Test

Six drums were filled with water to 98% of overflow capacity and capped. The drums were conditioned until temperature of each test sample and its contents stabilized at 23 degrees Celsius.

Drop tests were performed in accordance with ASTM D 997-80 standard; whereby each drum was raised to a height of 1.8 metres onto drop leaf of drop test fixture and was positioned according to the desired impact point. The drop-leaf lever hook mechanism was then manually activated, resulting in drum travelling vertically onto floor of drop test fixture testing each sample as follows:

After each drum made impact with the vented, flat, horizontal, reinforced, 1/4 inch steel floor of the drop test fixture it was raised to facilitate inspection. See appendix iii for calculation of drop height.

2.1 Ambient drop test results

Sample#	Impact point	Results		
		5US	20L	8US/30L
1	Left top edge.	Passed	Passed	Passed
2	Right top edge.	Passed	Passed	Passed
3	Edge adjacent to neck finish.	Passed	Passed	Passed
4	Left bottom edge.	Passed	Passed	Passed
5	Right bottom edge.	Passed	Passed	Passed
6	Back longitudinal seam of body.	Passed	Passed	Passed

3.0 Cold drop test

Six drums were filled with ethylene glycol water solution to 98% of overflow capacity and capped. The drums were conditioned in accordance with ASTM D 4332-84 standard; whereby each drum was placed in freezer until the temperature of each test sample and its contents stabilized at -20 degrees Celsius.

Drop tests were performed in accordance with ASTM D 997-80 standard (same as ambient drop).

3.1 Cold drop test results

Sample#	Impact point	Results		
		5US	20L	8US/30L
7	Left top edge.	Passed	Passed	Passed
8	Right top edge.	Passed	Passed	Passed
9	Edge adjacent to neck finish.	Passed	Passed	Passed
10	Left bottom edge.	Passed	Passed	Passed
11	Right bottom edge.	Passed	Passed	Passed
12	Back longitudinal seam of body.	Passed	Passed	Passed

4.0 Internal pressure (hydraulic) test

Three drums were filled to overflow capacity with water and a 0-30 psi gauge and water hose were connected .The drums were then conditioned until temperature of each sample and its contents stabilized at 23 degrees Celsius.

Water pressure was introduced gradually to each sample until a minimum pressure of 15 psi (100 kpa) was reached. This pressure was held for 30 minutes and during this time the gauge was observed for pressure drops.

4.1 Internal pressure (hydraulic) test results

Sample#	Impact point	Results		
		5US	20L	8 US/30L
13	Held pressure for 30 minutes.	Passed	Passed	Passed
14	Held pressure for 30 minutes.	Passed	Passed	Passed
15	Held pressure for 30 minutes.	Passed	Passed	Passed

5.0 Leak proofness test

Three drums were filled with water to brimful level and a 0-30 psi gauge and air hose were connected. The drums were conditioned until temperature of each test sample and its contents stabilized at 23 degrees Celsius.

5.1 Leak proofness test results

Sample#	Impact point	Results		
		5US	20L	8US/30L
16	Held pressure for 5 minutes.	Passed	Passed	Passed
17	Held pressure for 5 minutes.	Passed	Passed	Passed
18	Held pressure for 5 minutes.	Passed	Passed	Passed

6.0 Stacking test

Three drums were filled with water to 98 % of overflow capacity and capped. Individually, each sample was symmetrically placed within top load fixture onto the one-inch thick reinforced hardwood floor of the temperature controlled hot room.

The drums were conditioned in accordance with ASTM D 4332-84 standard; whereby each drum was left sitting in hot room until temperature of sample and stabilized at 40 degrees Celsius.

Stacking tests were performed in accordance with ASTM D 4577-86 standard; whereby static, balanced load (see table #3) was placed on individual samples for a 28-day period at minimum 40 degrees Celsius. The samples were then inspected for leaks.

6.1 Stacking test results

Sample#	Impact point	Results		
		5US	20L	8US/30L
16	Deflected, observed and no leakage.	Passed	Passed	Passed
17	Deflected, observed and no leakage.	Passed	Passed	Passed
18	Deflected, observed and no leakage.	Passed	Passed	Passed

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Certification

Silgan Plastics, Woodbridge Facility certifies that the previously described
Inspection/tests have been performed in accordance
With standard good laboratory practices and that
The packaging tested has passed the requirements
of UN Transport of Dangerous Goods stated
In CAN/CGSB-43.150-M97 standard.

Fadia Hakim

Fadia Hakim, Quality Manager

MARKINGS

CONTAINER
Rated capacity, manufacturing date (year & month), Cousins Currie logo (CC), cavity # and recycling symbol. UN markings: 1H1/Y.18/100/YY CAN/CC/2-972 Whereby: "yy" represents the year.

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Appendix 1 - Table of 63 mm Crimp neck

Sample	Weight (Grams)	Minimum wall thickness @ middle of side panels (Inches)	Neck finish (inches)		
			Average Height of neck	Average diameter of crimp-on lip	Average Internal diameter
#1 (10L)	1100	0.050	0.710	2.570	2.305
#2 (10L)	1100	0.050	0.710	2.560	2.305
#3 (10L)	1100	0.050	0.710	2.563	2.305
#4 (10L)	1100	0.050	0.710	2.570	2.305
#5 (10L)	1100	0.050	0.710	2.563	2.305
#6 (20L)	1100	0.050	0.710	2.565	2.305
#7 (20L)	1100	0.050	0.710	2.560	2.305
#8 (20L)	1100	0.050	0.710	2.563	2.305
#9 (20L)	1100	0.050	0.710	2.570	2.305
#10(20L)	1100	0.050	0.710	2.570	2.305
#11 (8US/30L)	1400	0.050	0.710	2.573	2.305
#12 (8US/30L)	1400	0.050	0.710	2.566	2.305
#13 (8US/30L)	1400	0.050	0.710	2.568	2.305
#14 (8US/30L)	1400	0.050	0.710	2.570	2.305
#15 (8US/30L)	1400	0.050	0.710	2.568	2.305
Average	NA	0.050	0.710	2.567	2.305

Appendix 2 - Table of Rieke SC63R 63mm Threaded Neck

Sample	Weight (Grams)	Minimum wall thickness @ middle of panel (Inches)	Neck finish (inches)	
			Average Height of neck	Average Thread Diameter
#1 (10L)	1100	0.050	0.670	2.500
#2 (10L)	1100	0.050	0.670	2.500
#3 (10L)	1100	0.050	0.670	2.500
#4 (10L)	1100	0.050	0.670	2.500
#5 (10L)	1100	0.050	0.670	2.500
#6 (20L)	1100	0.050	0.670	2.500
#7 (20L)	1100	0.050	0.670	2.500
#8 (20L)	1100	0.050	0.670	2.500
#9 (20L)	1100	0.050	0.670	2.500
#10(20L)	1100	0.050	0.670	2.500
#11 (8US/30L)	1400	0.050	0.670	2.500
#12 (8US/30L)	1400	0.050	0.670	2.500
#13 (8US/30L)	1400	0.050	0.670	2.500
#14 (8US/30L)	1400	0.050	0.670	2.500
#15 (8US/30L)	1400	0.050	0.670	2.500
Average	NA	0.050	0.670	2.500

Appendix 3 – Calculation of Drop Height and Top Load

Items		5US	20L	8US/30L
Calculation of Drop Height	Drop height is based on a maximum specific gravity of 1.8 **Drop Height (metres) = d X 1.0 = 1.8 X 1.0** Where d = actual relative density in g/cc	1.8	1.8	1.8
Calculation of superimposed load	**m1- Minimum weight (kg)**	1.100	1.100	1.400
	Overflow capacity	20.3	21.6	33.6
	m2 - Weight of filling substance with maximum s.g. of 1.8 (kg) (Overflow capacity x (specific gravity X 1000 g/cc))	36.5	38.9	60.5
	Height of container (mm)	365	385	545
	m – Gross Weight = m1+m2 (kg)	37.6	40.0	61.9
	Mass M=m(3000-h)/h (kg)	271.5	271.7	278.9
	Top Load (lbs)	599	599	615