

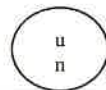
DOT/UNITED NATIONS

Performance Oriented Packaging Certification



DESIGN QUALIFICATION

**7944 5 Gallon Rectangle 63mm
Swing Handle
No Vent- Group II
HDPE
Rieke FSII with White Cap
Test Report #: 2021-17**



3H1/Y1.8/100/**
USA/5105

**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: 3/23/21

Recertification Date: 3/23/22

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(Controlled Copy when in RED)

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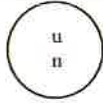
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SECTION I: Certification

Design Qualification
5 Gallon 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)	March 4, 2021	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	March 11, 2021	PASS
Hydrostatic	178.605	100 kPa – 30 Min.	Water	March 11, 2021	PASS
Stacking	178.606	580.6 lbs.	Water	March 23, 2021	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	March 4, 2021	PASS
TEST REPORT NUMBERS:		2021-17			
UN MARKING: (CFR 49 – 178.503)				3H1/Y1.8/100/** 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:			100 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			March 23, 2022		

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


Judy Wendel
Quality Manager
Priority Plastics, Inc.
500 Industrial Park Rd
Portland, IN 47371

SECTION II: PACKAGING DESCRIPTION / COMPONENTS

5 Gallon Rectangle, Crimp Neck, No Vent HDPE Packaging



Certification Type:	Design Qualification
Packaging Code Designation:	3H1
Packing Group:	II
Specific Gravity:	1.8
Hydrostatic Pressure:	100 kPa

TEST SAMPLE PREPARATION
(Refer to Section IV)

Overall Package Tare Weight:	1.174 Kg
Fill Capacity (98% Overflow):	
• Windshield Washer/Antifreeze	18.620 Kg
• Water	19.551 Kg
Package Test Weight:	
• WW/A:	19.774 Kg
• Water	20.725 Kg
Calculated Package Gross Mass:	36.36 Kg (80.16 Lbs.)

CLOSING METHODS

Application Torque Crimp Neck:	Manual Crimp On
Equipment for Cap Crimp Neck:	Rieke FS-600 Crimper

COMPONENT INFORMATION

CLOSURE (Rieke FSII with White Cap)

Manufacturer: Rieke Packaging Corporation

Description: FSII® FLEXSPOUT®	
Tare Weight:	27.22Grams
Closure Overall Dimensions:	
• Height	1.183"
• O.D. of Retainer	2.773"
Finish Dimensions:	
• O. D. of Body	2.716"
Markings (QC Audit):	Rieke® FLEXSPOUT®, FSII™ LIFT BAIL, PULL OUT,96 White Cover—Rieke®, 40



TIGHT HEAD PLASTIC JERRICAN (7944)

Manufacturer: Priority Plastics, Portland, IN

Description: 5 Gallon Rectangle W/Swing Handle 63MM Crimp and No Vent

Material /Pigment: High Density Polyethylene /Natural

Method of Manufacturer: Blow Molded

Tare Weight: 1.147 Kg

Capacity:

• **Rated:** 5 Gallons (20 Liters)

• **Overflow:** 19.950 Kg (5.26 Gallons)

Overall Dimensions:

• **Height:** 14.33"

• **Length:** 10.886"

• **Width:** 10.184"

Finish Dimensions:

• **O.D. Neck** 2.570"

• **I.D. Neck** 2.284"

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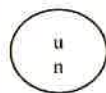
• **Bead Thickness**

Wall Thickness: Body Top Head Btm Head

• Minimum From Design Qualification Report 2021-17	0.040"	0.035"	0.037"
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• **Material:** High Density Polyethylene

Markings (QC Audit)



3H1/Y1.8/100/21
/USA/M5105
"2" HDPE Recycling Symbol,
Month Clock, Logo, 5




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

TEST INFORMATION	TEST CRITERIA
<p>TEST CONTENTS: Windshield Washer/Antifreeze(0.960SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F)</p> <p>TEST CONTENTS TEMP.: -18.2°C (-0.76°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

BOTTOM DIAGONAL CHIME 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 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
14	PASS	<p>All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.</p>
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	
TEST PRESSURE:	100 kPa (14.5 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 100 kPa test pressure for 30 minutes without leakage.
	13	PASS	
	14	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:	278.92 Kg (614.92 Lbs.)	
TEST EQUIPMENT:	Stack Room and Weights	

STACKING TEST SET-UP AND RESULTS

	Sample #	Maximum Deflection After 28 Days	Results
	1	1/2"	PASS
2	9/16"	PASS	
3	1/2"	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:	4.0 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using Vibration Tester	

VIBRATION TEST SET-UP & RESULTS



Sample #	Results	Comments / Observations
11	PASS	No leakage or damage.
12	PASS	
13	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):	1.174 Kg	<u>WW/A SG</u>
Overflow Capacity (OFC) :		SG: 0.960
 Windshield Washer/Antifreeze	19.000 Kg	
 Water	19.950Kg	5.26 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	14.33 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OC</u>	x	<u>98%</u>		
19.000	x	98% =	18.620 Kg	WW/A
19.950	x	98% =	19.551 Kg	Water

PACKAGED TEST WEIGHT

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

<u>PTW</u>	+	<u>98% OFC =</u>		
1.174	+	18.620	19.794 Kg	43.638 Lbs. WW/A
1.174	+	19.551	20.725 Kg	45.691 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>
1.174	+	1.8	x	19.551
		36.36 Kg		80.16 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>	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				
<u>(118.11</u>	/	<u>NH)</u>	-	<u>1</u>
118.11	/	14.33	-	1
			=	<u>n</u>
			=	7.242
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>		
36.36	x	7.242		
		263.319 Kg	580.518 Lbs.	



Closing Instructions

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

Date Created: April 2, 2021

Closing Instructions for 5 Gallon Swing Handle – Flexspout & No Vent

Caps that this closing instruction includes are:

Rieke Cap: FS-10-10-231 Self Venting FSII Solid Flexspout (Rieke # 03160001, Priority # 8241-003)



Step 1 Place the correct flexspout cap as listed above on the container



Step 2. Sit the flexspout cap in the neck opening of the container



Step 3. Place Rieke's FS-600 Crimper fixture over the flexspout cap



Step 4. Pull down on the handles on the crimper to crimp the flexspout on the container ensuring to pull down evenly to ensure the flexspout is crimped over the bead on the neck finish of the container.

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.