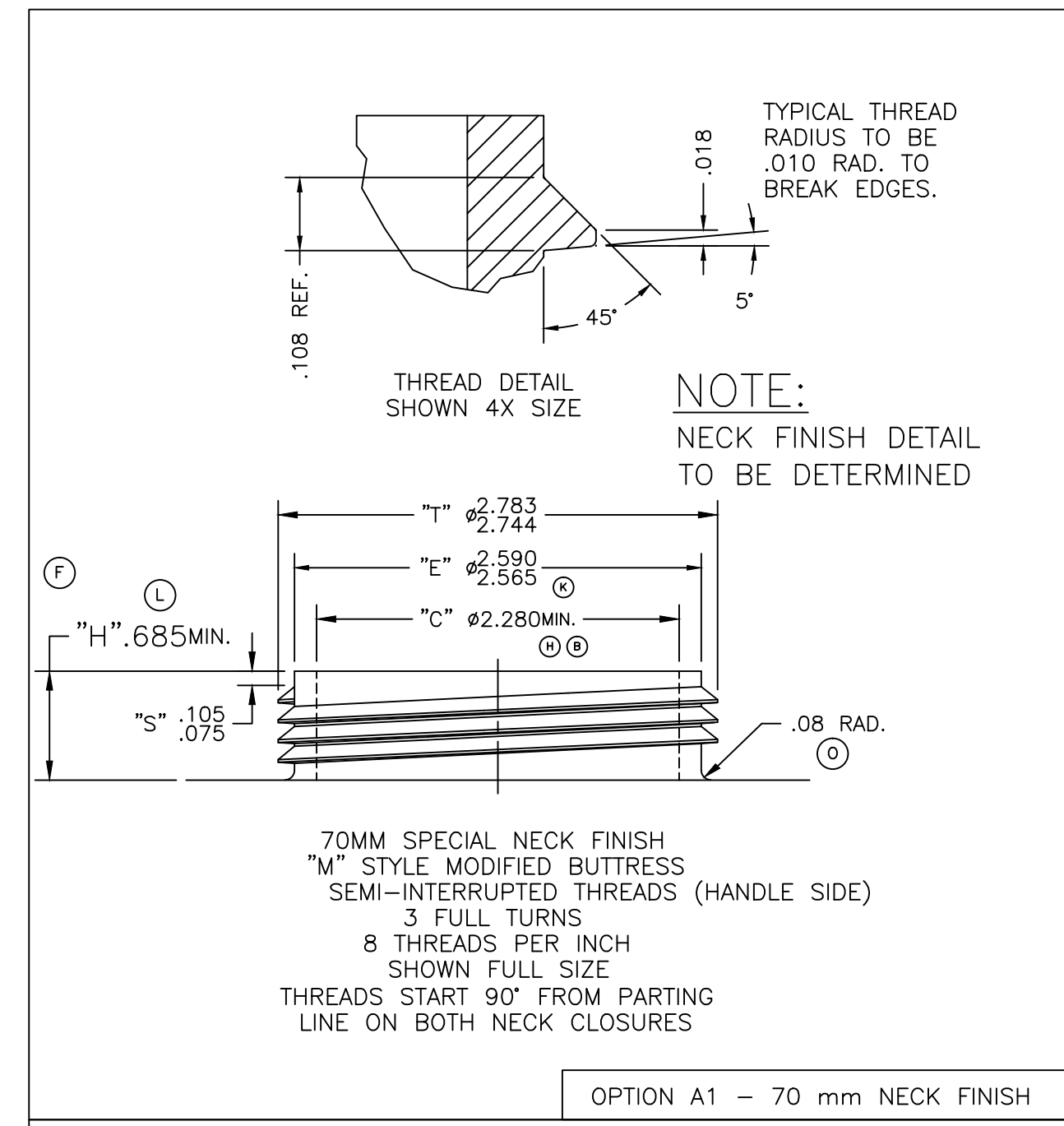
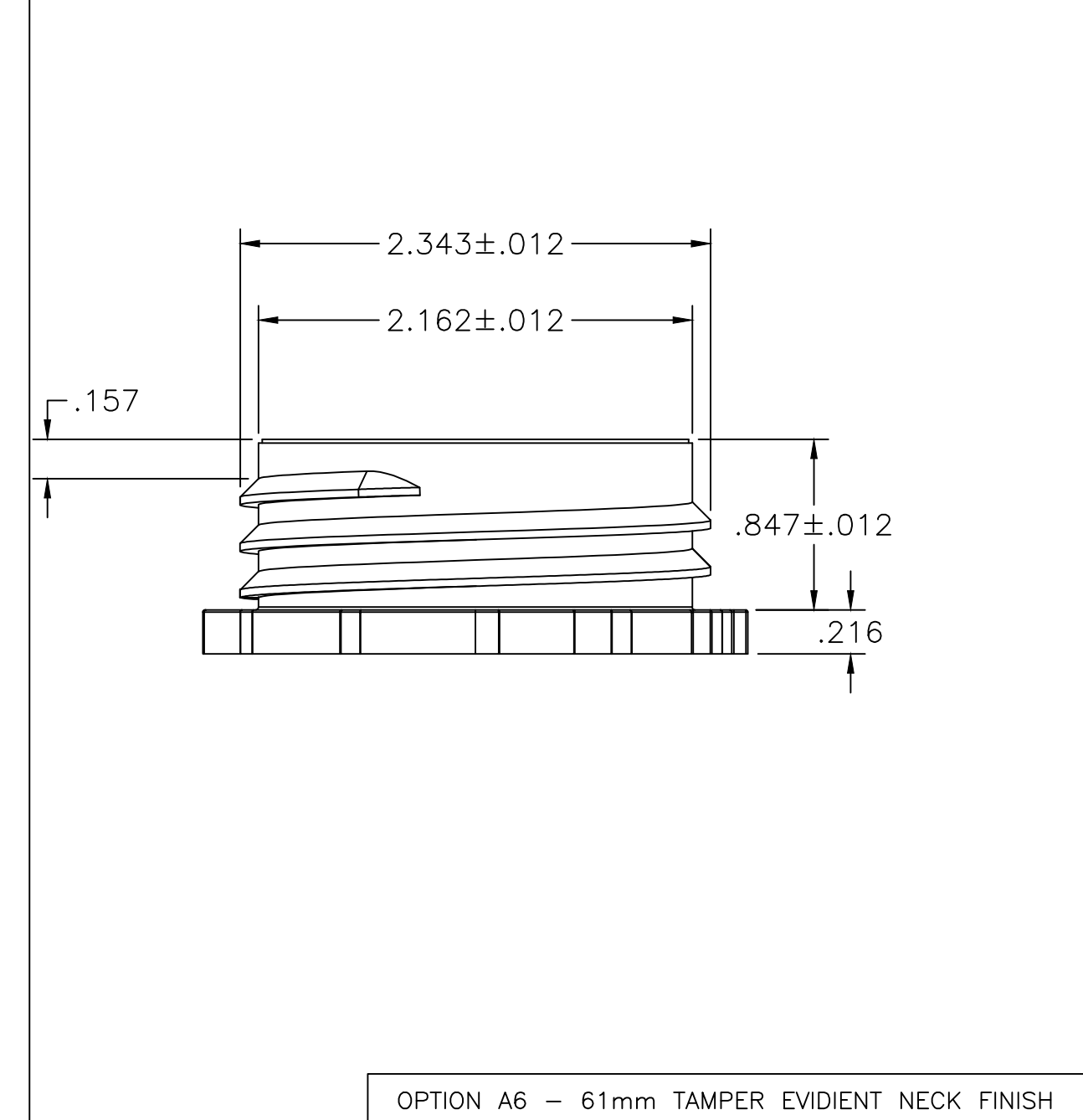


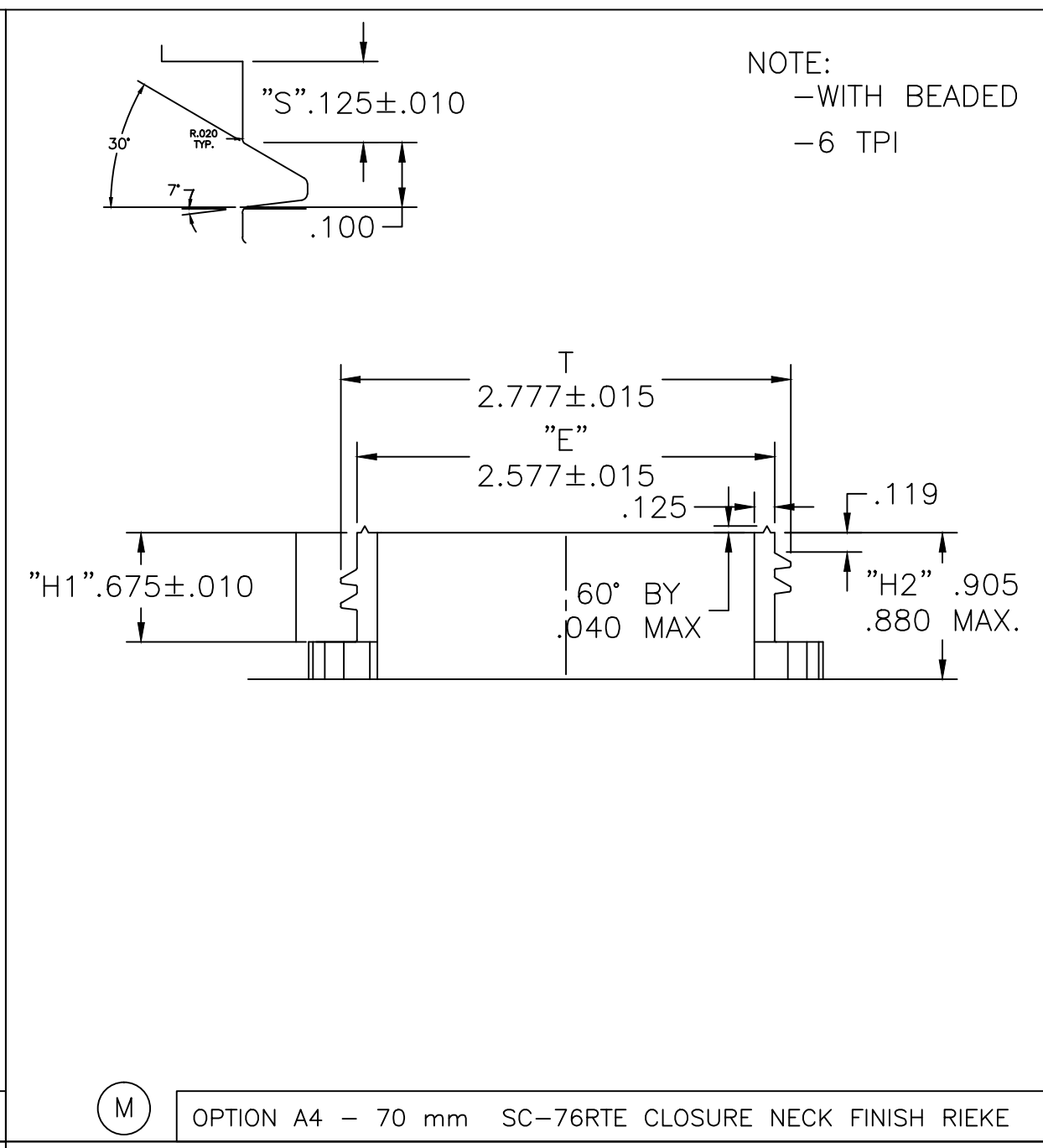
□ - LAYOUT NUMBER
 ○ - CRITICAL CHARACTERISTIC
 ⊙ - KEY CRITICAL CHARACTERISTIC



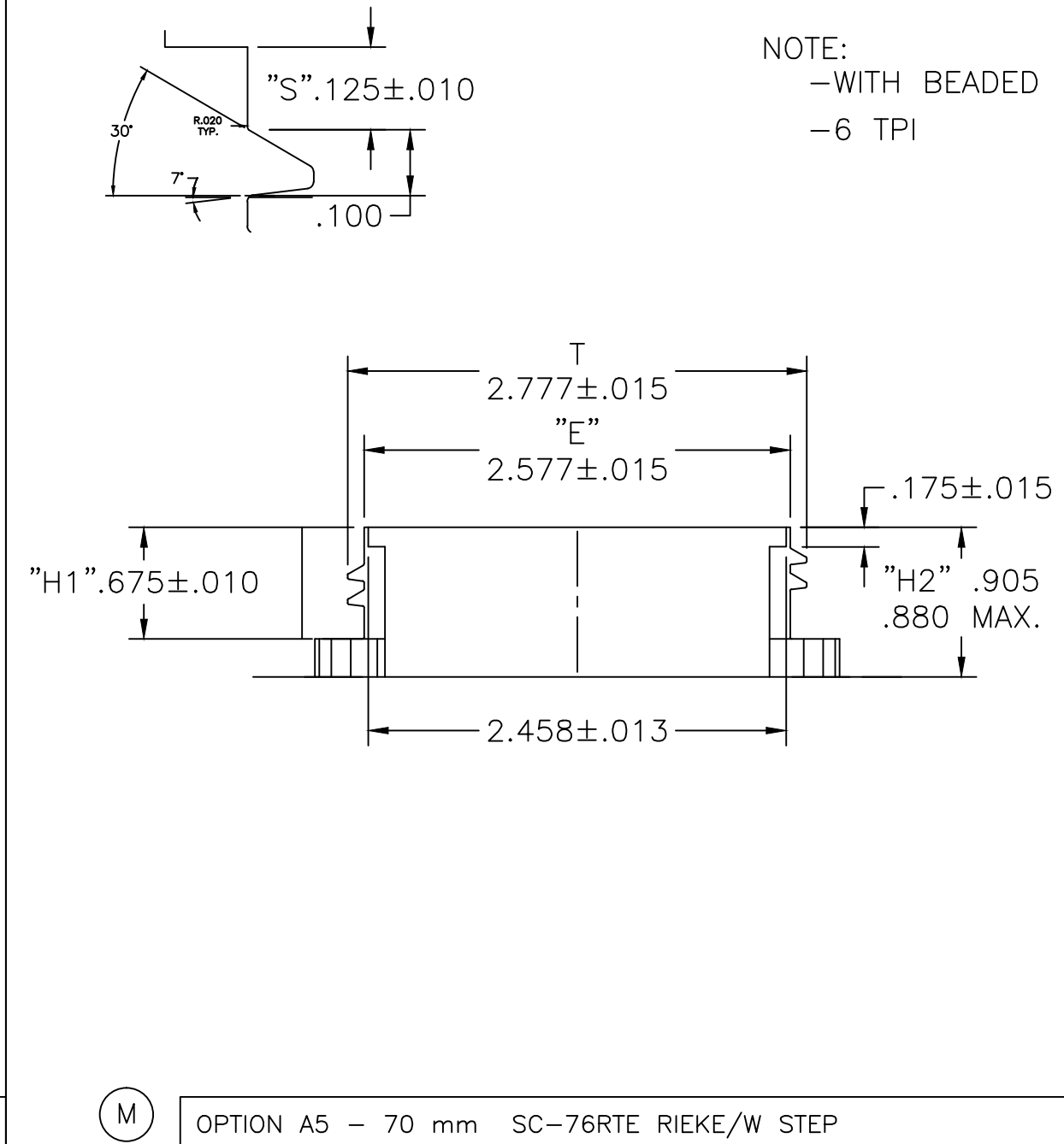
OPTION A1 - 70 mm NECK FINISH



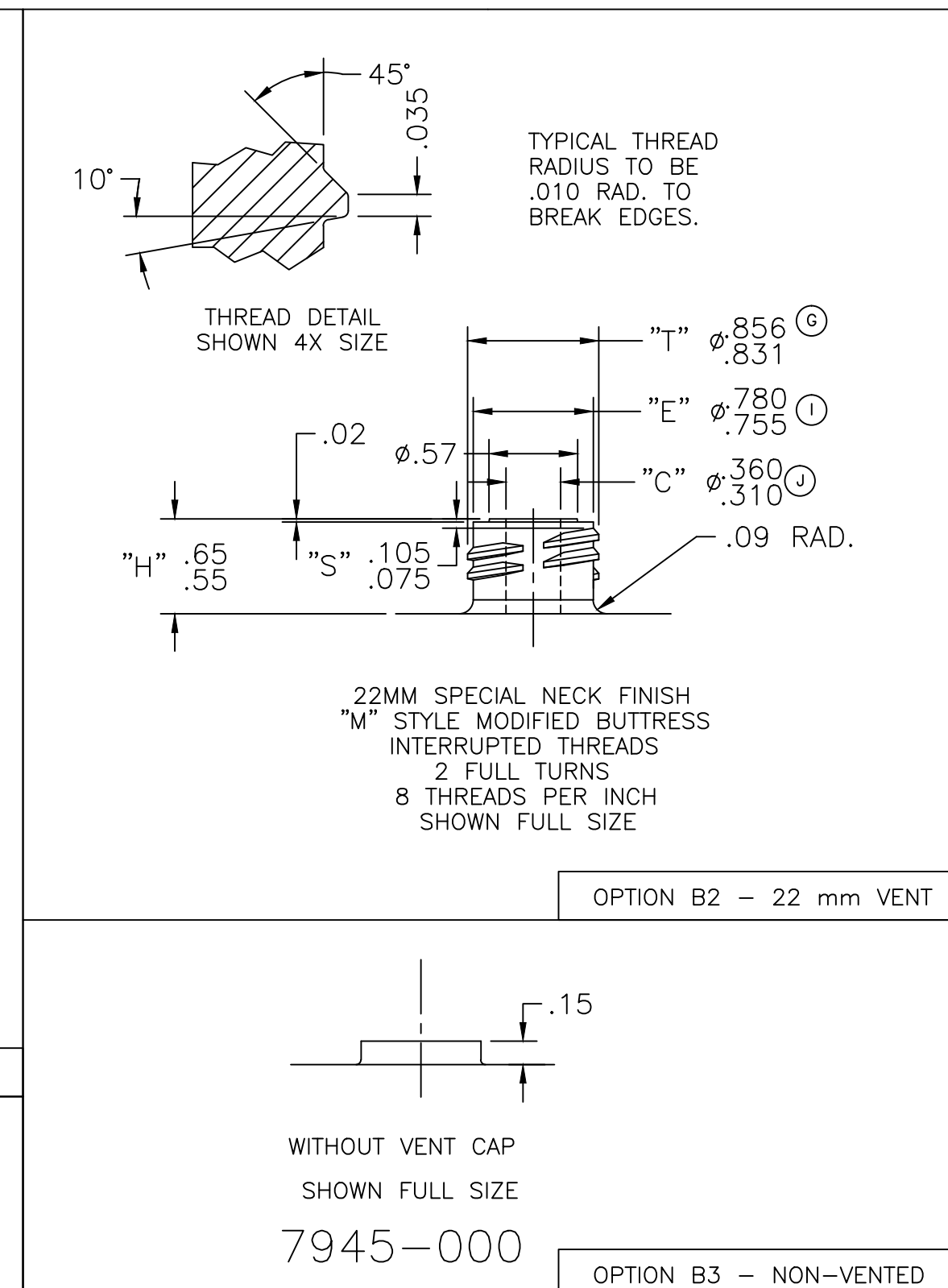
OPTION A6 - 61mm TAMPER EVIDENT NECK FINISH



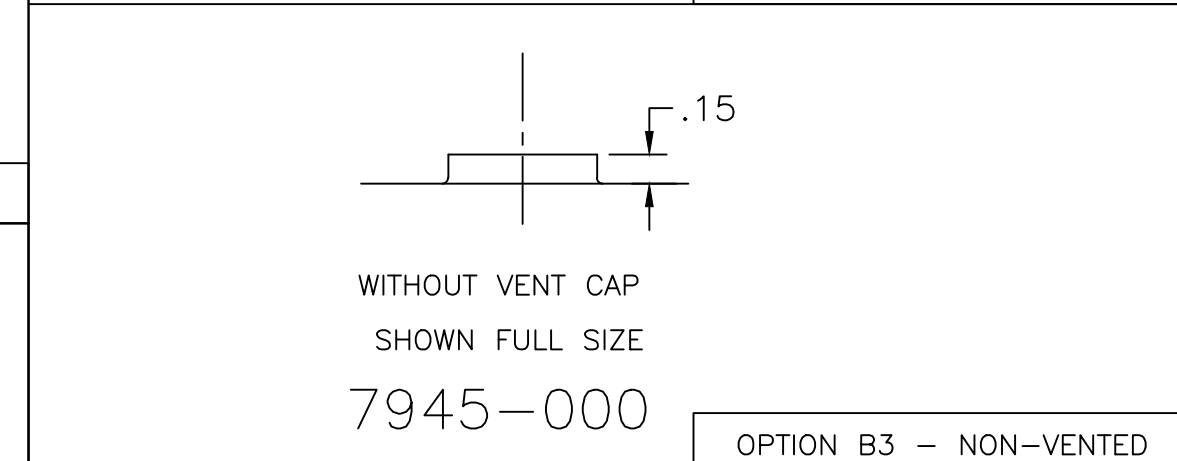
OPTION A4 - 70 mm SC-76RTE CLOSURE NECK FINISH RIEKE



OPTION A5 - 70 mm SC-76RTE RIEKE/W STEP

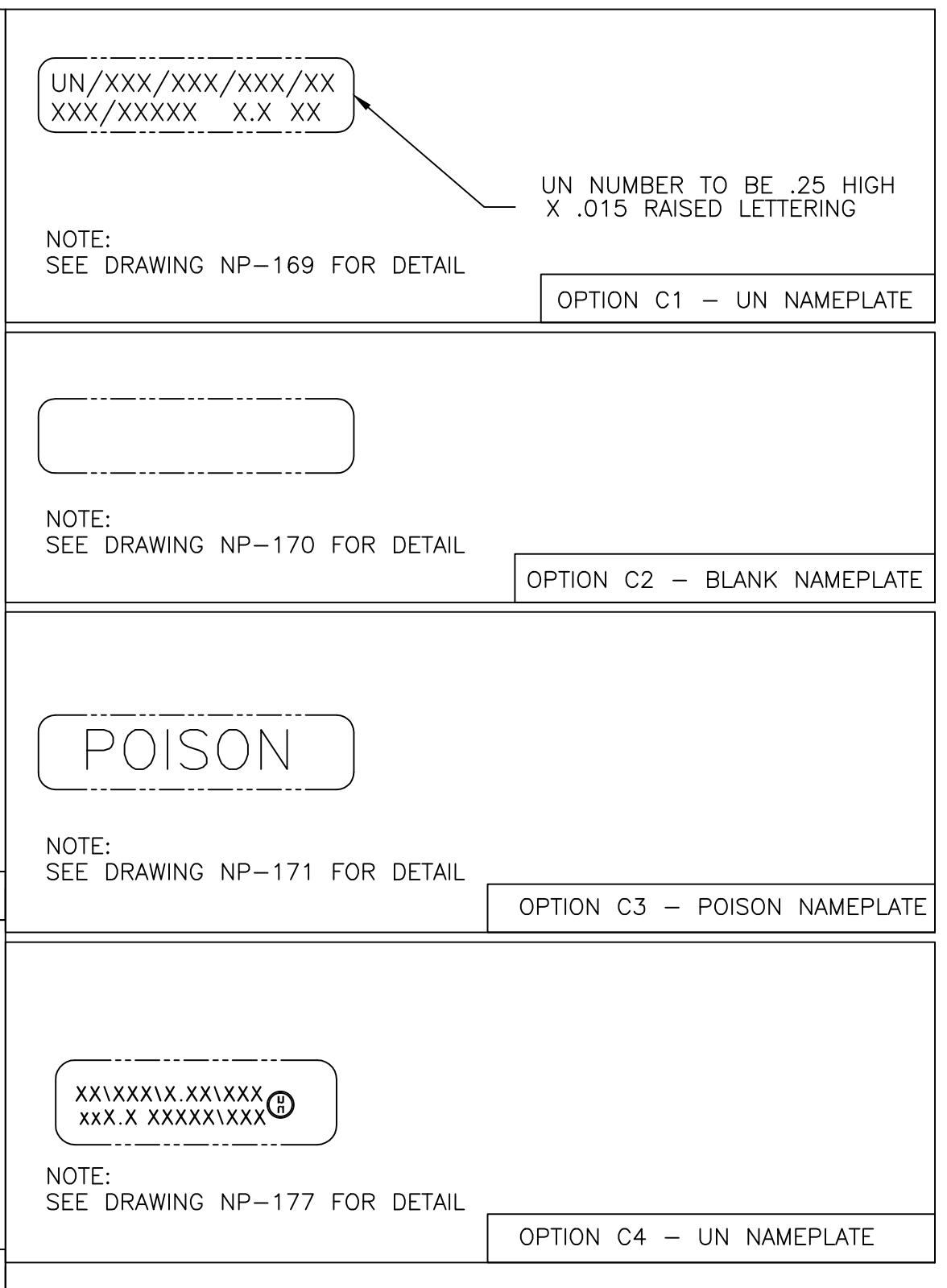


OPTION B2 - 22 mm VENT



OPTION B3 - NON-VENTED

OPTION "B"



OPTION C1 - UN NAMEPLATE

OPTION C2 - BLANK NAMEPLATE

OPTION C3 - POISON NAMEPLATE

OPTION C4 - UN NAMEPLATE

OPTION "C"

OPTION "A"

E16-001	1/16	O	RADIUS WAS 0.08"	DC
E15-001	8/15	N	ADDED SC-76 RTE W/STEP	DC
E09-008	7/09	M	ADDED SC-76 RTE NECK FINISH	JP
E08-008	6/08	L	"H" WAS .75/.67	TV
E05-010	5/05	K	"E" 2.565/2.590 WAS 2.548/2.572	ES
E05-005	1/05	J	"C" 2.31/36 WAS 2.35	ES
E05-004	1/05	I	"E" 2.755/2.780 WAS 2.758/2.782	ES
E04-034	12/04	H	"C" DIM. 2.280MM WAS 2.31	ES
E04-029	11/04	G	"T" 830/855 WAS 84/882	ES
E04-025	7/04	F	"H" DIM. .67-.75 WAS .68-.72	ES
02-016	5/02	E4	10.18±.125 WAS 11.20	KE
		E3	11.16±.125 WAS 11.28	KE
		E2	15.11±.125 WAS 15.15	KE
		E1	ADDED OVERFLOW CAPACITY	KE
-	1/02	D	REMOVED MATERIAL	KE
-	12/01	C2	SPECIFIED OPTIONAL WALL THICK	KE
-	11/01	B	ADDED "C" DIM TO OPTION: A	KE
-	11/01	A3	ADDED NAMEPLATES	KE
-	11/01	A2	ADDED 70mm RATCHET NECK	KE
-	11/01	A1	MOVED NECK DET'S TO SHIT. #2	KE
EDL	DATE	LET	CHANGE	BY

DRAWN BY: GWE	DATE: 8/30/00	REVISED: 1/25/16	Priority Plastics	500 Industrial Park Road PDRTLAND, INDIANA 47371 260-726-7000
CHECKED BY: DWG	DATE: -	SCALE FACTOR: 1:2		
MATERIAL: -			DRAWING DESCRIPTION: 5 GALLON (20 LTR) CONTAINER HDPE-70MM	
TOLERANCES UNLESS OTHERWISE SPECIFIED: -				
ITEM NUMBER: 7940-000			DRAWING NUMBER: 7940-2	
DO NOT SCALE PRINT			SHEET 2 OF 2	

Closing Instructions

Corporate Office
 500 Industrial Park Dr.
 Portland IN 47371
 Tel 260.726.7000 Fax 260.726.8111

Date Created: May 23, 2019
 Revision Date: November 10, 2020

Closing Instructions for 20 Liter & 5 Gallon–70MM RTE, 22MM

Caps that this closing instruction includes are:

Brandt Cap: 6 TPI, 70MM Tamper Evident with 3/4" NPT, Natural (Brandt # CAP7034NAT6TPIEPDMTE, Priority # 8224-200-060), Brandt Cap: 6TPI, 70MM Tamper Evident with 3/4"NPT & Welded in Vent Material (Priority #8224-201-060), Rieke Caps: 70MM, SC76RTE with 3/4"NPT & EPDM Gasket (Rieke # 03920001, Priority # 8234-200-060)

Cap: Amcor Rigid Plastics USA, Inc: Priority item number 6043-000-060 with F-217 Liner. 22mm Cap: Amcor Rigid Plastics USA, Cap: Amcor Rigid Plastics USA, Inc: Priority item number 8231-000-070 with Induction Seal Liner

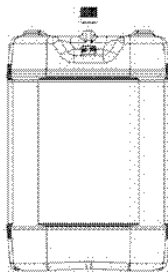


Step 1. Ensure the gasket is in the 70mm closure.

Step 2. Turn the 70mm cap to get started over the threads of the 70mm neck.

Step 3. Place an overcap fixture over the 70mm cap.

Step 4. Torque the cap to 175 - 185 in-lbs.



Step 5. Ensure the gasket is in the 22 mm closure.
 Note: If using Induction Seal 22MM cap, ensure the foil liner is induction sealed on the 22mm vent.

Step 6. Place an overcap fixture over the 22 mm cap.

Step 7. Torque the cap to 25-30 in-lbs.

NOTE: Priority Plastics, Inc. certifies that these containers have been manufactured and certified in accordance with Performance Requirements of Part 178 Subpart M of title 49CFR. The chemical filler and the shipper may rely upon the marking as certification that the package meets the applicable UN performance standards. The shipper is responsible for ensuring the product is authorized in the package and must consult and General Shipper Requirements, including modal requirements. To meet UN standards, the package must be properly closed for shipment. Failure to follow the closing instructions or substitution of packaging components other than those identified in the closure instructions will render the UN Certification invalid.

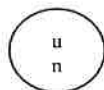
**DOT/UNITED NATIONS
Performance Oriented Packaging Certification**



3H1 VARIATION V

**7940 20 Liter Rectangle 70mm
22 MM Vent Hole- Group II
8224-201-060 & 6043-000-070**

2019-46



3H1/Y1.8/150/
USA /M5105**

****Insert year the packaging is manufactured**

TESTING PERFORMED FOR:

PRIORITY PLASTICS, INC.

500 Industrial Park Rd.
Portland, IN 47371

And

PRIORITY PLASTICS, INC.

704 Pinder Avenue
Grinnell, IA 50112

TESTING PERFORMED BY:

Priority Plastics, Inc.

500 Industrial Park Rd.
Portland, IN 47371

Phone: (260) 726-7000

Fax: (260) 726-8111

Certification Date: 5/28/19

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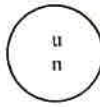
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SECTION I: Certification

Variation V
 20 Liter Rectangle HDPE Packaging

Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. The use of other packaging methods or components other than those documented in this report may render this certification invalid.

SUMMARY OF PERFORMANCE TESTS					
UN/DOT TEST	CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Drop	178.603	1.8 m	Windshield Fluid/Antifreeze Coolant 50/50 Diluted (WW?A)	May 10, 2019	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	May 9, 2019	PASS
Hydrostatic	178.605	150 kPa – 30 Min.	Water	May 9, 2019	PASS
Stack	178.606	580.8 Lbs.	Water	May 28, 2019	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	May 13, 2019	PASS
TEST REPORT NUMBERS: 2019-43, 2019-43					
UN MARKING: (CFR 49 – 178.503)				3H1/Y1.8/150/** USA /M5105	
PACKAGING IDENTIFICATION CODE:			3H1 (178.509)		
PERFORMANCE STANDARD:			Y (Packaging meets Packing Group II test)		
MAXIMUM PRODUCT SPECIFIC GRAVITY:			1.8		
INTERNAL TEST PRESSURE:			150 kPa		
YEAR OF MANUFACTURE:			**Insert year the packaging is manufactured		
STATE AUTHORIZING THE MARK:			USA		
PACKAGING CERTIFICATION AGENCY:			(M5105) Priority Plastics, Inc.		
PACKAGE IDENTIFICATION:			M5105 (Portland), M6167 (Grinnell)		
PERIODIC RETEST DATE:					

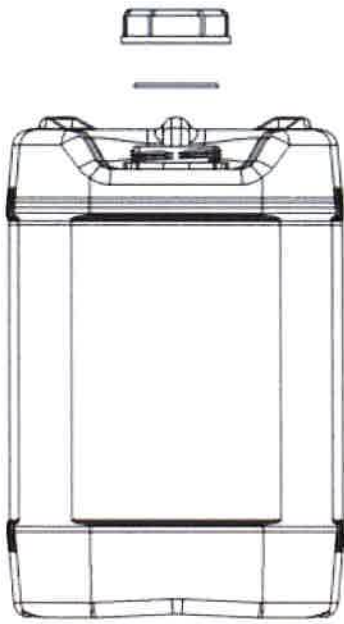
In the event of future changes to the above referenced test standard, it is the responsibility of Priority Plastics to determine whether additional testing or updating of past testing is necessary to verify that the packaging tested remains in compliance with those standards.

MANUFACTURER:

Priority Plastics, Inc.
 500 Industrial Park Road
 Portland, IN 47371



Donna Noll
 Quality Manager
 Priority Plastics, Inc.
 500 Industrial Park Rd
 Portland, IN 47371

SECTION: PACKAGING DESCRIPTION / COMPONENTS	
20 Liter Rectangle, 70MM, 22MM Vent, , HDPE Packaging	
	Certification Type: Variation V
	Packaging Code Designation: 3H1
	Packing Group: II
	Specific Gravity: 1.8
	Hydrostatic Pressure: 150 kPa
	TEST SAMPLE PREPARATION (Refer to Section <u>IV</u>)
	Overall Package Tare Weight: 1.238 Kg
	Fill Capacity (98% Overflow):
	<ul style="list-style-type: none"> • Windshield Washer/Antifreeze 20.335 Kg • Water 20.874 Kg
	Package Test Weight:
	<ul style="list-style-type: none"> • WW/A: 21.573 Kg • Water 22.112 Kg
	Calculated Package Gross Mass: 38.8 Kg (85.54 Lbs.)
	CLOSING METHODS
	Application Torque for 70mm Cap: 175 & 185 In-Lbs. Application Torque for 22mm Cap: 25 & 30 In-Lbs Equipment for 70mm Cap: GP-082 & V-GP-198 A Equipment for 22mm Cap: GP 055 A & 056 A and V-GP-171 B

COMPONENT INFORMATION

CLOSURE (8224-201-060)

Manufacturer: Brandt Industries, Palatine, IL 60067

70MM ¾ Natural Cap 6TPI-EPDM – W / Tamper Evident W / Vent Material Welded In.

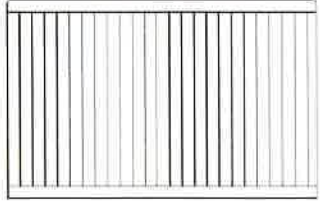
Priority Item Number:	8224-201-060
Tare Weight:	30.0 Grams
Closure Overall Dimensions:	
• Height	0.964"
• Diameter	3.330"
Finish Dimensions:	
• T	2.814"
• E	2.643"
• Thread Pitch	6 Threads per inch
Markings (QC Audit):	No Markings, 6 Ribs Around the outside of the cap.
Liner/Gasket	EPDM Gasket
Identification:	None
Wall Thickness:	0.179"
Height Thickness:	0.112"
Diameter:	2.532"




CLOSURE 6043-000-070	Drawing
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Manufacturer: Amcor Rigid Plastics USA, LLC, Millville, NJ

Description:	22/410 Fine Rib Serrated Closure-Lined
Material:	Polypropylene
Tare Weight:	2.28 Grams
Overall Dimensions:	
• Height	0.634"
• Diameter	1.002"
Thread Dimensions:	
• T	0.869"
• E	0.785"
Liner:	
Description:	Tri-Seal F-217 Liner



TIGHT HEAD PLASTIC JERRICAN (7940)			
Manufacturer: Priority Plastics, Portland, IN			
Description: 20 Liter Rectangle with Integrated Handle 70MM and 22MM Vent Hole			
Material /Pigment: High Density Polyethylene /Natural			
Method of Manufacturer:		Blow Molded	
Tare Weight:		1.238 Kg	
Capacity:			
• Rated:		5Gallons (20 Liters)	
• Overflow:		21.300 Kg (5.62 Gallons)	
Overall Dimensions:			
• Height:		15.16"	
• Length:		11.008"	
• Width:		10.163"	
Finish Dimensions:			
• 70 mm T			
• 70 mm E			
• 70 mm Neck Height			
Wall Thickness:		Body	Top Head
• Minimum		0.043"	0.038"
• Minimum From Design Qualification Report 2019-43		0.036"	0.043"
			Btm Head
			0.039"
			0.037"
• Material:		High Density Polyethene	
Markings (QC Audit)		 3H1/Y1.8/150/19/ USA/M5105 "2" HDPE Recycling Symbol, Logo, Month Clock, 6	




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

TEST INFORMATION	TEST CRITERIA
<p>TEST CONTENTS: Windshield Washer/Antifreeze(0.982SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F), Chamber #</p> <p>TEST CONTENTS TEMP.: -19.67°C (-3.4°F)</p> <p>DROP HEIGHT: 1.83 Meters (72") (Refer to Section IV)</p> <p>TEST EQUIPMENT: L.A.B. Accu drop 160</p>	<ul style="list-style-type: none"> For packaging containing liquid, each packaging does not leak when equilibrium has been reached between the internal and external pressures. Any discharge from a closure is slight and ceases immediately after impact with no further leakage. (§ 178.603)

DIAGONAL TOP CHIME DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	4	PASS	No leakage or Breakage
	5	PASS	No leakage or Breakage
	6	PASS	No leakage or Breakage


FLAT ON BOTTOM DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	8	PASS	No leakage or Breakage
	9	PASS	No leakage or Breakage
	10	PASS	No leakage or Breakage

LEAKPROOFNESS TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	<ul style="list-style-type: none"> A packaging passes the test if there is no leakage of air from the packaging. (§ 178.604)
CLOSURE APPLICAAION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	20.7 kPa (3 PSI)	
TEST DURATION:	5 Minutes	
AREA OF PRESSURIZATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Air Source Pressure Monitoring Gauge	


LEAKPROOFNESS TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	11	PASS	All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.
	12	PASS	
	13	PASS	

HYDROSTATIC PRESSURE TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> For each test sample, there is no leakage of liquid from the package. (§ 178.604)
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	150 kPa (21.76 psi)	
TEST DURATION:	30 Minutes	
AREA OF PRESSURATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Water Source Pressure Monitoring Gauge	


HYDROSTATIC PRESSURE TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	17	PASS	All three samples maintained the 150 kPa test pressure for 30 minutes without leakage.
	18	PASS	
	129	PASS	

STACKING AND STACKING STABILITY TEST RESULTS


TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> No test sample may leak There can be no deterioration that could adversely affect transportation safety or any distortion liable to reduce the package's strength, cause instability in stacks of packages, or cause damage to inner packagings that is likely to reduce safety in transportation.. (§ 178.606)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	40°C (104°F) Stack Room	
TEST LOAD APPLIED:	271.983 Kg (589.62 Lbs.)	
TEST EQUIPMENT:	Stack Room and Weights	

STACKING TEST SET-UP AND RESULTS

	Sample #	Maximum Deflection After 28 Days	Results
	1	9/16"	PASS
	2	3/4"	PASS
	3	9/16"	PASS

Comments / Observations: Following the 28 day stack test there was no leakage from the test samples and no damage likely to affect the performance of the package.

STACKING STABILITY TEST SET-UP AND RESULTS

	Results	Criteria For Passing the Test
	PASS	<ul style="list-style-type: none"> In guided load tests, stacking stability must be assessed after test completion. Two filled packages of the same type must be placed on the test sample. The stacked packages must maintain their position for one hour. (178.606)
<p>For stack stability Priority Plastics places the filled packages one on top of the other. The bottom sample is rotated to the top until all three samples have been subjected to stacking stability for one hour each.</p>		

REPETITIVE SHOCK VIBRATION TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	Immediately following the period of vibration, each package must be removed from the platform, turned on its side, and observed for any evidence of leakage. <ul style="list-style-type: none"> • A package passes the vibration test if there is no rupture or leakage from any of the packages. • No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength. (§ 178.608)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TABLE DISPLACEMENT:	1"	
TEST FREQUENCY:	4.3 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using Vibration Tester	

VIBRATION TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	26	PASS	No leakage or damage.
	27	PASS	
	28	PASS	

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES	
TEST	49 CFR 2019 EDITION
Drop:	178.603
Leakproofness:	178.604
Hydrostatic Pressure:	178.605
Stack:	178.606
Vibration:	178.608

1. United States Department of Transportation Code of Federal Regulations (CFR) Title 49, Transportation, Parts 100-185

SECTION IV: MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall Packaged Tare Weight (PTW):	1.238 Kg	<u>WW/A SG</u>
Overflow Capacity (OFC) :		SG: 0.982
Windshield Washer/Antifreeze	20.750 Kg	
Water	21.300 Kg	5.62 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	15.16 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OC</u>	x	<u>98%</u>		
20.750	x	98% =	20.335 Kg	WW/A
21.300	x	98% =	20.874 Kg	Water

PACKAGED TEST WEIGHT

Overall Pkg Tare Weight (PTW) + 98% Overflow Capacity (OFC)

<u>PTW</u>	+	<u>98% OFC =</u>		
1.238	+	20.335	21.573 Kg	47.56 Lbs. WW/A
1.238	+	20.874	22.108 Kg	48.74 Lbs. Water

CALCULATED PACKAGE GROSS MASS (CPGM)

Overall Pkg Tare Weight (PTW) + (Product SG(PSG) x 98%Overflow (OFC)

<u>PTW</u>	+	<u>(PSG</u>	x	<u>98%OFC)</u>	
1.238	+	1.8	x	20.874	
		38.8 Kg		85.5 Lbs.	

DROP HEIGHT CALCULATION (FOR SPECIFIC GRAVITIES EXCEEDING 1.2)				
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)				
<u>PSG</u>	x	<u>MF</u>		<u>Packing Group: II</u>
1.8	x	1.00	<u>Required Drop Height</u>	<u>Actual Drop Height</u>
		1.80	Meter	70.9 Inches
				72 Inches

STACKING TEST MINIMUM LOAD CALCULATIONS				
Number of Packages in a 3m High Stack (118/Nesting Height (NH))-1				
118.11/Nesting Height of one Pkg (NH) - 1				
<u>(118.11</u>	/	<u>NH)</u>	-	<u>1</u>
118.11	/	15.16	-	1
			=	=
				<u>n</u>
				6.79
Stack Test Load Calculation (Individual Package)				
Calculated Pkg Gross Mass (CPGM) x # of Pkg in a 3m High Stack (#3mHS)				
<u>CPGM</u>	x	<u>#3Mhs</u>		
38.8	x	6.79		
		263.452 Kg		580.81 Lbs.

Closing Instructions

Corporate Office
 500 Industrial Park Dr.
 Portland IN 47371
 Tel 260.726.7000 Fax 260.726.8111

Date Created: May 23, 2019
 Updated to New Format: July 31, 2019

Closing Instructions for 20 Liter – 70MM RTE, 22MM

Caps that this closing instruction includes are:

Brandt Cap: 6TPI, 70MM Tamper Evident with 3/4"NPT & Welded in Vent Material (Priority # 8224-201-060)22mm

Cap: Amcor Rigid Plastics USA, Inc: Priority item number 6043-000-060 with F-217 Liner.22mm Cap: Amcor Rigid Plastics USA,



Step 1. Ensure the gasket is in the 70mm closure.



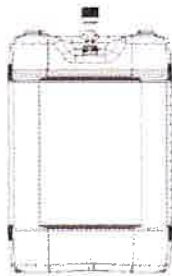
Step 2. Turn the 70mm cap to get started over the threads of the 70mm neck.



Step 3. Place an overcap fixture over the 70mm cap.



Step 4. Torque the cap to 175 - 185 in-lbs.



Step 5. Ensure the gasket is in the 22mm closure.
 Note: If using Induction Seal 22MM cap, ensure the foil liner is induction sealed on the 22mm vent.



Step 6. Place an overcap fixture over the 22mm cap.



Step 7. Torque the cap to 25-30 in-lbs.

NOTE: Priority Plastics, Inc. certifies that these containers have been manufactured and certified in accordance with Performance Requirements of Part 178 Subpart M of title 49CFR. The chemical filler and the shipper may rely upon the marking as certification that the package meets the applicable UN performance standards. The shipper is responsible for ensuring the product is authorized in the package and must consult and General Shipper Requirements, including modal requirements. To meet UN standards, the package must be properly closed for shipment. Failure to follow the closure instructions or substitution of packaging components other than those identified in the closure instructions will render the UN Certification invalid.

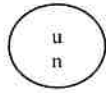
**DOT/UNITED NATIONS
Performance Oriented Packaging Certification**



3H1 DESIGN QUALIFICATION

**7940 20 Liter Rectangle 70mm
22 MM Vent Hole- Group II
8224-200-060 & 6043-000-070**

2019-43



3H1/Y1.8/150/
USA /M5105**

****Insert year the packaging is manufactured**

TESTING PERFORMED FOR:

PRIORITY PLASTICS, INC.
500 Industrial Park Rd.
Portland, IN 47371

And

PRIORITY PLASTICS, INC.
704 Pinder Avenue
Grinnell, IA 50112

TESTING PERFORMED BY:

Priority Plastics, Inc.
500 Industrial Park Rd.
Portland, IN 47371
Phone: (260) 726-7000
Fax: (260) 726-8111

Certification Date: 5/28/19
Re-Certification Date: 5/28/20

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SECTION I: Certification

Design Qualification
 20 Liter Rectangle HDPE Packaging

Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. The use of other packaging methods or components other than those documented in this report may render this certification invalid.

SUMMARY OF PERFORMANCE TESTS					
UN/DOT TEST	CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Drop	178.603	1.8 m	Windshield Fluid/Antifreeze Coolant 50/50 Diluted (WW?A)	May 9, 2019	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	May 9, 2019	PASS
Hydrostatic	178.605	150 kPa – 30 Min.	Water	May 9, 2019	PASS
Stack	178.606	580.8 Lbs.	Water	May 28, 2019	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	May 9, 2019	PASS
TEST REPORT NUMBERS: 2019-43					
UN MARKING: (CFR 49 – 178.503)				3H1/Y1.8/150/** USA /M5105	
PACKAGING IDENTIFICATION CODE:			3H1 (178.509)		
PERFORMANCE STANDARD:			Y (Packaging meets Packing Group II test)		
MAXIMUM PRODUCT SPECIFIC GRAVITY:			1.8		
INTERNAL TEST PRESSURE:			150 kPa		
YEAR OF MANUFACTURE:			**Insert year the packaging is manufactured		
STATE AUTHORIZING THE MARK:			USA		
PACKAGING CERTIFICATION AGENCY:			(M5105) Priority Plastics, Inc.		
PACKAGE IDENTIFICATION:			M5105 (Portland), M6167 (Grinnell)		
PERIODIC RETEST DATE:			May 28, 2020		

In the event of future changes to the above referenced test standard, it is the responsibility of Priority Plastics to determine whether additional testing or updating of past testing is necessary to verify that the packaging tested remains in compliance with those standards.

MANUFACTURER:

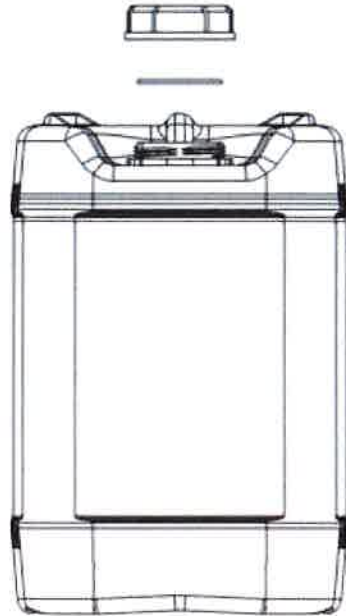
Priority Plastics, Inc.
 500 Industrial Park Road
 Portland, IN 47371



Donna Noll
 Quality Manager
 Priority Plastics, Inc.
 500 Industrial Park Rd
 Portland, IN 47371

SECTION II: PACKAGING DESCRIPTION / COMPONENTS

20 Liter Rectangle, 70MM, 22MM Vent, , HDPE Packaging



Certification Type: Design Qualification

Packaging Code Designation: 3H1

Packing Group: II

Specific Gravity: 1.8

Hydrostatic Pressure: 150 kPa

TEST SAMPLE PREPARATION
 (Refer to Section IV)

Overall Package Tare Weight: 1.244 Kg

Fill Capacity (98% Overflow):

- Windshield Washer/Antifreeze 20.325 Kg
- Water 20.874 Kg

Package Test Weight:

- WW/A: 21.569 Kg
- Water 22.114 Kg

Calculated Package Gross Mass: 38.8 Kg (85.54 Lbs.)

CLOSING METHODS

Application Torque for 70mm Cap: 175 & 185 In-Lbs.
 Application Torque for 22mm Cap: 25 & 30 In-Lbs

Equipment for 70mm Cap: GP-082 & V-GP-198-B
 Equipment for 22mm Cap: GP 055 A & 056 A and
 V-GP-171-B

COMPONENT INFORMATION

CLOSURE (8224-200-060)

Manufacturer: Brandt Industries, Palatine, IL 60067

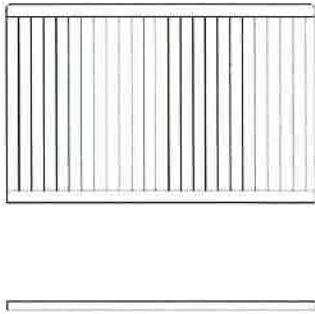
70MM ¾ Natural Cap 6TPI-EPDM – W / Tamper Evident	
Priority Item Number:	8224-200-060
Tare Weight:	29.24 Grams
Closure Overall Dimensions:	
• Height	0.965”
• Diameter	3.317”
Finish Dimensions:	
• T	2.810”
• E	2.646”
• Thread Pitch	6 Threads per inch
Markings (QC Audit):	No Markings, 6 Ribs Around the outside of the cap.
Liner/Gasket	EPDM Gasket
Identification:	None
Wall Thickness:	0.179”
Height Thickness:	0.112” ”
Diameter:	2.505”




CLOSURE 6043-000-070	Drawing
-----------------------------	----------------

Manufacturer: Amcor Rigid Plastics USA, LLC, Millville, NJ

Description:	22/410 Fine Rib Serrated Closure-Lined
Material:	Polypropylene
Tare Weight:	2.28 Grams
Overall Dimensions:	
• Height	0.633”
• Diameter	1.001”
Thread Dimensions:	
• T	0.871”
• E	0.786”
Liner:	
Description:	Tri-Seal F-217 Liner



TIGHT HEAD PLASTIC JERRICAN (7940)

Manufacturer: Priority Plastics, Portland, IN			
Description: 20 Liter Rectangle with Integrated Handle 70MM and 22MM Vent Hole			
Material /Pigment: High Density Polyethylene /Natural			
Method of Manufacturer:		Blow Molded	
Tare Weight:		1.212 Kg	
Capacity:			
• Rated:		5Gallons (20 Liters)	
• Overflow:		21.300 Kg (5.62 Gallons)	
Overall Dimensions:			
• Height:		15.16"	
• Length:		10.974"	
• Width:		10.225"	
Finish Dimensions:			
• 70 mm T			
• 70 mm E			
• 70 mm Neck Height			
Wall Thickness:		Body	Top Head
• Minimum From Design Qualification Report 2019-43		0.041"	0.038"
			Btm Head
			0.039"
• Material:		High Density Polyethylene	
Markings (QC Audit)		 3H1/Y1.8/150/19/ USA/M5105 "2" HDPE Recycling Symbol, Logo, Month Clock, 5	




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

TEST INFORMATION	TEST CRITERIA
<p>TEST CONTENTS: Windshield Washer/Antifreeze(0.982SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F), Chamber #</p> <p>TEST CONTENTS TEMP.: -19.5°C (-3.1°F)</p> <p>DROP HEIGHT: 1.83 Meters (72") (Refer to Section IV)</p> <p>TEST EQUIPMENT: L.A.B. Accu drop 160</p>	<ul style="list-style-type: none"> For packaging containing liquid, each packaging does not leak when equilibrium has been reached between the internal and external pressures. Any discharge from a closure is slight and ceases immediately after impact with no further leakage. (§ 178.603)

DIAGONAL TOP CHIME DROP TEST SET-UP AND RESULTS


	Sample #	Results	Comments / Observations
	4	PASS	No leakage or Breakage
	5	PASS	No leakage or Breakage
	6	PASS	No leakage or Breakage

FLAT ON SIDE-NECK DOWN DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	8	PASS	No leakage or Breakage
	9	PASS	No leakage or Breakage
	10	PASS	No leakage or Breakage

LEAKPROOFNESS TESTS


TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	<ul style="list-style-type: none"> A packaging passes the test if there is no leakage of air from the packaging. (§ 178.604)
CLOSURE APPLICAAION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	20.7 kPa (3 PSI)	
TEST DURATION:	5 Minutes	
AREA OF PRESSURIZATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Air Source Pressure Monitoring Gauge	

LEAKPROOFNESS TEST SET-UP & RESULTS			
	Sample #	Results	Comments / Observations
	11	PASS	All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.
	12	PASS	
	13	PASS	

HYDROSTATIC PRESSURE TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> For each test sample, there is no leakage of liquid from the package. (§ 178.604)
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	150 kPa (21.76 psi)	
TEST DURATION:	30 Minutes	
AREA OF PRESSURATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Water Source Pressure Monitoring Gauge	


HYDROSTATIC PRESSURE TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	17	PASS	All three samples maintained the 150 kPa test pressure for 30 minutes without leakage.
	18	PASS	
	129	PASS	

STACKING AND STACKING STABILITY TEST RESULTS


TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> No test sample may leak There can be no deterioration that could adversely affect transportation safety or any distortion liable to reduce the package's strength, cause instability in stacks of packages, or cause damage to inner packagings that is likely to reduce safety in transportation.. (§ 178.606)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	40°C (104°F) Stack Room	
TEST LOAD APPLIED:	278.143 Kg (613.2 Lbs.)	
TEST EQUIPMENT:	Stack Room and Weights	

STACKING TEST SET-UP AND RESULTS

	Sample #	Maximum Deflection After 28 Days	Results
	1	5/8"	PASS
2	11/16"	PASS	
3	9/16"	PASS	

Comments / Observations: Following the 28 day stack test there was no leakage from the test samples and no damage likely to affect the performance of the package.


STACKING STABILITY TEST SET-UP AND RESULTS

	Results	Criteria For Passing the Test
	PASS	<ul style="list-style-type: none"> In guided load tests, stacking stability must be assessed after test completion. Two filled packages of the same type must be placed on the test sample. The stacked packages must maintain their position for one hour. (178.606)

For stack stability Priority Plastics places the filled packages one on top of the other. The bottom sample is rotated to the top until all three samples have been subjected to stacking stability for one hour each.

REPETITIVE SHOCK VIBRATION TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	Immediately following the period of vibration, each package must be removed from the platform, turned on its side, and observed for any evidence of leakage. <ul style="list-style-type: none"> • A package passes the vibration test if there is no rupture or leakage from any of the packages. • No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength. (§ 178.608)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TABLE DISPLACEMENT:	1"	
TEST FREQUENCY:	4.3 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using Vibration Tester	

VIBRATION TEST SET-UP & RESULTS			
	Sample #	Results	Comments / Observations
	26	PASS	No leakage or damage.
	27	PASS	
	28	PASS	

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES	
TEST	49 CFR 2019 EDITION
Drop:	178.603
Leakproofness:	178.604
Hydrostatic Pressure:	178.605
Stack:	178.606
Vibration:	178.608

1. United States Department of Transportation Code of Federal Regulations (CFR) Title 49, Transportation, Parts 100-185

SECTION IV: MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall Packaged Tare Weight (PTW):	1.244 Kg	<u>WW/A SG</u>
Overflow Capacity (OFC) :		SG: 0.982
Windshield Washer/Antifreeze	20.740 Kg	
Water	21.300 Kg	5.62 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	15.16 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%			
<u>OC</u>	x	<u>98%</u>	
20.740	x	98% =	20.325 Kg
21.300	x	98% =	20.874 Kg
			WW/A
			Water

PACKAGED TEST WEIGHT

Overall Pkg Tare Weight (PTW) + 98% Overflow Capacity (OFC)			
<u>PTW</u>	+	<u>98% OFC</u>	=
1.244	+	20.325	21.569 Kg
1.244	+	20.874	22.118 Kg
			47.55 Lbs. WW/A
			48.76 Lbs. Water

CALCULATED PACKAGE GROSS MASS (CPGM)

Overall Pkg Tare Weight (PTW) + (Product SG(PSG) x 98%Overflow (OFC))			
<u>PTW</u>	+	<u>(PSG)</u>	x
1.244	+	1.8	x
			<u>98%OFC</u>
			20.874
		38.8 Kg	85.5 Lbs.

DROP HEIGHT CALCULATION (FOR SPECIFIC GRAVITIES EXCEEDING 1.2)					
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)					
PSG	x	MF	Packing Group: II		
1.8	x	1.00	<u>Required Drop Height</u>	<u>Actual Drop Height</u>	
		1.80	Meter	70.9 Inches	72 Inches

STACKING TEST MINIMUM LOAD CALCULATIONS					
Number of Packages in a 3m High Stack (118/Nesting Height (NH))-1					
118.11/Nesting Height of one Pkg (NH) - 1					
$\frac{118.11}{118.11}$	/	$\frac{NH}{15.16}$	-	$\frac{1}{1}$	= $\frac{n}{6.79}$
Stack Test Load Calculation (Individual Package)					
Calculated Pkg Gross Mass (CPGM) x # of Pkg in a 3m High Stack (#3mHS)					
$\frac{CPGM}{38.8}$	x	$\frac{\#3Mhs}{6.79}$			
			263.452 Kg	580.81 Lbs.	

Closing Instructions

Corporate Office
 500 Industrial Park Dr.
 Portland IN 47371
 Tel 260.726.7000 Fax 260.726.8111

Date Created: May 23, 2019
 Updated to New Format: July 31, 2019

Closing Instructions for 20 Liter – 70MM RTE, 22MM

Caps that this closing instruction includes are:

Brandt Cap: 6 TPI, 70MM Tamper Evident with 3/4" NPT, Natural (Brandt # CAP7034NAT6TPIEPDMTE, Priority # 8224-200-060)

Cap: Amcor Rigid Plastics USA, Inc: Priority item number 6043-000-060 with F-217 Liner. 22mm Cap: Amcor Rigid Plastics USA,



Step 1. Ensure the gasket is in the 70mm closure.



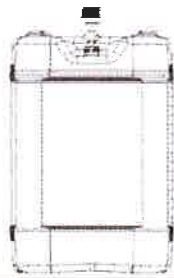
Step 2. Turn the 70mm cap to get started over the threads of the 70mm neck.



Step 3. Place an overcap fixture over the 70mm cap.



Step 4. Torque the cap to 175 - 185 in-lbs.



Step 5. Ensure the gasket is in the 22 mm closure.

Note: If using Induction Seal 22MM cap, ensure the foil liner is induction sealed on the 22mm vent.



Step 6. Place an overcap fixture over the 22 mm cap.



Step 7. Torque the cap to 25-30 in-lbs.

NOTE: Priority Plastics, Inc. certifies that these containers have been manufactured and certified in accordance with Performance Requirements of Part 178 Subpart M of title 49CFR. The chemical filler and the shipper may rely upon the marking as certification that the package meets the applicable UN performance standards. The shipper is responsible for ensuring the product is authorized in the package and must consult and General Shipper Requirements, including modal requirements. To meet UN standards, the package must be properly closed for shipment. Failure to follow the closure instructions or substitution of packaging components other than those identified in the closure instructions will render the UN Certification invalid.

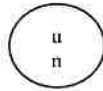
**DOT/UNITED NATIONS
Performance Oriented Packaging Certification**



3H1 VARIATION V

**7940 20 Liter Rectangle 70MM
22 MM Vent Hole- Group II
8234-200-060 & 6043-000-070**

2020-09



3H1/Y1.8/150/
USA /M5105**

****Insert year the packaging is manufactured**

TESTING PERFORMED FOR:

PRIORITY PLASTICS, INC.

500 Industrial Park Rd.
Portland, IN 47371

And

PRIORITY PLASTICS, INC.

704 Pinder Avenue
Grinnell, IA 50112

TESTING PERFORMED BY:

Priority Plastics, Inc.

500 Industrial Park Rd.
Portland, IN 47371

Phone: (260) 726-7000

Fax: (260) 726-8111

Certification Date: 2/15/2020

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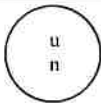
 REGULATORY AND INDUSTRY STANDARD REFERENCES.....12

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SECTION I: Certification

Variation V
 20 Liter Rectangle HDPE Packaging

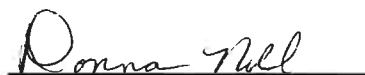
Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. The use of other packaging methods or components other than those documented in this report may render this certification invalid.

SUMMARY OF PERFORMANCE TESTS					
UN/DOT TEST	CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Drop	178.603	1.8 m	Windshield Fluid/Antifreeze Coolant 50/50 Diluted (WW?A)	January 22, 2020	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	January 22, 2020	PASS
Hydrostatic	178.605	150 kPa – 30 Min.	Water	January 22, 2020	PASS
Stack	178.606	580.8 Lbs.	Water	February 15, 2020	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	January 22, 2020	PASS
TEST REPORT NUMBERS: 2019-43, 2020-09					
UN MARKING: (CFR 49 – 178.503)				3H1/Y1.8/150/** USA /M5105	
PACKAGING IDENTIFICATION CODE:			3H1 (178.509)		
PERFORMANCE STANDARD:			Y (Packaging meets Packing Group II test)		
MAXIMUM PRODUCT SPECIFIC GRAVITY:			1.8		
INTERNAL TEST PRESSURE:			150 kPa		
YEAR OF MANUFACTURE:			**Insert year the packaging is manufactured		
STATE AUTHORIZING THE MARK:			USA		
PACKAGING CERTIFICATION AGENCY:			(M5105) Priority Plastics, Inc.		
PACKAGE IDENTIFICATION:			M5105 (Portland), M6167 (Grinnell)		
PERIODIC RETEST DATE:					

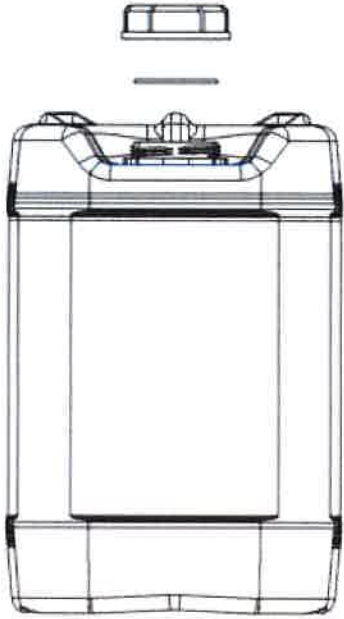
In the event of future changes to the above referenced test standard, it is the responsibility of Priority Plastics to determine whether additional testing or updating of past testing is necessary to verify that the packaging tested remains in compliance with those standards.

MANUFACTURER:

Priority Plastics, Inc.
 500 Industrial Park Road
 Portland, IN 47371



Donna Noll
 Quality Manager
 Priority Plastics, Inc.
 500 Industrial Park Rd
 Portland, IN 47371

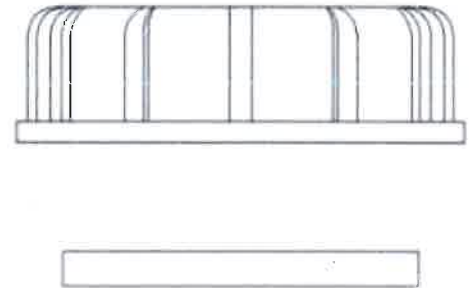
SECTION II: PACKAGING DESCRIPTION / COMPONENTS		
20 Liter Rectangle, 70MM, 22MM Vent, , HDPE Packaging		
	Certification Type: Variation V	
	Packaging Code Designation: 3H1	
	Packing Group: II	
	Specific Gravity: 1.8	
	Hydrostatic Pressure: 150 kPa	
	TEST SAMPLE PREPARATION (Refer to Section <u>IV</u>)	
	Overall Package Tare Weight: 1.244 Kg	
	Fill Capacity (98% Overflow):	
	<ul style="list-style-type: none"> • Windshield Washer/Antifreeze 20.384 Kg • Water 20.874 Kg 	
	Package Test Weight:	
	<ul style="list-style-type: none"> • WW/A: 21.628 Kg • Water 22.118Kg 	
	Calculated Package Gross Mass: 38.8 Kg (85.54 Lbs.)	
	CLOSING METHODS	
	Application Torque for 70mm Cap: 175 & 185 In-Lbs. Application Torque for 22mm Cap: 25 & 30 In-Lbs	
	Equipment for 70mm Cap: GP-052 & V-GP-198 A Equipment for 22mm Cap: GP 055 A & 056 A and V-GP-171 A	

COMPONENT INFORMATION

CLOSURE (8234-200-060)

Manufacturer: Rieke Corporation, Auburn, Indiana

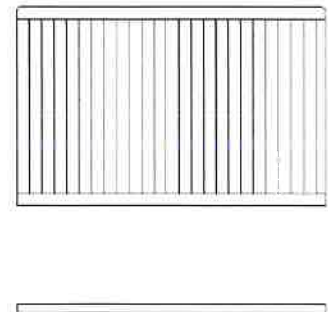
70mm, 6TPI Buttress, Tamper Evident with ¼" Reducer, SC – 76RTE	
Priority Item Number:	8234-200-060
Tare Weight:	32.17 Grams
Closure Overall Dimensions:	
• Height	1.016"
• Diameter	3.333"
Finish Dimensions:	
• T	2.829"
• E	2.620"
• Thread Pitch	6 Threads per inch
Markings (QC Audit):	No Markings, 6 Ribs Around the outside of the cap.
Liner/Gasket	EPDM Gasket
Identification:	None
Wall Thickness:	0.174"
Height Thickness:	0.113"
Diameter:	2.499"



CLOSURE 6043-000-070

Drawing

Manufacturer: Amcor Rigid Plastics USA, LLC, Millville, NJ	
Description:	Polypropylene/White 22/410 Fine Rib Serrated Closure Lined
Material:	Polypropylene
Tare Weight:	2.28 Grams
Overall Dimensions:	
• Height	0.637"
• Diameter	1.000"
Thread Dimensions:	
• T	0.876"
• E	0.782"
Liner: F-217	



TIGHT HEAD PLASTIC JERRICAN (7940)

Manufacturer: Priority Plastics, Portland, IN

Description: 20 Liter Rectangle with Integrated Handle 70MM and 22MM Vent Hole

Material /Pigment: High Density Polyethylene /Natural

Method of Manufacturer: Blow Molding

Tare Weight: 1.209 Kg

Capacity:

- **Rated:** 5Gallons (20 Liters)
- **Overflow:** 21.300 Kg (5.62 Gallons)

Overall Dimensions:

- **Height:** 15.16"
- **Length:** 10.950"
- **Width:** 10.217 "

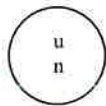
Finish Dimensions:

- **70 mm T** 2.759"
- **70 mm E** 2.593"
- **70 mm Neck Height** 0.667"

Wall Thickness:	Body	Top Head	Btm Head
• Minimum	0.043"	0.041"	0.041"
• Minimum From Design Qualification Report 2019-43	0.036"	0.043"	0.037"

• **Material:** High Density Polyethene

Markings (QC Audit)



3H1/Y1.8/150/20/
 USA/M5105
 "2" HDPE Recycling Symbol,
 Logo, Month Clock, 6




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

TEST INFORMATION	TEST CRITERIA
<p>TEST CONTENTS: Windshield Washer/Antifreeze(0.985SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F), Chamber #</p> <p>TEST CONTENTS TEMP.: -18.98°C (-2.16°F)</p> <p>DROP HEIGHT: 1.83 Meters (72") (Refer to Section IV)</p> <p>TEST EQUIPMENT: L.A.B. Accu drop 160</p>	<ul style="list-style-type: none"> For packaging containing liquid, each packaging does not leak when equilibrium has been reached between the internal and external pressures. Any discharge from a closure is slight and ceases immediately after impact with no further leakage. (§ 178.603)

DIAGONAL TOP CHIME DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	4	PASS	No leakage or Breakage
	5	PASS	No leakage or Breakage
	6	PASS	No leakage or Breakage


FLAT ON SIDE CAP DOWN DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	9	PASS	No leakage or Breakage
	10	PASS	No leakage or Breakage
	11	PASS	No leakage or Breakage

LEAKPROOFNESS TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	<ul style="list-style-type: none"> A packaging passes the test if there is no leakage of air from the packaging. (§ 178.604)
CLOSURE APPLICAAION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	20.7 kPa (3 PSI)	
TEST DURATION:	5 Minutes	
AREA OF PRESSURIZATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Air Source Pressure Monitoring Gauge	


LEAKPROOFNESS TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	12	PASS	All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.
	13	PASS	
	14	PASS	

HYDROSTATIC PRESSURE TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> For each test sample, there is no leakage of liquid from the package. (§ 178.604)
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
Water Temperature:	71.2°F	
TEST PRESSURE:	150 kPa (21.76 psi)	
TEST DURATION:	30 Minutes	
AREA OF PRESSURATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Water Source Pressure Monitoring Gauge	


HYDROSTATIC PRESSURE TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	15	PASS	All three samples maintained the 150 kPa test pressure for 30 minutes without leakage.
	16	PASS	
	17	PASS	

STACKING AND STACKING STABILITY TEST RESULTS


TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> No test sample may leak There can be no deterioration that could adversely affect transportation safety or any distortion liable to reduce the package's strength, cause instability in stacks of packages, or cause damage to inner packagings that is likely to reduce safety in transportation.. (§ 178.606)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	40°C (104°F) Stack Room	
TEST LOAD APPLIED:	288.58eKg (636.22 Lbs.)	
TEST EQUIPMENT:	Stack Room and Weights	

STACKING TEST SET-UP AND RESULTS

	Sample #	Maximum Deflection After 28 Days	Results
	1	3/8"	PASS
2	1/2"	PASS	
3	7/8"	PASS	

Comments / Observations: Following the 28 day stack test there was no leakage from the test samples and no damage likely to affect the performance of the package.

STACKING STABILITY TEST SET-UP AND RESULTS


	Results	Criteria For Passing the Test
	PASS	<ul style="list-style-type: none"> In guided load tests, stacking stability must be assessed after test completion. Two filled packages of the same type must be placed on the test sample. The stacked packages must maintain their position for one hour. (178.606)

For stack stability Priority Plastics places the filled packages one on top of the other. The bottom sample is rotated to the top until all three samples have been subjected to stacking stability for one hour each.

REPETITIVE SHOCK VIBRATION TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	Immediately following the period of vibration, each package must be removed from the platform, turned on its side, and observed for any evidence of leakage. <ul style="list-style-type: none"> • A package passes the vibration test if there is no rupture or leakage from any of the packages. • No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength. (§ 178.608)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TABLE DISPLACEMENT:	1"	
TEST FREQUENCY:	4.0 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using Vibration Tester	

VIBRATION TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	27	PASS	No leakage or damage.
	28	PASS	
	29	PASS	

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES	
TEST	49 CFR 2019 EDITION
Drop:	178.603
Leakproofness:	178.604
Hydrostatic Pressure:	178.605
Stack:	178.606
Vibration:	178.608

1. United States Department of Transportation Code of Federal Regulations (CFR) Title 49, Transportation, Parts 100-185

SECTION IV: MATEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall Packaged Tare Weight (PTW):	1.242 Kg	<u>WW/A SG</u>
Overflow Capacity (OFC) :		<u>SG: 0.985</u>
Windshield Washer/Antifreeze	20.800 Kg	
Water	21.300 Kg	5.62 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	15.16 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OC</u>	x	<u>98%</u>		
20.800	x	98% =	20.384 Kg	WW/A
21.300	x	98% =	20.874 Kg	Water

PACKAGED TEST WEIGHT

Overall Pkg Tare Weight (PTW) + 98% Overflow Capacity (OFC)

<u>PTW</u>	+	<u>98% OFC =</u>		
1.244	+	20.384	21.608 Kg	47.637 Lbs. WW/A
1.244	+	20.874	22.118 Kg	48.762 Lbs. Water

CALCULATED PACKAGE GROSS MASS (CPGM)

Overall Pkg Tare Weight (PTW) + (Product SG(PSG) x 98%Overflow (OFC))

<u>PTW</u>	+	<u>(PSG</u>	x	<u>98%OFC)</u>	
1.244	+	1.8	x	20.874	
		38.8 Kg		85.5 Lbs.	

DROP HEIGHT CALCULATION (FOR SPECIFIC GRAVITIES EXCEEDING 1.2)				
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)				
PSG	x	MF	Packing Group: II	
1.8	x	1.00	<u>Required Drop Height</u>	<u>Actual Drop Height</u>
		1.80	Meter	70.9 Inches
				72 Inches

STACKING TEST MINIMUM LOAD CALCULATIONS				
Number of Packages in a 3m High Stack (118.11/Nesting Height (NH)-1				
118.11/Nesting Height of one Pkg (NH) - 1				
$\frac{118.11}{118.11}$	/	$\frac{NH}{15.16}$	-	$\frac{1}{1}$
			=	$\frac{n}{6.79}$
Stack Test Load Calculation (Individual Package)				
Calculated Pkg Gross Mass (CPGM) x # of Pkg in a 3m High Stack (#3mHS)				
CPGM	x	#3Mhs		
38.8	x	6.79		
		263.452 Kg	580.81 Lbs.	

Corporate Office
 500 Industrial Park Dr.
 Portland IN 47371
 Tel 260.726.7000 Fax 260.726.8111

Date Created: May 23, 2019
 Updated to New Format: July 31, 2019

Closing Instructions for 20 Liter – 70MM RTE, 22MM

Caps that this closing instruction includes are:

Rieke Caps: 70MM, SC76RTE with 3/4"NPT & EPDM Gasket (Rieke # 03920001, Priority # 8234-200-060)

Cap: Amcor Rigid Plastics USA, Inc: Priority item number 6043-000-060 with F-217 Liner.22mm



Step 1. Ensure the gasket is in the 70mm closure.



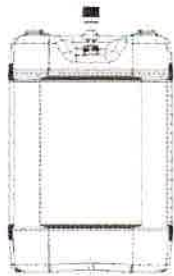
Step 2. Turn the 70mm cap to get started over the threads of the 70mm neck.



Step 3. Place an overcap fixture over the 70mm cap.



Step 4. Torque the cap to 175 - 185 in-lbs.



Step 5. Ensure the gasket is in the 22 mm closure.
 Note: If using Induction Seal 22MM cap, ensure the foil liner is induction sealed on the 22mm vent.



Step 6. Place an overcap fixture over the 22 mm cap.



Step 7. Torque the cap to 25-30 in-lbs.

NOTE: Priority Plastics, Inc. certifies that these containers have been manufactured and certified in accordance with Performance Requirements of Part 178 Subpart M of title 49CFR. The chemical filler and the shipper may rely upon the marking as certification that the package meets the applicable UN performance standards. The shipper is responsible for ensuring the product is authorized in the package and must consult and General Shipper Requirements, including modal requirements. To meet UN standards, the package must be properly closed for shipment. Failure to follow the closure instructions or substitution of packaging components other than those identified in the closure instructions will render the UN Certification invalid.

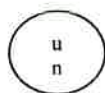
DOT/UNITED NATIONS
Performance Oriented Packaging Certification



3H1 PERIODIC RETEST

7940 20 Liter Rectangle 70mm RTE
Vent- Group II
HDPE
8224-200-060 and 6043-000-060 Cap

Test Report #: 2020-46



3H1/Y1.8/150/**

USA /M5105

**Insert year the packaging is manufactured

TESTING PERFORMED FOR:

PRIORITY PLASTICS, INC.

500 Industrial Park Rd.
Portland, IN 47371

And

PRIORITY PLASTICS, INC

704 Pinder Avenue
Grinnell, IA 50112

TESTING PERFORMED BY:

Priority Plastics, Inc.

500 Industrial Park Rd.
Portland, IN 47371

Phone: (260) 726-7000

Fax: (260) 726-8111

Certification Date: 5/20/20

Re-Certification Date: 5/20/21

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SECTION I: Certification

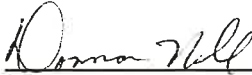
Periodic Retest
 20 Liter Rectangle HDPE Packaging (HDPE Resin)

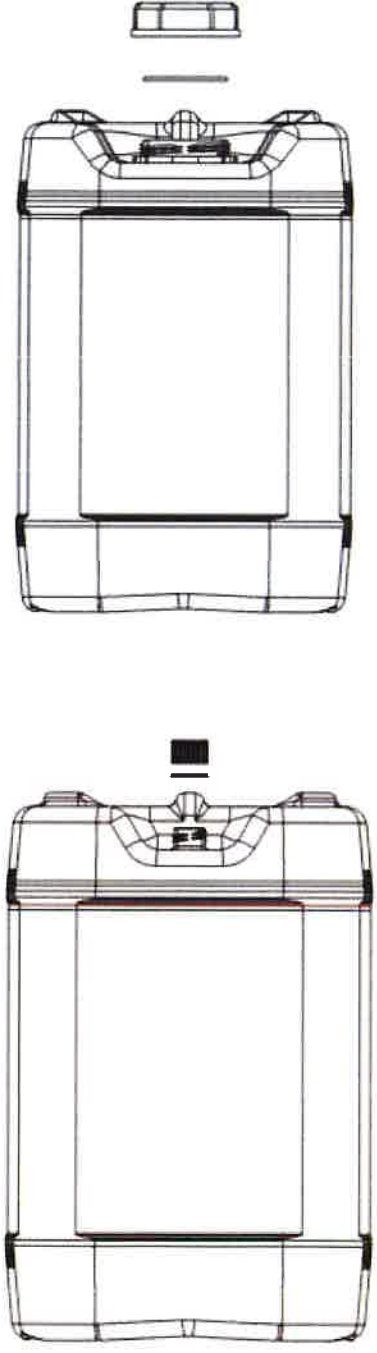
Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. The use of other packaging methods or components other than those documented in this report may render this certification invalid.

SUMMARY OF PERFORMANCE TESTS					
UN/DOT TEST	CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Drop	178.603	1.8 m	Windshield Fluid/Antifreeze Coolant 50/50 Diluted (WW?A)	May 20, 2020	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	May 19, 2020	PASS
Hydrostatic	178.605	150 kPa – 30 Min.	Water	May 19, 2020	PASS
Stacking / Dynamic Compression	178.606	871.2 lbs.	Water	May 19, 2020	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	May 19, 2020	PASS
TEST REPORT NUMBERS: 2019-43, 2020-46					
UN MARKING: (CFR 49 – 178.503)				3H1/Y1.8/150/** USA /M5105	
PACKAGING IDENTIFICATION CODE:			3H1 (178.509)		
PERFORMANCE STANDARD:			Y (Packaging meets Packing Group II test)		
MAXIMUM PRODUCT SPECIFIC GRAVITY:			1.8		
INTERNAL TEST PRESSURE:			150 kPa		
YEAR OF MANUFACTURE:			**Insert year the packaging is manufactured		
STATE AUTHORIZING THE MARK:			USA		
PACKAGING CERTIFICATION AGENCY:			(M) Priority Plastics, Inc.		
PACKAGE IDENTIFICATION:			M5105 (Portland), M6167 (Grinnell)		
PERIODIC RETEST DATE:			March 13, 2021		

In the event of future changes to the above referenced test standard, it is the responsibility of Priority Plastics to determine whether additional testing or updating of past testing is necessary to verify that the packaging tested remains in compliance with those standards.

MANUFACTURER:
 Priority Plastics, Inc.
 500 Industrial Park Road
 Portland, IN 47371


 Donna Noll
 Quality Manager
 Priority Plastics, Inc.
 500 Industrial Park Rd
 Portland, IN 47371

SECTION II: PACKAGING DESCRIPTION / COMPONENTS		
20 Liter Rectangle, 70MM, 22MM Vent, , HDPE Packaging		
	Certification Type: Periodic Retest	
	Packaging Code Designation: 3H1	
	Packing Group: II	
	Specific Gravity: 1.8	
	Hydrostatic Pressure: 150 kPa	
	TEST SAMPLE PREPARATION (Refer to Section IV)	
	Overall Package Tare Weight: 1.242 Kg	
	Fill Capacity (98% Overflow):	
	<ul style="list-style-type: none"> • Windshield Washer/Antifreeze 20.335 Kg • Water 20.874 Kg 	
	Package Test Weight:	
	<ul style="list-style-type: none"> • WW/A: 21.577 Kg • Water 22.116 Kg 	
	Calculated Package Gross Mass: 38.8 Kg (85.54 Lbs.)	
	CLOSING METHODS	
	Application Torque for 70mm Cap: 175-185 In-Lbs. Application Torque for 22mm Cap: 25-30 In-Lbs.	
	Equipment for 70mm Cap: GP-052 & V-GP-198 A Equipment for 22mm Cap: GP-055A & GP-056A & V-GP-171 A	

COMPONENT INFORMATION

CLOSURE (8224-200-060)

Manufacturer: Brandt Industries, Palatine, IL 60067
 70MM ¾ Natural Cap 6TPI-EPDM – W / Tamper Evident

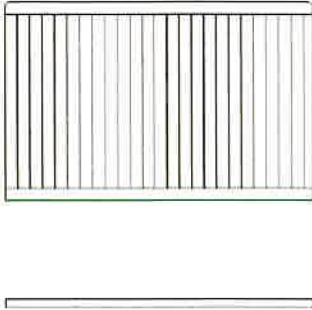
Priority Item Number:	8224-200-060
Tare Weight:	28.7 Grams
Closure Overall Dimensions:	
• Height	0.975"
• Diameter	3.323"
Finish Dimensions:	
• T	2.810"
• E	2.644"
• Thread Pitch	6 Threads per inch
Markings (QC Audit):	No Markings, 6 Ribs Around the outside of the cap, 8
Liner/Gasket	EPDM Gasket
Identification:	None
Wall Thickness:	0.180"
Height Thickness:	0.112" "
Diameter:	2.511"




CLOSURE 6043-000-070 **Drawing**

Manufacturer: Amcor Rigid Plastics USA, LLC, Millville, NJ

Description:	22/410 Fine Rib Serrated Closure-Lined
Material:	Polypropylene
Tare Weight:	2.28 Grams
Overall Dimensions:	
• Height	0.632"
• Diameter	1.001"
Thread Dimensions:	
• T	0.871"
• E	0.786"
Liner:	
Description:	Tri-Seal F-217 Liner



TIGHT HEAD PLASTIC JERRICAN (7940)			
Manufacturer: Priority Plastics, Portland, IN			
Description: 20 Liter Rectangle with Integrated Handle 70MM RTE and 22MM Vent Hole			
Material /Pigment: High Density Polyethylene /Natural			
Method of Manufacturer:		Blow Molded	
Tare Weight:		1.207 Kg	
Capacity:			
• Rated:		5Gallons (20 Liters)	
• Overflow:		21.300 Kg (5.62 Gallons)	
Overall Dimensions:			
• Height:		15.160"	
• Length:		11.015"	
• Width:		10.080"	
Finish Dimensions:			
• 70 mm T		2.768"	
• 70 mm E		2.572"	
• 70 mm Neck Height			
Wall Thickness:		Body	Top Head
• Minimum		0.044"	0.043"
• Minimum From Design Qualification Report 2019-43		0.041"	0.038"
			Btm Head
			0.041"
			0.039"
• Material:		High Density Polyethene	
Markings (QC Audit)		 3H1/Y1.8/150/20/ USA/M5105 "2" HDPE Recycling Symbol, Logo, Month Clock, 4	




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

TEST INFORMATION	TEST CRITERIA
<p>TEST CONTENTS: Windshield Washer/Antifreeze(0.980SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F), Chamber #</p> <p>TEST CONTENTS TEMP.: -18.1°C (-0.58°F)</p> <p>DROP HEIGHT: 1.83 Meters (72") (Refer to Section IV)</p> <p>TEST EQUIPMENT: L.A.B. Accu drop 160</p>	<ul style="list-style-type: none"> For packaging containing liquid, each packaging does not leak when equilibrium has been reached between the internal and external pressures. Any discharge from a closure is slight and ceases immediately after impact with no further leakage. (§ 178.603)

DIAGONAL TOP CHIME DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	1	PASS	No leakage or Breakage
	2	PASS	No leakage or Breakage
	3	PASS	No leakage or Breakage


DIAGONAL BOTTOM CHIME DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	6	PASS	No leakage or Breakage
	7	PASS	No leakage or Breakage
	8	PASS	No leakage or Breakage

LEAKPROOFNESS TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	<ul style="list-style-type: none"> A packaging passes the test if there is no leakage of air from the packaging. (§ 178.604)
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	20.7 kPa (3 PSI)	
TEST DURATION:	5 Minutes	
AREA OF PRESSURIZATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Air Source Pressure Monitoring Gauge	


LEAKPROOFNESS TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	9	PASS	All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.
	10	PASS	
	11	PASS	

HYDROSTATIC PRESSURE TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> For each test sample, there is no leakage of liquid from the package. (§ 178.604)
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	150 kPa (21.76 psi)	
TEST DURATION:	30 Minutes	
AREA OF PRESSURATION:	Through the Sidewall	
TEST EQUIPMENT:	Regulated Water Source Pressure Monitoring Gauge	


HYDROSTATIC PRESSURE TEST SET-UP & RESULTS

	Sample #	Results	Comments / Observations
	12	PASS	All three samples maintained the 150 kPa test pressure for 30 minutes without leakage.
	13	PASS	
	14	PASS	

DYNAMIC COMPRESSION TEST RESULTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty and Without Closure	<ul style="list-style-type: none"> • After application of the required load, there can be no buckling of the sidewalls sufficient to cause damage to its expected contents. • In no case may the maximum deflection exceed one inch. (§ 178.606)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
PRE-LOAD APPLIED:	50 Lbs.	
MINIMUM TEST LOAD REQUIRED:	395.178 Kg (871.2 Lbs.) (Refer to Section IV.)	
TEST EQUIPMENT:	TLS(Tech Lab Systems)	


DYNAMIC COMPRESSION TEST SET-UP & RESULTS

	Sample #	Load	Deflection	Results
	21	871.2 Lbs.	0.776"	Passed
	22	871.2 Lbs.	0.742"	Passed
	23	871.2 Lbs.	0.755"	Passed

NOTE: After meeting the minimum to load requirement of 178.606 ©(2)(ii), each container was taken to failure. Refer to Section VI for the Load vs Deflection Graphs and the maximum compression strength of each test sample.

REPETITIVE SHOCK VIBRATION TESTS

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	Immediately following the period of vibration, each package must be removed from the platform, turned on its side, and observed for any evidence of leakage. <ul style="list-style-type: none"> • A package passes the vibration test if there is no rupture or leakage from any of the packages. • No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength. (§ 178.608)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TABLE DISPLACEMENT:	1"	
TEST FREQUENCY:	4.3 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using Vibration Tester	

VIBRATION TEST SET-UP & RESULTS			
	Sample #	Results	Comments / Observations
	24	PASS	No leakage or damage.
	25	PASS	
	26	PASS	

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES	
TEST	49 CFR 2019 EDITION
Drop:	178.603
Leakproofness:	178.604
Hydrostatic Pressure:	178.605
Stack:	178.606
Vibration:	178.608

1. United States Department of Transportation Code of Federal Regulations (CFR) Title 49, Transportation, Parts 100-185

SECTION IV: MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall Packaged Tare Weight (PTW):	1.2428 Kg	<u>WW/A SG</u>
Overflow Capacity (OFC) :		SG: 0.980
Windshield Washer/Antifreeze	20.750 Kg	
Water	21.300 Kg	5.62 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	15.16 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OFC</u>	x	<u>98%</u>		
20.750	x	98% =	20.335Kg	WW/A
21.300	x	98% =	20.874 Kg	Water

PACKAGED TEST WEIGHT

Overall Pkg Tare Weight (PTW) + 98% Overflow Capacity (OFC)

<u>PTW</u>	+	<u>98% OFC =</u>		
1.242	+	20.335	21.577 Kg	47.569 Lbs. WW/A
1.242	+	20.874	22.116 Kg	48.757 Lbs. Water

CALCULATED PACKAGE GROSS MASS (CPGM)

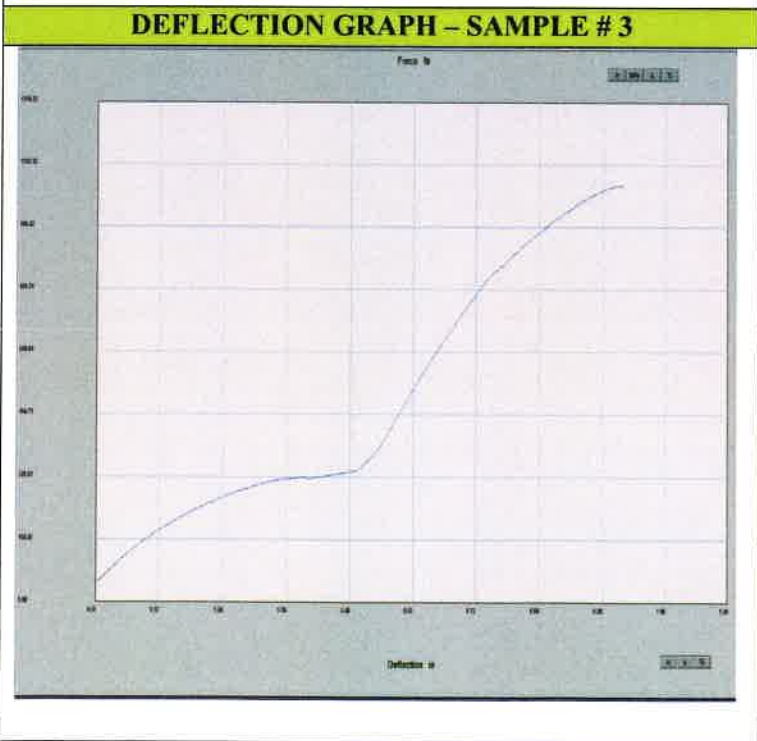
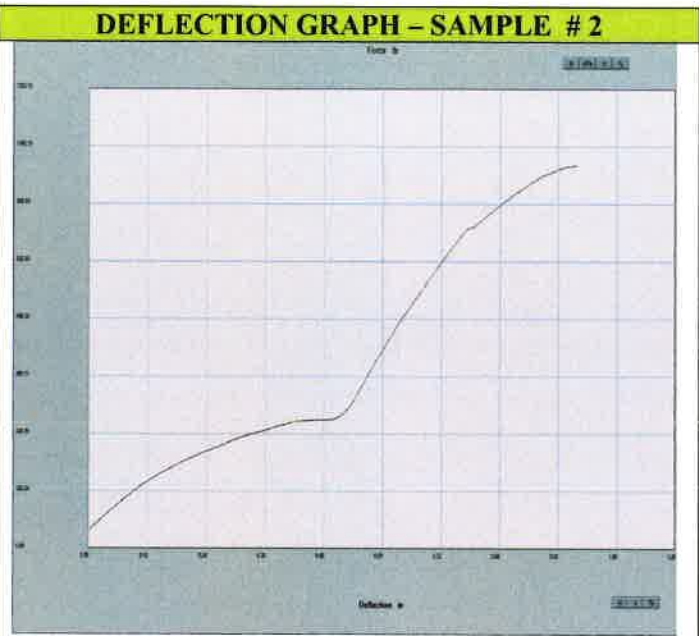
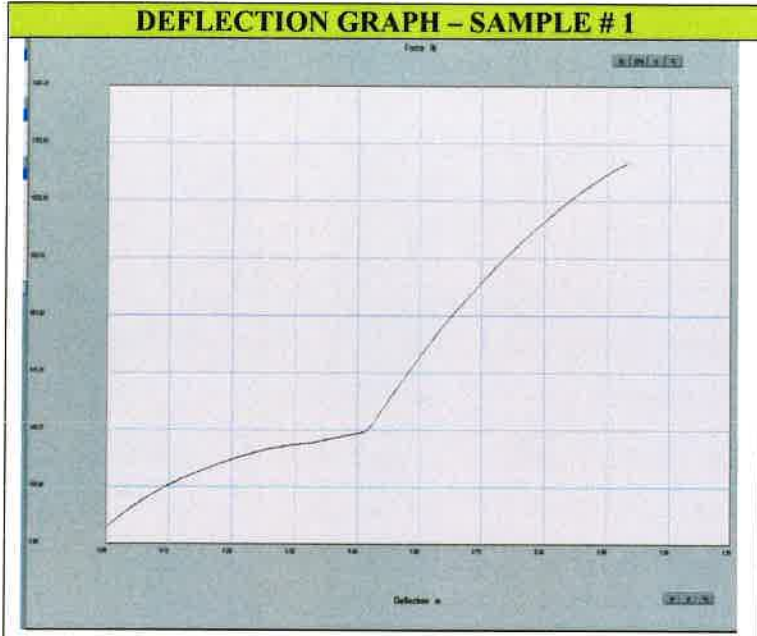
Overall Pkg Tare Weight (PTW) + (Product SG(PSG) x 98% Overflow (OFC))

<u>PTW</u>	+	<u>(PSG</u>	x	<u>OFC)</u>	
1.242	+	1.8	x	20.874	
					38.8 Kg
					85.539 Lbs.

DROP HEIGHT CALCULATION (FOR SPECIFIC GRAVITIES EXCEEDING 1.2)				
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)				
PSG	x	MF	<u>Packing Group: II</u>	
1.8	x	1.00	<u>Required Drop Height</u>	<u>Actual Drop Height</u>
		1.80	Meter	70.9 Inches
				72 Inches

DYNAMIC COMPRESSION TEST LOAD CALCULATIONS				
Dynamic Compression Test Load Calculation				
Where				
A = Applied Load in Lbs.				
n = Minimum number of containers that, when stacked reach a height of 3m (120 inches) (See Calculation Below)				
s = Product Specific Gravity---(PSG)				
w = Overall package tare weight (Lbs.)				
v = Maximum Container Capacity (Gal.)				
8.3 = Weight in pounds of 1 gallon of water				
1.5 = Compensation factor that converts the static load of the stacking test into a load suitable for Dynamic Compression Testing				
$\frac{A}{865.94} = \frac{n \times (w + (s \times v \times 8.3 \times 0.98)) \times 1.5}{6.79 \quad 2.738 \quad 1.8 \quad 5.62 \quad 8.3 \quad .98 \quad 1.5}$				
<p style="text-align: center;">392.784 Kg 865.94 Lbs.</p>				
Minimum Required Top Load Used in Design Qualification Testing x 1.5 Compensation Factor*				
Top Load used in Design Qualification Testing: 263.452 Kg x 1.5 = 395.178 Kg 871.2 Lbs. Minimum Required Top Load				
N = Number of Packages in a 3m High Stack (118/Nesting Height (NH)-1)				
118.11/Nesting Height of one Pkg (NH)-1				
$\frac{(118.11 - 1)}{118.11} / \frac{(NH - 1)}{15.160} = \frac{n}{6.79}$				

SECTION V: INDIVIDUAL LOAD VS. DEFLECTION GRAPHS AND DATA



MAXIMUM LOAD VS. DEFLECTION

Sample #	Maximum Load – Lbs.	Deflection – Inch
21	1136.03 Lbs.	1.00"
22	1110.60 Lbs.	0.99"
23	1099.35 Lbs.	1.00"

Corporate Office
 500 Industrial Park Dr.
 Portland IN 47371
 Tel 260.726.7000 Fax 260.726.8111

Date Created: May 23, 2019
 Updated to New Format: July 31, 2019

Closing Instructions for 20 Liter – 70MM RTE, 22MM

Caps that this closing instruction includes are:

Brandt Cap: 6 TPI, 70MM Tamper Evident with 3/4" NPT, Natural (Brandt # CAP7034NAT6TPIEPDMTE, Priority # 8224-200-060)

Cap: Amcor Rigid Plastics USA, Inc: Priority item number 6043-000-060 with F-217 Liner. 22mm Cap: Amcor Rigid Plastics USA,



Step 1. Ensure the gasket is in the 70mm closure.



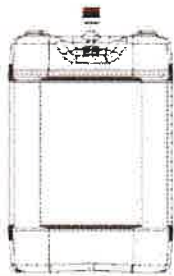
Step 2. Turn the 70mm cap to get started over the threads of the 70mm neck.



Step 3. Place an overcap fixture over the 70mm cap.



Step 4. Torque the cap to 175 - 185 in-lbs.



Step 5. Ensure the gasket is in the 22 mm closure.

Note: If using Induction Seal 22MM cap, ensure the foil liner is induction sealed on the 22mm vent.



Step 6. Place an overcap fixture over the 22 mm cap.



Step 7. Torque the cap to 25-30 in-lbs.

NOTE: Priority Plastics, Inc. certifies that these containers have been manufactured and certified in accordance with Performance Requirements of Part 178 Subpart M of title 49CFR. The chemical filler and the shipper may rely upon the marking as certification that the package meets the applicable UN performance standards. The shipper is responsible for ensuring the product is authorized in the package and must consult and General Shipper Requirements, including modal requirements. To meet UN standards, the package must be properly closed for shipment. Failure to follow the closure instructions or substitution of packaging components other than those identified in the closure instructions will render the UN Certification invalid.