

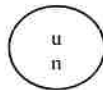
DOT/UNITED NATIONS
Performance Oriented Packaging Certification



3H1 PERIODIC RETEST

7647 5 Liter Priority Pour HDPE Jerrican Packaging
No Vent- Group II
Chevron Phillips 50100
70 – 150 in-lb

Test Report #: 2021-02



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: 1/6/21

Re-Certification Date: 1/6/22

TABLE OF CONTENTS

Section I: CERTIFICATION.....3

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

Section III: TEST PROCEDURES AND RESULTS.....7

 DROP TESTS.....7

 LEAKPROOFNESS TEST.....8

 HYDROSTATIC PRESSURE TEST.....9

 DYNAMIC COMPRESSION TEST.....10

 REPETITIVE SHOCK VIBRATION TESTS.....11

 REGULATORY AND INDUSTRY STANDARD REFERENCES.....12

Section IV: MATHEMATICAL CALCULATIONS.....13

Section V: INDIVIDUAL LOAD VS. DEFLECTION GRAPHS AND DATA.....14

SECTION I: Certification

Periodic Retest

5 Liter Priority Pour HDPE Jerrican Packaging (Chevron Phillips 50100 Resin)

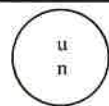
Priority Plastics, Inc. certifies that the packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. It is the responsibility of the end user to determine authorization for use under these regulations. 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 | 1.8m (70.9 in.) | Windshield Fluid/Antifreeze (WW/A) Coolant 50/50 Diluted | January 2, 2021 | PASS |
| Leakproofness | 178.604 | 20 kPa – 5 Min. 3 PSI | Empty | January 6, 2021 | PASS |
| Hydrostatic | 178.605 | 150 kPa – 30 Min. | Water | January 6, 2021 | PASS |
| Stack/ Dynamic Compression | 178.606 | 409 lbs. | Water | January 6, 2021 | PASS |
| Vibration | 178.608 | 1.6mm – 1 Hr | Water | January 4, 2021 | PASS |

TEST REPORT NUMBERS: 2017-25, 2018-30, 2019-06, 2020-02, 2021-02

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.

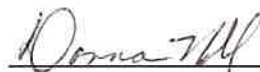
PACKAGE IDENTIFICATION: M5105 (Portland), M6167 (Grinnell)

PERIODIC RETEST DATE: January 6, 2022

Note: It is the responsibility of the packaging user to ensure that all items shipped within this package are allowed to be shipped via this package in accordance with USDOT 49CFR and/or modal regulations applicable to the intended mode of transportation. The use of packaging methods other than those provided by Priority Plastics or the use of components other than those documented in this report may render this certification invalid.

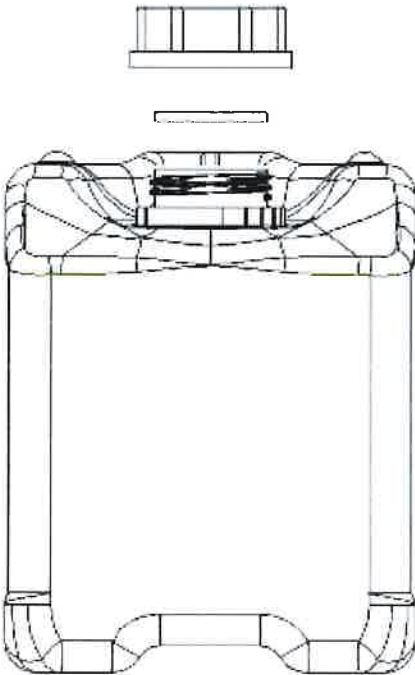
MANUFACTURER:

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


 Donna Noll
 Quality Manager
 Priority Plastics, Inc.
 500 Industrial Park Rd
 Portland, IN 4737

SECTION II: PACKAGING DESCRIPTION / COMPONENTS

5 Liter Priority Pour Jerrican, HDPE Packaging



| | |
|-----------------------------|-----------------|
| Certification Type: | Periodic Retest |
| 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: | 0.406 Kg |
| Fill Capacity (98% Overflow): | |
| • Windshield Washer/Antifreeze (WW/A): | 5.017 Kg |
| • Water | 5.194 Kg |

| | |
|----------------------|----------|
| Package Test Weight: | |
| • WW/A: | 5.423 Kg |
| • Water | 5.600 Kg |

Calculated Package Gross Mass: 9.75 Kg (21.49 Lbs.)

CLOSING METHODS

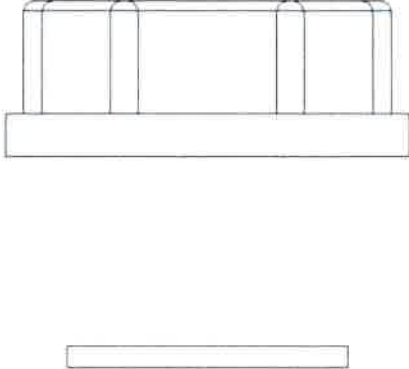
Application Torque: 70 – 150 In-Lbs.


Equipment: Snap on Tool ED2600 Electronic Dial
 Hand Torque Wrench GP-052
 & V-GP-129-A

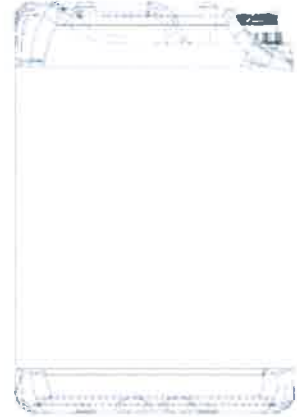
COMPONENT INFORMATION

CLOSURE (8233-301)

Manufacturer: Rieke Corporation, Auburn, Indiana

| | | |
|---|--|---|
| Description: 50 mm Tamper Evident Threaded Closure | |  |
| Priority Item Number: | 8233-301 | |
| Tare Weight: | 18.1 Grams | |
| Closure Overall Dimensions: | | |
| • Height | 1.004" | |
| • Diameter | 2587" | |
| Finish Dimensions: | | |
| • T | 1.976" | |
| • E | 1.794" | |
| Markings (QC Audit): | No Markings, 6 Ribs Around the outside of the cap. Rieke® PAT PEND "4" LDPE Recycling Symbol, SC – 550 , 1 | |
| Liner/Gasket | EPDM Gasket | |
| Identification: | Blue mark | |
| Wall Thickness: | 0.199" | |
| Height Thickness: | 0.134" | |
| Diameter: | 1.746" | |

| TIGHT HEAD PLASTIC JERRICAN (7647) | | | |
|--|---|-----------------|-----------------|
| Manufacturer: Priority Plastics, Portland, IN | | | |
| Description: 5 Liter Priority Pour Jerrican | | | |
| Material /Pigment: High Density Polyethylene /Natural | | | |
| Method of Manufacturer: | Blow Molded | | |
| Tare Weight: | 0.388 Kg | | |
| Capacity: | | | |
| • Rated: | 5 Liters (1.32 Gal.) | | |
| • Overflow: | 5.300 Kg (1.398 Gallons) (5.29 Liter) | | |
| Overall Dimensions: | | | |
| • Height: | 8.738" | | |
| • Length: | 7.660" | | |
| • Width: | 6.439" | | |
| Finish Dimensions: | | | |
| • T | 1.910" | | |
| • E | 1.764" | | |
| • Neck Height | | | |
| Wall Thickness: | Body | Top Head | Btm Head |
| • Minimum | 0.034" | 0.028" | 0.029" |
| • Minimum From Design Qualification Report 2018-02 | 0.028" | 0.022" | 0.029" |
| • Material: | High Density Polyethene | | |
| Markings (QC Audit) |  <p>3H1/Y1.8/150/20 USA/M5105 "2" HDPE Recycling Symbol, Month/Year Clock, 2 PRIORITYPLASSTICS.COM</p> | | |




SECTION III: TEST PROCEDURES AND RESULTS


DROP TESTS

| TEST INFORMATION | TEST CRITERIA |
|---|---|
| <p>TEST CONTENTS: Windshield Washer/Antifreeze(0.977SG)</p> <p>SAMPLE PREPARATION: REFER TO Section II</p> <p>CONDITIONING: -18°C (0°F), Chamber #</p> <p>TEST CONTENTS TEMP.: -18.2° C</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 |


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

|  | Sample # | Results | Comments / Observations |
|---|----------|---------|-------------------------|
| | 5 | PASS | No leakage or Breakage |
| | 6 | PASS | No leakage or Breakage |
| | 7 | 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 APPLICAAATION: | 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 | <p>All three samples maintained the 20.7 kPa test pressure for 5 minutes without leakage.</p> |
| | 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 |
| | 14 | PASS | All three samples maintained the 150 kPa test pressure for 30 minutes without leakage. |
| | 15 | PASS | |
| | 16 | 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: | 185.625Kg (409.2 Lbs.) (Refer to Section IV.) | |
| TEST EQUIPMENT: | TLS(Tech Lab Systems) | |

DYNAMIC COMPRESSION TEST SET-UP & RESULTS


|  | Sample # | Load | Deflection | Results |
|--|----------|------------|------------|---------|
| | 17 | 409.2 Lbs. | 0.877" | Passed |
| | 18 | 409.2 Lbs. | 0.828" | Passed |
| | 19 | 409.2 Lbs. | 0.836" | 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: | 4.0 Hz | |
| TEST DURATION: | 1 Hour | |
| TEST EQUIPMENT: | Vertical motion using Vibration Tester | |

VIBRATION TEST SET-UP & RESULTS

| | Sample # | Results | Comments / Observations |
|---|-----------------|----------------|--------------------------------|
|  | 8 | PASS | No leakage or damage. |
| | 9 | PASS | |
| | 10 | 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): | 0.406 Kg | <u>WW/A SG</u> |
| Overflow Capacity (OFC) : | | SG: 0.977 |
| Windshield Washer/Antifreeze | 5.120 Kg | |
| Water | 5.300 Kg | 1.4 Gallons (GAL) |
| Packing Group: | II | |
| Product Specific Gravity (PSG): | 1.8 | |
| Packing Group Multiplication Factor (MF): | 1.00 | |
| Nesting Height of one Package (NH): | 8.738 Inches | |
| Stack Test # of Samples Tested Simultaneously: | 0 | |

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

| | | | | |
|-----------|---|------------|----------|-------|
| <u>OC</u> | x | <u>98%</u> | | |
| 5.120 | x | 98% = | 5.017 Kg | WW/A |
| 5.300 | x | 98% = | 5.194 Kg | Water |

PACKAGED TEST WEIGHT

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

| | | | | |
|------------|---|------------------|----------|-------------------|
| <u>PTW</u> | + | <u>98% OFC =</u> | | |
| 0.406 | + | 5.017 | 5.423 Kg | 11.955 Lbs. WW/A |
| 0.406 | + | 5.194 | 5.600 Kg | 12.346 Lbs. Water |

CALCULATED PACKAGE GROSS MASS (CPGM)

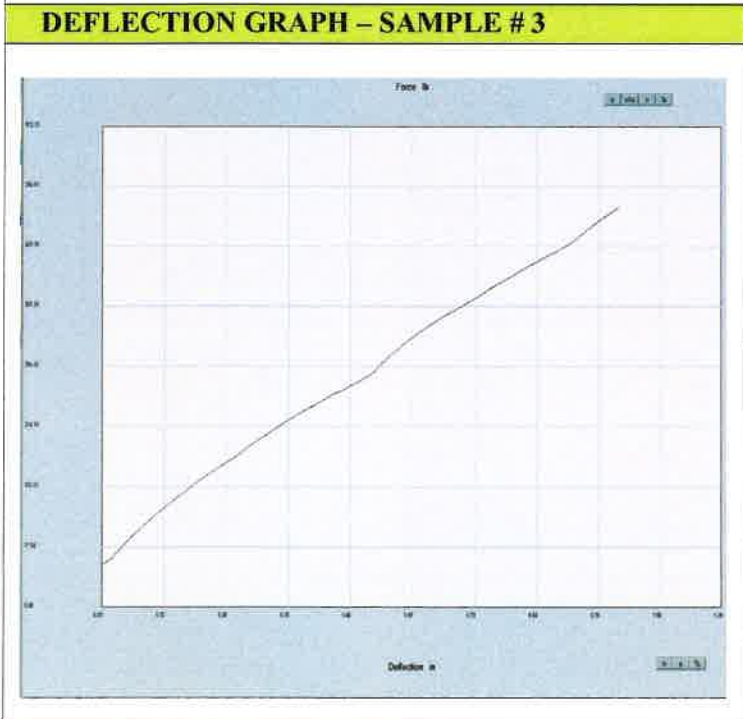
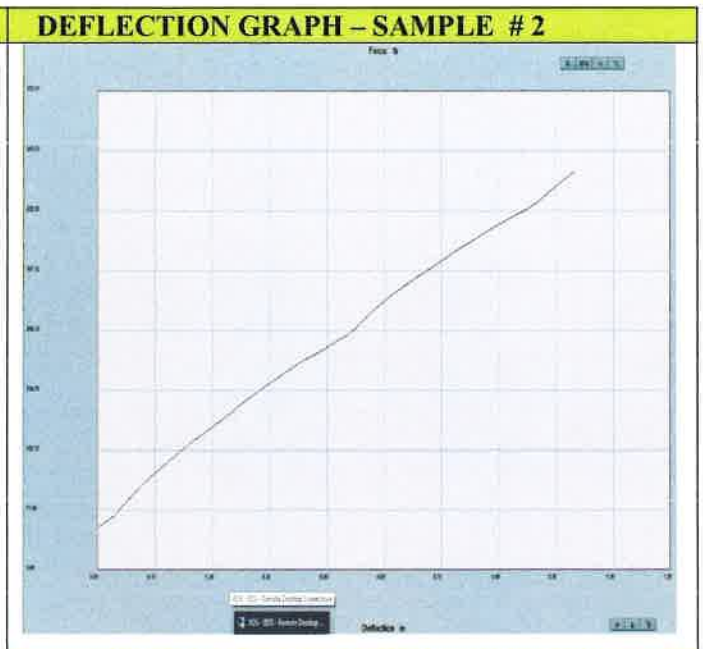
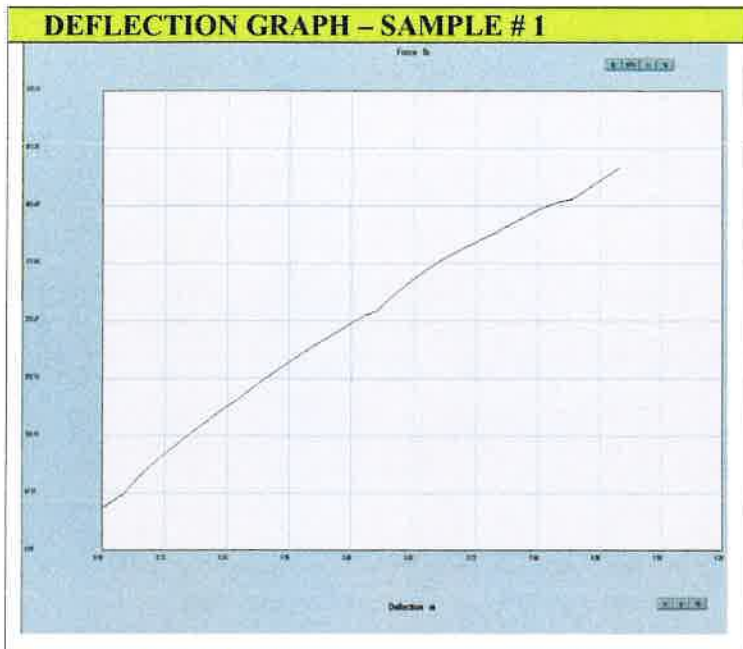
Overall Pkg Tare Weight)PTW + (Product SG(PSG) x 98%Overflow (OFC)

| | | | | |
|------------|---|-----------------|---|----------------|
| <u>PTW</u> | + | <u>(PSG</u> | x | <u>98%OFC)</u> |
| 0.406 | + | 1.8 | x | 5.194 |
| | | 9.755 (9.75) Kg | | 21.506Lbs. |

| 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 |

| 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 | | | | | |
| <u>A</u> | = | <u>n x (w + (s x v x 8.3 x 0.98)) x 1.5</u> | | | |
| 401.658 | | 12.517 | 0.895 | 1.8 | 1.4 |
| | | | 8.3 | 0.98 | 1.5 |
| | | 182.189 Kg | | 401.658 Lbs. | |
| Minimum Required Top Load Used in Design Qualification Testing x 1.5 Compensation Factor* | | | | | |
| Top Load used in Design Qualification Testing: 123.75 Kg. x 1.5 = 185.625 Kg 409.2 Lbs | | | | | |
| N = Number of Packages in a 3m High Stack (118/Nesting Height (NH)-1) | | | | | |
| 118/Nesting Height of one Pkg (NH)-1 | | | | | |
| <u>(118.11</u> | / | <u>NH)</u> | - | <u>1</u> | = |
| 118.11 | / | 8.738 | - | 1 | = |
| | | | | n | 12.517 |

SECTION V: INDIVIDUAL LOAD VS. DEFLECTION GRAPHS AND DATA



MAXIMUM LOAD VS. DEFLECTION

| Sample # | Maximum Load – Lbs. | Deflection – Inch |
|----------|---------------------|-------------------|
| 21 | 450.45 Lbs. | 1.00" |
| 22 | 477.23 Lbs. | 1.00" |
| 23 | 476.78 Lbs. | 1.00" |

Closing Instructions

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

Date Created:
 Updated to New Format: 8.08.2019

Closing Instructions for 5Liter, 4 Liter, 2.5 Liter Priority Pours

Caps that this closing instruction includes are:

Rieke Cap SC-550 with an EPDM Gasket. (Rieke Drawing # 28000976, Rieke Item # 03950100, Priority # 8233-301)



Step 1. Place the correct SC 550 cap as listed above on the container.



Step 2. Turn the 50mm cap to get started over the threads of the 50mm neck.



Step 3. Place an overcap fixture over the 50mm cap.



Step 4. Torque the cap to 70 in-lbs. - 150 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.