

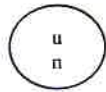
DOT/UNITED NATIONS
Performance Oriented Packaging Certification



3H1 VARIATION V

7940 20 Liter Rectangle 70MM
22 MM Vent Hole- Group II
8234-200-060 & 8231-000-070(Lg. Hole)
1000 Gr.

2021-22



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: 4/9/2021

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SECTION I: Certification

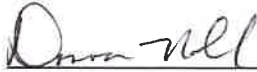
Variation V
 20 Liter Rectangle HDPE Packaging

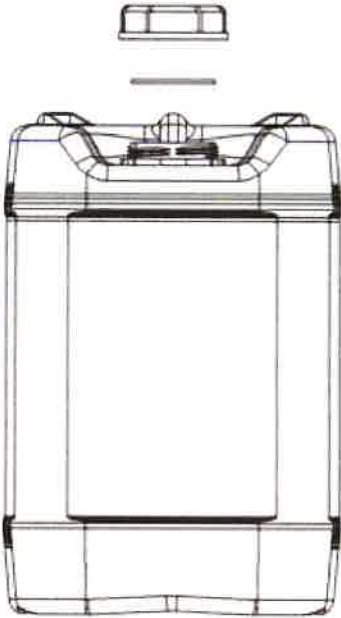
Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION’S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. 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)	March 31, 0221	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	April 5, 2021	PASS
Hydrostatic	178.605	150 kPa – 30 Min.	Water	April 5, 2021	PASS
Stack	178.606	578.9 Lbs.	Water	April 9, 2021	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	March 30, 3032	PASS
TEST REPORT NUMBERS: 2020-38, 2021-22					
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

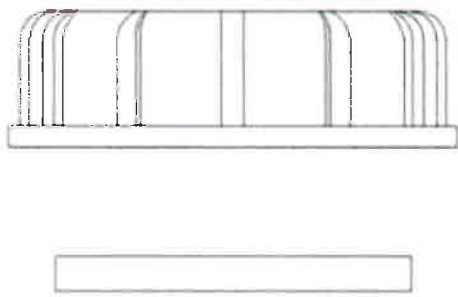



 Donna Noll
 Quality Manager
 Priority Plastics, Inc.
 500 Industrial Park Rd
 Portland, IN 47371

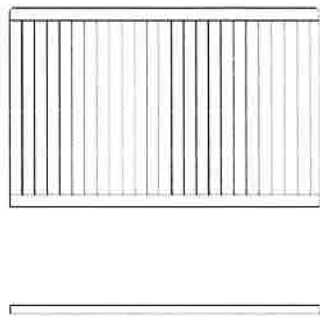
SECTION II: PACKAGING DESCRIPTION / COMPONENTS		
20 Liter Rectangle, 70MM, 22MM Vent, , HDPE Packaging		
	Certification Type: Variation V	
	Packaging Code Designation: 3H1	
	Packing Group: II	
	Specific Gravity: 1.8	
	Hydrostatic Pressure: 150 kPa	
	TEST SAMPLE PREPARATION (Refer to Section <u>IV</u>)	
	Overall Package Tare Weight: 1.037 Kg	
	Fill Capacity (98% Overflow):	
	<ul style="list-style-type: none"> • Windshield Washer/Antifreeze 20.345 Kg • Water 21.070 Kg 	
	Package Test Weight:	
	<ul style="list-style-type: none"> • WW/A: 21.382 Kg • Water 22.107 Kg 	
	Calculated Package Gross Mass: 38.96 Kg (85.89 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 and Enercon Induction Sealer	


COMPONENT INFORMATION

CLOSURE (8234-200-060)

Manufacturer: Rieke Corporation, Auburn, Indiana

Description: 70mm, 6TPI Buttress, Tamper Evident with 3/4" Reducer, SC – 76RTE		
Priority Item Number:	8234-200-060	
Tare Weight:	31.6 Grams	
Closure Overall Dimensions:		
• Height	1.013"	
• Diameter	3.336 "	
Finish Dimensions:		
• T	2.831"	
• E	2.618"	
• Thread Pitch	6 Threads per inch	
Markings (QC Audit):	Rieke®, SC76, 70MM, 6TPI  OPEN CLOSE TIGHT  Cavity # 30	
Liner/Gasket	EPDM Gasket	
Identification:	None	
Wall Thickness:	0.178"	
Height Thickness:	0.113"	
Diameter:	2.522"	

CLOSURE 8231-000-070		Drawing
Manufacturer: Berry Plastics,		
Description:	Polypropylene/White 22/410 Fine Rib Serrated Closure Induction Seal	
Material:	Polypropylene	
Tare Weight:	2.28 Grams	
Overall Dimensions:		
• Height	0.654"	
• Diameter	1.004"	
Thread Dimensions:		
• T	0.871"	
• E	0.791"	

TIGHT HEAD PLASTIC JERRICAN (7940)			
Manufacturer: Priority Plastics, Portland, IN			
Description: 20 Liter Rectangle with Integrated Handle 70MM and 22MM Large Vent Hole			
Material /Pigment: High Density Polyethylene /Natural			
Method of Manufacturer:		Blow Molded	
Tare Weight:		1.000 Kg	
Capacity:			
• Rated:		5 Gallons (20 Liters)	
• Overflow:		21.500 Kg (5.67 Gallons)	
Overall Dimensions:			
• Height:		15.25"	
• Length:		11.015"	
• Width:		10.057"	
Finish Dimensions:			
• 70 mm T		2.763"	
• 70 mm E		2.581"	
• 70 mm Neck Height		0.674"	
Wall Thickness:		Body	Top Head
• Minimum		0.040"	0.036"
• Minimum From Design Qualification Report 2020-38		0.036"	0.034"
			Btm Head
			0.043"
			0.033"
• Material:		High Density Polyethylene	
Markings (QC Audit)		 3H1/Y1.8/150/21/ USA/M5105 "2" HDPE Recycling Symbol, Month Clock, 13 PRIORITYPLASTICS.COM,	




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.: -18.5°C (-1.3°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
	7	PASS	No leakage or Breakage
	8	PASS	No leakage or Breakage
	9	PASS	No leakage or Breakage


BOTTOM DIAGONAL CHIME DROP TEST SET-UP AND RESULTS

	Sample #	Results	Comments / Observations
	11	PASS	No leakage or Breakage
	12	PASS	No leakage or Breakage
	13	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
	14	PASS	All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.
	15	PASS	
	16	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:	75.9°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
	17	PASS	All three samples maintained the 150 kPa test pressure for 30 minutes without leakage.
	18	PASS	
	19	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:	274.895 Kg (606.04 Lbs.)	
TEST EQUIPMENT:	Stack Room and Weights	

STACKING TEST SET-UP AND RESULTS

	Sample #	Maximum Deflection After 28 Days	Results
	1	7/16"	PASS
2	1/2"	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:	4.0 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using Vibration Tester	

VIBRATION TEST SET-UP & RESULTS			
	Sample #	Results	Comments / Observations
	4	PASS	No leakage or damage.
	5	PASS	
	6	PASS	

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES	
TEST	49 CFR 2020 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):	1.037 Kg	<u>WW/A SG</u>
Overflow Capacity (OFC) :		SG: 0.982
Windshield Washer/Antifreeze	20.760 Kg	
Water	21.500 Kg	5.657 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	15.25 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OC</u>	x	<u>98%</u>		
20.760	x	98% =	20.345 Kg	WW/A
21.500	x	98% =	21.070 Kg	Water

PACKAGED TEST WEIGHT

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

<u>PTW</u>	+	<u>98% OFC =</u>		
1.037	+	20.345	21.382 Kg	47.139 Lbs. WW/A
1.037	+	21.070	22.107 Kg	48.737 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>	
1.037	+	1.8	x	21.070	
		38.96 Kg		85.892 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 (118.11/Nesting Height (NH)-1				
118.11/Nesting Height of one Pkg (NH) - 1				
<u>(118.11</u>	/	<u>NH)</u>	- <u>1</u>	= <u>n</u>
118.11	/	15.25	- 1	= 6.74
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>		
38.96	x	6.74		
		262.590 Kg	578.911 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, 22M

Caps that this closing instruction includes are:

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

Cap: Berry Plastics: 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 closure instructions or substitution of packaging components other than those identified in the closure instructions will render the UN Certification invalid.

WALL THICKNESS PROFILE

MEASUREMENT LOCATION	MEASUREMENT I.D.	MEASUREMENT In INCHES	MEASUREMENT In MM	
TOP HEAD				
	1	0.131	3.3274	
	2	0.136	3.4544	
	3	0.045	1.1430	
	4	0.046	1.1684	
	5	0.069	1.7526	
	6	0.071	1.8034	
	7	0.124	3.1496	
	8	0.120	3.0480	
SIDEWALL				
	9	0.131	3.3274	
	10	0.059	1.4986	
	11	0.120	3.0480	
	12	0.077	1.9558	
	13	0.064	1.6256	
	14	0.066	1.6764	
	15	0.185	4.6990	
	16	0.089	2.2606	
	17	0.153	3.8862	
	18	0.066	1.6764	
	19	0.068	1.7272	
	20	0.074	1.8796	
	BOTTOM			
	21	0.051	1.2954	
	22	0.147	3.7338	
	23	0.056	1.4224	
	24	0.088	2.2352	
	25	0.054	1.3716	
26	0.149	3.7846		
	27	0.050	1.2700	