


**UNITED NATIONS / DOT
PERFORMANCE CERTIFICATION**

4G DESIGN QUALIFICATION

**6 x 500mL Round Plastic Bottle Packaging with
Two Neck Finishes:
#1) 38-439
#2) 45mm**

TEST REPORT #: 14-7129

 **4G / Y7.5 / S / **
USA / +CC7197**

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

TESTING PERFORMED FOR:

PUREPAK TECHNOLOGY CORPORATION
324 South Bracken Lane Suite 3
Chandler, AZ 85244

ATTN: Mike Dodd

TESTING PERFORMED BY:

TEN-E PACKAGING SERVICES, INC.
326 North Corona Avenue
Ontario, CA 91764
Phone: 909-937-1260
Fax: 909-937-1262

September 16, 2014

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NOTES AND COMMENTS


Tested as a design qualification due to a change in the corrugated basis weight. The packaging will retain the +CC7197 identification.

SECTION I: CERTIFICATION

Design Qualification of the PurePak Technology Corporation 6 x 500mL Round Plastic Bottle Packaging with Two Neck Finishes; #1) 38-439 #2) 45mm

TEN-E Packaging Services, Inc. is a current DOT UN Third-Party Certification Agency under §107.403 and certifies that the **PurePak Technology Corporation** packaging referenced above has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49 CFR; Performance Oriented Packaging Standards, Section 178. This package is also certified under IMDG, ICAO/IATA Regulations and the UN Recommendations on the Transport of Dangerous Goods. 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.

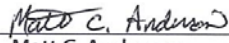
SUMMARY OF PERFORMANCE TESTS

UN / DOT TEST	CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Drop	178.603	1.9 m	Methanol/Water	September 12, 2014	PASS
Stacking	178.606	317.5 Kg – 24 Hours	Water	September 16, 2014	PASS
Pressure	173.27	300 kPa - 30 Minutes	Water	September 13, 2014	PASS
Vibration	178.608	3.6 Hz – 1 Hour	Water	September 15, 2014	PASS
Cobb	178.516	30 Minutes	---	September 10, 2014	PASS
TEST REPORT NUMBER:			14-7129		
UN MARKING: (CFR 49 – 178.503)			 4G / Y7.5 / S / ** USA / +CC7197		
PACKAGING IDENTIFICATION CODE:			4G - Fiberboard Box (178.516)		
PERFORMANCE STANDARD:			Y (Packaging meets Packing Group II and III tests)		
AUTHORIZED GROSS MASS:			7.5 Kg (16.5 Lbs)		
"S" DESIGNATION:			Denotes Inner Packagings		
YEAR OF MANUFACTURE:			** Insert year the packaging is manufactured		
STATE AUTHORIZING THE MARK			USA		
PACKAGING CERTIFICATION AGENCY:			(+CC) TEN-E Packaging Services, Inc. (Ontario CA #2006030021)		
THIRD PARTY PACKAGING IDENTIFICATION:			+CC7197		
PERIODIC RETEST DATE:			September 16, 2016		


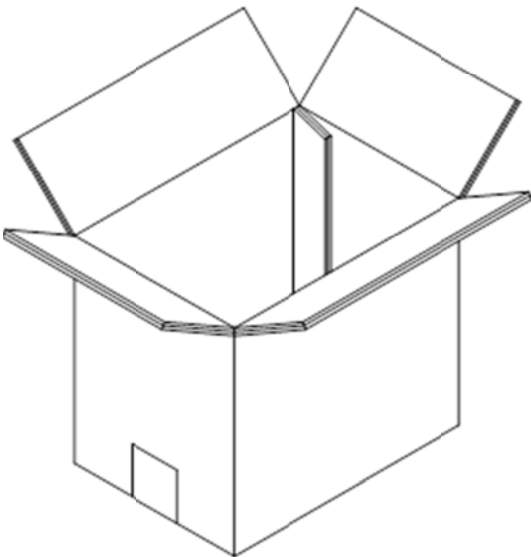
ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY THAT THE PACKAGING TESTED IS MERCHANTABLE OR FIT FOR A PARTICULAR PURPOSE, ARE DISCLAIMED. In no event shall TEN-E Packaging Services, Inc. liability exceed the total amount paid by **PurePak Technology Corporation** for services rendered. In the event of future changes to the above referenced test standards, it is the responsibility of **PurePak Technology Corporation** to determine whether additional testing or updating of past testing is necessary to verify that the packaging we have tested remains in compliance with those standards.

MANUFACTURER:

PurePak Technology Corporation
 324 South Bracken Lane
 Suite 3
 Chandler, AZ 85244


 Matt C. Anderson
 Project Manager
 TEN-E Packaging Services, Inc.


SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS

6 x 500mL Round Plastic Bottle Packaging with 38-439 Neck Finish		
ASSEMBLY DRAWING	TEST LEVELS	
	Certification Type: Design Qualification	
	Packaging Code Designation: 4G	
	Packing Group: II	
	Specific Gravity: 1.9	
	Internal Pressure: 300kPa	
	TEST SAMPLE PREPARATION (Refer to Section IV)	
	Overall Packaging Tare Weight: 648.0 Grams	
	Fill Capacity (98% Maximum Capacity):	
	Methanol/Water	583.7 Grams
	Water	603.7 Grams
	Package Test Weight:	
	Methanol/Water	4.1 Kg 9.0 Lbs
	Water	4.2 Kg 9.2 Lbs
	Authorized Package Gross Mass:	7.5 Kg 16.5 Lbs
	CLOSING METHODS – INNER PACKAGING	
	Application Torque: 50 In-Lbs	
	Equipment: Kaps All Electronic Torque Tester	
	CLOSING METHODS – SHIPPER	
	Top Flaps:	
	Manufacturer:	3M: St. Paul, MN
	Type:	3M Scotch Brand Pressure Sensitive Tape supplied by client
	Width:	48 mm (2")
	Overlap:	2" Minimum
	Tape Pattern:	Center Seam
	Inner Flaps:	3-1/8" Width Gap
	Outer Flaps:	Meet
	Bottom Flaps:	
	Manufacturer:	3M: St. Paul, MN
	Type:	3M Scotch Brand Pressure Sensitive Tape supplied by client
	Width:	48 mm (2")
	Overlap:	2" Minimum
	Tape Pattern:	Center Seam
	Inner Flaps:	3-1/8" Width Gap
	Outer Flaps:	Meet

For Packagings with an Established Gross Mass:

If the gross mass calculation in this report exceeds the previously established gross mass, the manufacturer may elect to maintain the current gross mass marking (e.g. the gross mass rating of the UN marking on the packaging may be less than the calculated gross mass indicated in this report) or use the newly established gross mass. In no event shall the gross mass marking on the packaging exceed the gross mass to which the packaging was tested.


6 x 500mL Round Plastic Bottle Packaging 45mm Neck Finish


ASSEMBLY DRAWING	TEST LEVELS	
	Certification Type:	Design Qualification
	Packaging Code Designation:	4G
	Packing Group:	II
	Specific Gravity:	1.9
	Internal Pressure:	300kPa
	TEST SAMPLE PREPARATION (Refer to Section IV)	
	Overall Packaging Tare Weight:	
	Fill Capacity (98% Maximum Capacity):	
	Methanol/Water	604.6 Grams
	Water	625.3 Grams
	Package Test Weight:	
	Methanol/Water	4.2 Kg 9.2 Lbs
	Water	4.4 Kg 9.7 Lbs
	Authorized Package Gross	7.7 Kg 16.9 Lbs
	Mass:	
	CLOSING METHODS – INNER PACKAGING	
	Application Torque: 25 In-Lbs	
	Equipment: Kaps All Electronic Torque Tester	
	CLOSING METHODS – SHIPPER	
	Top Flaps:	
	Manufacturer:	3M: St. Paul, MN
	Type:	
	3M Scotch Brand Pressure Sensitive Tape supplied by client	
	Width:	48 mm (2")
	Overlap:	2" Minimum
	Tape Pattern: Center Seam	
	Inner Flaps: 3-1/8" Width Gap	
	Outer Flaps: Meet	
	Bottom Flaps:	
	Manufacturer:	3M: St. Paul, MN
	Type:	
	3M Scotch Brand Pressure Sensitive Tape supplied by client	
	Width:	48 mm (2")
	Overlap:	2" Minimum
	Tape Pattern: Center Seam	
	Inner Flaps: 3-1/8" Width Gap	
	Outer Flaps: Meet	

For Packagings with an Established Gross Mass:

If the gross mass calculation in this report exceeds the previously established gross mass, the manufacturer may elect to maintain the current gross mass marking (e.g. the gross mass rating of the UN marking on the packaging may be less than the calculated gross mass indicated in this report) or use the newly established gross mass. In no event shall the gross mass marking on the packaging exceed the gross mass to which the packaging was tested.

COMPONENT INFORMATION

CLOSURE		DRAWING
Manufacturer: Rexam Plastic Packaging: Evansville, IN (QIM-317-4937)		
Description:	38mm Threaded Closure	
Quantity:	6	
Material:	Polypropylene	
Tare Weight:	10.66 Grams	
Overall Dimensions:		
• Height	1.016" ± 0.015"	
• Diameter	1.701" ± 0.015"	
Thread:		
• Type	38mm	
• Style	439	
Finish Dimensions:		
• T	1.483" ± 0.007"	
• E	1.389" ± 0.007"	
Markings (QC Audit):	3	
Liner:		
Description:	P.E. Foam Liner	
Tare Weight:	0.68 Grams	
Thickness:	0.058"	
Diameter:	1.382"	
PLASTIC BOTTLE		
Manufacturer: Berry Plastics Corporation: Evansville, IN (ZB38RD500H)		
Description:	500mL Plastic Bottle	
Quantity:	6	
Material/Pigment:	High Density Polyethylene / Natural	
Method of Manufacture:	Blow Molded	
Tare Weight:	50 Grams ± 2.5 Grams	
Capacity:		
• Rated	500mL	
• Overflow	616.0 Grams (20.8 Oz)	
Overall Dimensions:		
• Height	7.000" ± 0.060"	
• Diameter	3.071" ± 0.060"	
Thread Dimensions:		
• T	1.461" ± 0.010"	
• E	1.374" ± 0.010"	
• Pitch	0.1640"	
Wall Thickness:		
• Nominal		
• Minimum	0.027"	
Markings (QC Audit):	SPI "2" HDPE Recycling Symbol 2 12/12	

CLOSURE		DRAWING
Manufacturer: George MENSHEN GmbH: Finnentrop, Germany (4.1451.99.2)		
Description:	45mm Threaded Closure	
Quantity:	6	
Material:	Polyethylene	
Tare Weight:	11.07 Grams	
Overall Dimensions:		
• Height	30.3mm	
• Diameter	1.971"	
Thread:		
• Type	45mm	
• Style	Buttress	
Finish Dimensions:		
• T	1.792"	
• E	1.676"	
• Thread Pitch	4mm	
Markings (QC Audit):	5 1451	
Liner:		
Description:	PTFE Liner	
Tare Weight:	0.91 Grams	
Thickness:	0.008"	
Diameter:	1.793"	
PLASTIC BOTTLE		
Manufacturer: Berry Plastics Corporation: Auburn, IN (ZB45RD500H)		
Description:	500mL Plastic Bottle	
Quantity:	6	
Material/Pigment:	High Density Polyethylene / Natural	
Method of Manufacture:	Blow Molded	
Tare Weight:	50 Grams ± 2.5 Grams	
Capacity:		
• Rated	500mL	
• Overflow	638 Grams (21.5 Oz)	
Overall Dimensions:		
• Height	7.000" ± 0.060"	
• Diameter	3.071" ± 0.060"	
Thread Dimensions:		
• T	1.772" ± 0.010"	
• E	1.644" ± 0.010"	
• Pitch	0.1587"	
Wall Thickness:		
• Minimum	0.025"	
Markings (QC Audit):	SPI "2" HDPE Recycling Symbol 2 3/12	

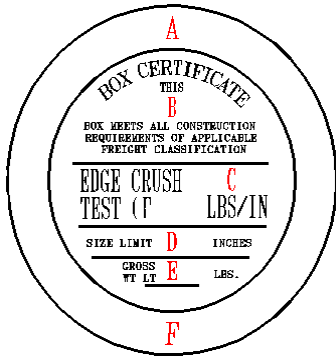
SHIPPER

Manufacturer: Sound Packaging: Chandler, AZ	
Description:	Regular Slotted Container
Material/Flute (Inner to Outer):	Double Wall Natural Kraft Corrugated Fiberboard; B/C-Flute
Basis Weight (Outer to Inner) Lbs./MSF:	
• Specification	42/23/42/23/42
Tare Weight:	287 Grams

DIMENSIONS

	Specification Dimensions (Inside)	Measured Dimensions (Outside)
• Length	9-3/8"	9-7/8"
• Width	6-5/16"	7"
• Height	7-1/8"	8-5/8"
Board Caliper (Nominal):	0.234"	
Manufacturer's Joint:	Inside Glued, 1-3/8" Lap	
Markings (QC Audit):	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; margin-right: 10px;">u n</div> <div> 4G/Y7.5/S/12 USA/+CC7197 DOT-SP 14656 ART WORK DATE 05-22-12 9 3/8 X 6 5/16 X 7 1/8 ID </div> </div>	







BOX CERTIFICATE

(A) Corrugated Manufacturer:	SOUND PACKAGING	
(B) Structure:	Double Wall	
(C) ECT:	48 Lbs. Per Sq Inch	
(D) Size Limit:	95"	
(E) Gross Wt Lt:	100 Lbs.	
(F) Location:	CHANDLER, AZ	

SECTION III: TEST PROCEDURES AND RESULTS

DROP TESTS

38-439 Neck Finish







TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Methanol/Water Solution (0.967 SG)	<ul style="list-style-type: none">For packaging containing liquid, each packaging does not leak.There can be no damage to the outer packaging likely to adversely affect safety during transport. Inner receptacles, inner packagings or articles must remain completely within the outer packaging and there must be no leakage of the filling substance from the inner packaging.Any discharge from a closure is slight and ceases immediately after impact with no further leakage.No rupture is permitted in packagings for materials in Class 1 which would permit spillage of loose explosive substances or articles from the outer packaging. (§178.603)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	-18°C (0°F) Freezer #201	
CONTENTS TEMP.:	-18.3°C (-1.0°F)	
DROP HEIGHT:	1.9 Meters (75") (Refer to Section IV)	
TEST EQUIPMENT:	L.A.B. Accu Drop 160	
DROP ORIENTATIONS AND TEST RESULTS		
Sample #1: Flat on Bottom	Sample #2: Flat on Top	*Sample #3: Flat on Long Side
		
PASS: No leakage or damage.	PASS: No leakage or damage.	PASS: No leakage or damage.
*Sample #4: Flat on Short Side	*Sample #5: Bottom Corner	**Sample #1: Top Corner
		
PASS: No leakage or damage.	PASS: No leakage. Deformation to shipper on impact.	PASS: No leakage. Deformation to shipper on impact.

*Side and corner drops were conducted to impact the manufacturer's joint

** Flat on Bottom Drop sample was also used for the Top Corner drop.

DROP TESTS

45mm Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Methanol/Water Solution (0.967 SG)	<ul style="list-style-type: none"> For packaging containing liquid, each packaging does not leak. There can be no damage to the outer packaging likely to adversely affect safety during transport. Inner receptacles, inner packagings or articles must remain completely within the outer packaging and there must be no leakage of the filling substance from the inner packaging. Any discharge from a closure is slight and ceases immediately after impact with no further leakage. No rupture is permitted in packagings for materials in Class 1 which would permit spillage of loose explosive substances or articles from the outer packaging. (§178.603)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	-18°C (0°F) Freezer #201	
CONTENTS TEMP.:	-18.2°C (-0.76°F)	
DROP HEIGHT:	1.9 Meters (75") (Refer to Section IV)	
TEST EQUIPMENT:	L.A.B. Accu Drop 160	
DROP ORIENTATIONS AND TEST RESULTS		
Sample #12: Flat on Bottom	Sample #13: Flat on Top	*Sample #14: Flat on Long Side
		
PASS: No leakage or damage.	PASS: No leakage or damage.	PASS: No leakage or damage.
*Sample #15: Flat on Short Side	*Sample #16: Bottom Corner	**Sample #12: Top Corner
		
PASS: No leakage or damage.	PASS: No leakage. Deformation to shipper on impact.	PASS: No leakage. Deformation to shipper on impact.

*Side and corner drops were conducted to impact the manufacturer's joint


** Flat on Bottom Drop sample was also used for the Top Corner drop.

STACKING & STACKING STABILITY TESTS


38-439 Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> There must be no leakage of the filling substance from the inner receptacle, or inner packaging. There can be no deterioration that could adversely affect transport 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 transport.
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	73°F / 50% RH Quality Room #202	
TEST LOAD APPLIED:	317.5 Kg (700.0 Lbs) (Refer to Section IV)	
TEST DURATION:	24 Hours	
TEST EQUIPMENT:	L.A.B. Validator Plus Compression System	(§178.606)

STACKING TEST SET-UP & RESULTS

	Sample #	Maximum Deflection After 24 Hours	Results
	6	0.051"	PASS
	7	0.051"	PASS
	8	0.051"	PASS
	Comments/Observations		
	Following the stack test there was no leakage or damage likely to result in failure of the packaging.		

STACKING STABILITY TEST SET-UP & 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 packagings of the same type must be placed on the test sample. The stacked packages must maintain their position for one hour.
For stack stability, TEN-E places the filled samples 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.		


(§178.606)

STACKING & STACKING STABILITY TESTS


45mm Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> There must be no leakage of the filling substance from the inner receptacle, or inner packaging. There can be no deterioration that could adversely affect transport 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 transport.
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	73°F / 50% RH Quality Room #202	
TEST LOAD APPLIED:	317.5 Kg (700.0 Lbs) (Refer to Section IV)	
TEST DURATION:	24 Hours	
TEST EQUIPMENT:	L.A.B. 5250 Compression System	(§178.606)

STACKING TEST SET-UP & RESULTS

	Sample #	Maximum Deflection After 24 Hours	Results
	17	0.066"	PASS
	18	0.066"	PASS
	19	0.066"	PASS
	Comments/Observations		
	Following the stack test there was no leakage or damage likely to result in failure of the packaging.		

STACKING STABILITY TEST SET-UP & RESULTS

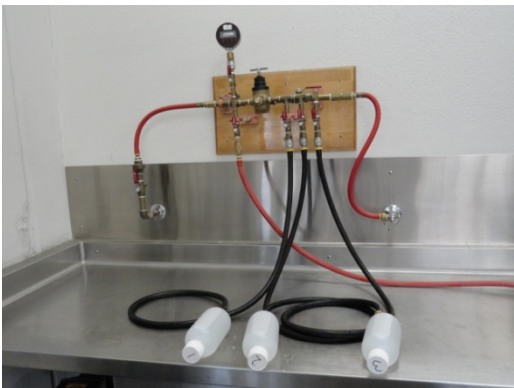
	Results	CRITERIA FOR PASSING THE TEST
	PASS	<ul style="list-style-type: none"> In guided load tests, stacking stability must be assessed after test completion. Two filled packagings of the same type must be placed on the test sample. The stacked packages must maintain their position for one hour.
For stack stability, TEN-E places the filled samples 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.		

PRESSURE DIFFERENTIAL TEST

38-439 Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> Packaging for which retention of liquid is a basic function must be capable of withstanding the pressure requirements without leakage. (§173.27(c))
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	300 kPa	
TEST DURATION:	30 Minutes	
AREA OF PRESSURIZATION:	Through the Bottom	
TEST EQUIPMENT:	Regulated Water Source Digital Pressure Gauge	

HYDROSTATIC PRESSURE TEST SET-UP AND RESULTS

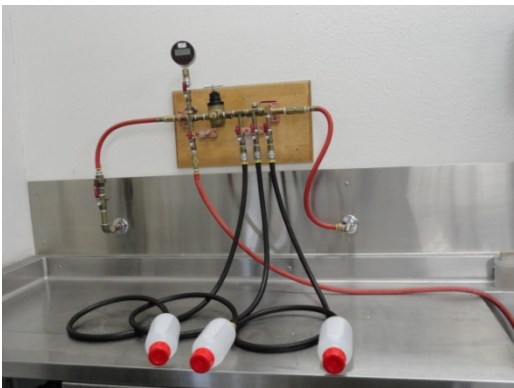
	Sample #	Results	Comments/Observations
	1	PASS	All three samples maintained the 300 kPa test pressure for 30 minutes without leakage.
	2	PASS	
	3	PASS	

PRESSURE DIFFERENTIAL TEST

45mm Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> Packaging for which retention of liquid is a basic function must be capable of withstanding the pressure requirements without leakage. (§173.27(c))
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	300 kPa	
TEST DURATION:	30 Minutes	
AREA OF PRESSURIZATION:	Through the Bottom	
TEST EQUIPMENT:	Regulated Water Source Digital Pressure Gauge	

HYDROSTATIC PRESSURE TEST SET-UP AND RESULTS


	Sample #	Results	Comments/Observations
	1	PASS	All three samples maintained the 300 kPa test pressure for 30 minutes without leakage.
	2	PASS	
	3	PASS	

VIBRATION TEST

38-439 Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> 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. A packaging 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. <p>(§178.608)</p>
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	73°F / 50% RH Quality Room #202	
TABLE DISPLACEMENT:	1"	
TEST FREQUENCY:	3.6 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using L.A.B. Palletizer Vibration System	

VIBRATION TEST SET-UP AND RESULTS


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

VIBRATION TEST

45mm Neck Finish

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> 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. A packaging 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. <p>(§178.608)</p>
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	73°F / 50% RH Quality Room #202	
TABLE DISPLACEMENT:	1"	
TEST FREQUENCY:	3.6 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using L.A.B. Palletizer Vibration System	

VIBRATION TEST SET-UP AND RESULTS

	Sample #	Results	Comments/Observations
	20	PASS	No leakage or damage.
	21	PASS	
	22	PASS	

COBB WATER ABSORPTION TEST

TEST INFORMATION	TEST CRITERIA
NUMBER OF SAMPLES: 5 SAMPLE SIZE: 5" x 5" (Minimum) CONDITIONING: 73°F / 50% RH Quality Room #202 WATER APPLIED: 100 mL / Sample TEST DURATION: 30 Minutes / Sample TEST EQUIPMENT: UWE Analytical Balance Gurley Cobb Water Absorption Fixtures	<ul style="list-style-type: none"> An increase in mass greater than 155 g/m² over the 30 minute duration represents an unacceptable level of water resistance. (§178.516)

COBB WATER ABSORPTION TEST RESULTS	
Sample #	Water Absorbed
1	97 g/m ²
2	96 g/m ²
3	106 g/m ²
4	101 g/m ²
5	94 g/m ²
AVERAGE:	98.8 g/m²
RESULT	PASS

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES

TEST	49 CFR ^①	UN ^②	IMDG ^③	ICAO ^④	IATA ^⑤
	October 2012 Edition	17 th Edition	2012 Edition	2013-2014 Edition	54th Edition
Drop:	178.603	6.1.5.3	6.1.5.3	6; 4.3	6.3.3
Stacking:	178.606	6.1.5.6	6.1.5.6	6; 4.6	6.3.6
Pressure:	173.27(c)	4.1.1.4.1	4.1.1.4.1	4; 1.1.6	5.0.2.9
Vibration:	178.608	---	---	4; 1.1.1	5.0.2.7
Cobb:	178.516(b)(1)	6.1.4.12.1	6.1.4.12.1	6; 3.1.11.1	6.2.12.2

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

② The United Nations Recommendations on the Transport of Dangerous Goods – Model Regulations (UN – Orange Book)

③ International Maritime Dangerous Goods Code (IMDG)

④ Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO)

⑤ International Air Transport Association (IATA) Dangerous Goods Regulations

INDUSTRY STANDARD REFERENCES

Drop:	ASTM ^⑥ D5276:	Standard Test Method for Drop Test of Loaded Containers by Free Fall
	ISO ^⑦ 2248:	Packaging – Complete, Filled Transport Packages – Vertical Impact Test by Dropping
Stacking:	ASTM ^⑥ D4577:	Standard Test Method for Compression Resistance of a Container Under Constant Load
	ISO ^⑦ 2234:	Packaging – Complete, Filled Transport Packages – Stacking Test using Static Load
Hydrostatic Pressure:	ASTM ^⑥ D7660:	Standard Guide for Conducting Internal Pressure Tests on United Nations (UN) Packagings
Vibration:	ASTM ^⑥ D999:	Standard Test Method for Vibration Testing of Shipping Containers
	ISO ^⑦ 2247:	Packaging – Complete, Filled Transport Packages – Vibration Test at Fixed Low Frequency
Cobb:	ISO ^⑦ 535:	Paper and Board – Determination of Water Absorption – Cobb Method

⑥ American Society for Testing and Materials (ASTM)

⑦ International Organization for Standardization (ISO)

EQUIPMENT

All inspection, measuring and test equipment that can affect product quality is calibrated and adjusted at prescribed intervals, or prior to use, and is traceable to NIST, using ANSI Z540 as an overall guide for calibration certification.

SECTION IV: MATHEMATICAL CALCULATIONS

38mm

INFORMATION USED FOR CALCULATIONS

Overall Packaging Tare Weight (PTW):	648.0 Grams	
Overflow Capacity (OFC):		Methanol/Water SG
Methanol/Water	595.6 Grams	SG: 0.967
Water	616.0 Grams	
Number of Inner Packagings (# IP):	6	
Packing Group	II	
Product Specific Gravity (PSG):	1.900	
Packing Group Multiplication Factor (MF):	1.00	
Overall Height of one Package (OH):	8.63 Inches	
Stack Test-# of Samples Tested Simultaneously:	3	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

OFC	x	98%		
595.6	x	98% =	583.7 Grams	Methanol/Water
616.0	x	98% =	603.7 Grams	Water

PACKAGE TEST WEIGHTS

Overall Pkg Tare Weight (PTW) + (98% Overflow Capacity (OFC) x # of Inner Pkg (# IP))

PTW	+	(98% OFC)	x	# IP)	
648	+	583.7	x	6	Methanol/Water
648	+	603.7	x	6	Water
Methanol/Water:		4.1	Kg	9.0	Lbs.
Water:		4.2	Kg	9.2	Lbs.

AUTHORIZED PACKAGE GROSS MASS CALCULATION (APGM)

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

PTW	+	(PSG)	x	98% OFC	x	# IP)
648	+	1.9	x	604	x	6
		7.5	Kg	16.5	Lbs.	

DROP HEIGHT

Calculation For Product Specific Gravities Exceeding 1.2
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)

PSG	x	MF	Packing Group: II	
1.9	x	1.00	Required Drop Height	Actual Drop Height
		1.90	74.8 Inches	75 Inches
		Meter		

STACKING TEST MINIMUM LOAD CALCULATIONS

Number of Packages in a 3m High Stack (118 / Overall Pkg Height (OH) -1)

118 / Overall Height of one Pkg (OH) - 1

(118)	/	(OH)	-1	=	# 3m HS
118	/	8.63	-1	=	12.7

Stacking Test Load Calculation (Individual Package)

Authorized Pkg Gross Mass (APGM) x # of Pkg in a 3m High Stack (# 3m HS)

APGM	x	# 3m HS	
7.5	x	12.7	
		95.3 Kg	210.1 Lbs.

Stacking Test Load Calculation

Samples x Authorized Pkg Gross Mass (APGM) x # of Pkg in a 3m High Stack (# 3m HS)

Samples	x	(APGM	x	# 3m HS)	
3	x	7.5	x	12.7	
				285.8 Kg	630.1 Lbs.

SECTION IV: MATHEMATICAL CALCULATIONS

45mm

INFORMATION USED FOR CALCULATIONS

Overall Packaging Tare Weight (PTW):	656.0 Grams	
Overflow Capacity (OFC):		Methanol/Water SG
Methanol/Water	616.9 Grams	SG: 0.967
Water	638.0 Grams	
Number of Inner Packagings (# IP):	6	
Packing Group	II	
Product Specific Gravity (PSG):	1.900	
Packing Group Multiplication Factor (MF):	1.00	
Overall Height of one Package (OH):	8.63 Inches	
Stack Test-# of Samples Tested Simultaneously:	3	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

OFC	x	98%		
616.9	x	98% =	604.6 Grams	Methanol/Water
638.0	x	98% =	625.3 Grams	Water

PACKAGE TEST WEIGHTS

Overall Pkg Tare Weight (PTW) + (98% Overflow Capacity (OFC) x # of Inner Pkg (# IP))

PTW	+	(98% OFC)	x	# IP)	
656	+	604.6	x	6	Methanol/Water
656	+	625.3	x	6	Water
Methanol/Water:		4.2	Kg	9.2	Lbs.
Water:		4.4	Kg	9.7	Lbs.

AUTHORIZED PACKAGE GROSS MASS CALCULATION (APGM)

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

PTW	+	(PSG)	x	98% OFC	x	# IP)
656	+	1.9	x	625	x	6
		7.7	Kg	16.9	Lbs.	

DROP HEIGHT

Calculation For Product Specific Gravities Exceeding 1.2
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)

PSG	x	MF		Packing Group: II	
1.9	x	1.00			
		1.90	Meter	Required Drop Height	Actual Drop Height
				74.8 Inches	75 Inches

STACKING TEST MINIMUM LOAD CALCULATIONS

Number of Packages in a 3m High Stack (118 / Overall Pkg Height (OH) -1)

118 / Overall Height of one Pkg (OH) - 1

(118)	/	(OH)	-1	=	# 3m HS
118	/	8.63	-1	=	12.7

Stacking Test Load Calculation (Individual Package)

Authorized Pkg Gross Mass (APGM) x # of Pkg in a 3m High Stack (# 3m HS)

APGM	x	# 3m HS	
7.7	x	12.7	
			97.8 Kg 215.6 Lbs.

Stacking Test Load Calculation


Samples x Authorized Pkg Gross Mass (APGM) x # of Pkg in a 3m High Stack (# 3m HS)

Samples	x	(APGM)	x	# 3m HS)	
3	x	7.7	x	12.7	
					293.4 Kg 646.8 Lbs.



TEN-E Packaging Services, Inc.

APPENDIX A: MANUFACTURER'S CLOSURE INSTRUCTIONS

 PurePak Technology Corporation 324 South Bracken Lane, Suite 3 Chandler, AZ 85224 (480) 926-0022	PACKAGING INSTRUCTIONS 6 X 500 ML Containers
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Package: 500 ML **Issue Date:** April 26, 2012 **Revision:** B
With 38-439 or 45 mm Neck Finish

NO. / CASE	LIST OF COMPONENTS
(6)	Berry 38-439A Acid Closure with Foam Liner
(6)	Menshen Tamper Evident 45 mm Closure DIN45E with PTFE Liner
(6)	500 ml Bottle with 38-439 Neck Finish
(6)	500 ml Bottle with 45 mm Neck Finish
(1)	ECT 48 Doublewall, RSC Carton
(1) Roll	2" Clear Pressure Sensitive Tape (Scotch 3M Packaging Tape)

PACKAGING CONFIGURATIONS:

Configuration : Six (6) 500 ML Bottles/ Reshipper Carton

Top: 2" Clear P

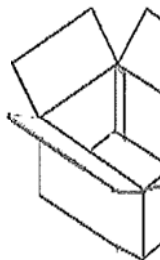
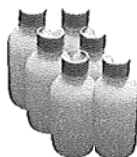
Top and Bottom

ASSEMBLY INSTRUCTIONS:

Note: Refer to component list above. Examine all parts for defects. Once you have determined that this packaging is free from defects then follow these instructions for package assembly.

1. Apply 38-439 threaded closure to bottle with an application torque of 35 to 50 in-lbs using an appropriate closing tool or,
2. Apply 45 mm threaded closure to bottle with an application torque of 23 to 28 in-lbs using an appropriate closing tool
5. For flat carton, fold in two opposite minor bottom flaps of carton. Then fold in remaining two major bottom flaps making sure that the exposed flaps display the Box Maker's Certificate or the Guarantee Stamp.
6. Tape the bottom flaps closed with 2" clear pressure sensitive tape. Center the tape over the middle seam formed by the flaps being folded together. The length of the tape should be such that there is a minimum 2" extension on each end.
7. Then place six (6) bottles in the carton with the bottle closures facing upward.
8. Tape the top flaps closed with 2" clear pressure sensitive tape. Center the tape over the middle seam formed by the flaps being folded together. The length of the tape should be such that there is a minimum 2" extension on each end.
9. Apply product labels and DOT hazard warning labels as required by customer work order instructions. Do not cover up any UN markings or DOT Hazard labels with tape.

500 ML/ 38-439



4G/Y7.5/S/
USA/ +CC7