

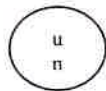
DOT/UNITED NATIONS
Performance Oriented Packaging Certification



3H1 DESIGN QUALIFICATION

7940 20 Liter Rectangle 61mm
No Vent- Group II
HDPE
1000 Grams
61MM BERI-CAP

2021-61



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: 8/26/21
Recertification Date: 8/26/22

TABLE OF CONTENTS

Section I: CERTIFICATION.....3

Section II & V: PACKAGING DESCRIPTION / COMPONENT DRAWINGS.....4

Section III: TEST PROCEDURES AND RESULTS.....8

DROP TESTS..... 8

LEAKPROOFNESS TEST.....9

HYDROSTATIC PRESSURE TEST..... 10

STACKING TEST AND STACKING STABILITY TEST..... 11

REPETITIVE SHOCK VIBRATION TESTS..... 12

REGULATORY AND INDUSTRY STANDARD REFERENCES..... 13

Section IV: MATHEMATICAL CALCULATIONS.....14

SECTION I: Certification

Design Qualification
5 Gallon Rectangle HDPE Packaging (HDPE Resin)

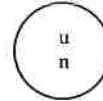
Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. 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)	July 28, 2021	PASS
Leakproofness	178.604	20 kPa – 5 Min. 3 PSI	Empty	July 28, 2021	PASS
Hydrostatic	178.605	150 kPa – 30 Min.	Water	July 28, 2021	PASS
Stack	178.606	588.2 Lbs.	Water	August 26, 2021	PASS
Vibration	178.608	1.6mm – 1 Hr	Water	July 27,2021	PASS

TEST REPORT NUMBERS: 2021-28 61

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: August 26, 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

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

SECTION II: PACKAGING DESCRIPTION / COMPONENT DRAWINGS

20 Liter Rectangle, 61MM, No 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: 1.046 Kg

Fill Capacity (98% Overflow):

- Windshield Washer/Antifreeze 20.580 Kg
- Water 21.364 Kg

Package Test Weight:

- WW/A: 21.626 Kg
- Water 22.410 Kg

Calculated Package Gross Mass: 39.5 Kg (87.08 Lbs.)

CLOSING METHODS

Application Torque for 70mm Cap: 150-160 In-Lbs.

Equipment for Cap: GP-052 & Overcap V-GP-240

COMPONENT INFORMATION


CLOSURE (8257-001)

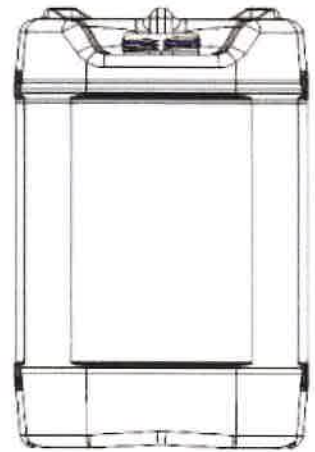
Manufacturer: BeriCap, Burlington, Ontario, Canada L7L 6C5

Description: 58246-SK60/31 MABMDR-BLK TAP 856FOAM	
Priority Item Number:	8257-001
Tare Weight:	25.75 Grams
Closure Overall Dimensions:	
• Height	1.196"
• Diameter	2.858"
Finish Dimensions:	
• T	2.318"
• E	2198"
• Thread Pitch	
Markings (QC Audit):	Month Year Clock, Recycle Symbol with 2 and recycle symbol with 8, 1 E 0 E
Liner/Gasket	Foam
Identification:	None
Wall Thickness:	0.151"
Height Thickness:	0.122"
Diameter:	2.168"



TIGHT HEAD PLASTIC JERRICAN (7940)

Manufacturer: Priority Plastics, Portland, IN			
Description: 20 Liter Rectangle with Integrated Handle 61MM and No Vent			
Material /Pigment: High Density Polyethylene /Natural			
Method of Manufacturer:		Blow Molded	
Tare Weight:		1.020 Kg	
Capacity:			
• Rated:		20 Liters (5 Gallons)	
• Overflow:		21.800 Kg (5.757 Gallons)	
Overall Dimensions:			
• Height:		15.23"	
• Length:		10.997"	
• Width:		10.167"	
Finish Dimensions:			
• 61 mm T		2.339"	
• 61 mm E		2.175"	
• 61 mm Neck Height			
Wall Thickness:		Body	Top Head
• Minimum		0.038"	0.030"
			Btm Head
			0.039"
• Material:		High Density Polyethene	
Markings (QC Audit)		 <p>3H1/Y1.8/150/21/ USA/M5105 "2" HDPE Recycling Symbol, PRIORITYPLASTICS.COM, Month Clock, 13</p>	




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

TEST INFORMATION	TEST CRITERIA
<p>TEST CONTENTS: Windshield Washer/Antifreeze(0.987SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F), Chamber #</p> <p>TEST CONTENTS TEMP.: -18.6°C (-1.48°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 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:	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		CRITERIA FOR PASSING THE TEST
TEST CONTENTS:	Water	<ul style="list-style-type: none"> No test sample may leak No test sample may show any deterioration that could adversely affect transportation safety or any distortion likely to reduce it's strength, cause instability in stacks of packages or cause damage to inner packagings likely to reduce safety in transportation.. (§ 178.606)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	40°C (104°F) Stack Room	
TEST LOAD APPLIED:	286.974 Kg (632.67 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	3/8"	PASS
	3	5/8"	PASS
<p>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.</p>			


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		CRITERIA FOR PASSING THE TEST
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 that is 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: MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall Packaged Tare Weight (PTW):	1.046 Kg	WW/A SG
Overflow Capacity (OFC) :		SG: 0.987
Windshield Washer/Antifreeze	21.000 Kg	
Water	21.800 Kg	5.757 Gallons (GAL)
Packing Group:	II	
Product Specific Gravity (PSG):	1.8	
Packing Group Multiplication Factor (MF):	1.00	
Nesting Height of one Package (NH):	15.23 Inches	
Stack Test # of Samples Tested Simultaneously:	0	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OFC</u>	x	<u>98%</u>		
21.000	x	98% =	20.580 Kg	WW/A
21.800	x	98% =	21.364 Kg	Water

PACKAGED TEST WEIGHT

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

<u>PTW</u>	+	<u>98% OFC =</u>		
1.046	+	20.580	21.626 Kg	47.677 Lbs. WW/A
1.046	+	21.364	22.410 Kg	49.405 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>	
1.046	+	1.8	x	21.364	
		39.50 Kg		87.08 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 (118.11/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	/	15.23	-	1
			=	<u>n</u>
			=	6.755
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>		
39.5	x	6.755		
		266.822 Kg	588.24 Lbs.	

Closing Instructions

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

Date Created: May 31, 2021
Updated to New Format:

Closing Instructions for 20 Liter – 61MM RTE, No Vent

Caps that this closing instruction includes are:

BeriCap: Screw Cap -58246-SK60/31 MABMDR-BLK TAP 856FOAM, Priority Plastics # 8257-001-062



Step 1. Ensure the gasket is in the 61mm closure.



Step 2. Turn the 61mm cap to get started over the threads of the 61mm neck.



Step 3. Place an overcap fixture over the 61mm cap.



Step 4. Torque the cap to 150 - 160 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 t