


**UNITED NATIONS / DOT  
PERFORMANCE CERTIFICATION**



**4G DESIGN QUALIFICATION**

**4 x 9 Pint Beta Plastic Bottle Packaging with  
Vented Closure and Two Case Sealing  
Mechanisms**

**TEST REPORT #: 15-CA20085B**

 4G / Y21.4 / S / \*\*  
USA / +CC8142

\*\*Insert the year packaging is manufactured

**TESTING PERFORMED FOR:**

**PUREPAK TECHNOLOGY CORPORATION**  
324 South Bracken Lane Suite3  
Chandler, AZ 85224

**ATTN: Michael Dodd**

**TESTING PERFORMED BY:**

**TEN-E PACKAGING SERVICES, INC.**  
326 North Corona Avenue  
Ontario, CA 91764  
Phone: 909-937-1260  
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June 12, 2015

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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 +CC8142 Identification.

**4 x 9 Pint Beta Plastic Bottle Packaging with Vented Closure and The Following Case Sealing Mechanism Variables:**


Option #	Top Flaps	Bottom Flaps
1	2" 3M Scotch Brand Tape	2" 3M Scotch Brand Tape
2	2" 3M Scotch Brand Tape	Hot Melt Adhesive

**SECTION I: CERTIFICATION**

**Design Qualification of the PurePak Technology Corporation  
 4 x 9 Pint Beta Plastic Bottle Packaging with Vented Closure and Two Case Sealing Mechanisms**

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 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.

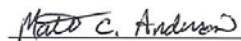
**SUMMARY OF PERFORMANCE TESTS**

UN / DOT TEST	CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Drop	178.603	1.2 m	Methanol/Water	June 8, 2015	PASS
Drop	178.603	1.2 m	Methanol/Water	June 9, 2015	PASS
Stacking	178.606	498.9 Kg – 24 Hours	Water	June 11, 2015	PASS
Stacking	178.606	498.9 Kg – 24 Hours	Water	June 12, 2015	PASS
Vibration	178.608	4.0 Hz – 1 Hour	Water	June 9, 2015	PASS
Vibration	178.608	4.0 Hz – 1 Hour	Water	June 10, 2015	PASS
Cobb	178.516	30 Minutes	---	June 4, 2015	PASS
<b>TEST REPORT NUMBER:</b>			15-CA20085B		
<b>UN MARKING: (CFR 49 – 178.503)</b>			 4G / Y21.4 / S / ** USA / +CC8142		
<b>PACKAGING IDENTIFICATION CODE:</b>			4G - Fiberboard Box (178.516)		
<b>PERFORMANCE STANDARD:</b>			Y (Packaging meets Packing Group II and III tests)		
<b>AUTHORIZED GROSS MASS:</b>			21.4 Kg (47.1 Lbs)		
<b>"S" DESIGNATION:</b>			Denotes Inner Packagings		
<b>YEAR OF MANUFACTURE:</b>			** Insert year the packaging is manufactured		
<b>STATE AUTHORIZING THE MARK</b>			USA		
<b>PACKAGING CERTIFICATION AGENCY:</b>			(+CC) TEN-E Packaging Services, Inc. (Ontario CA #2006030021)		
<b>THIRD PARTY PACKAGING IDENTIFICATION:</b>			+CC8142		
<b>PERIODIC RETEST DATE:</b>			June 12, 2017		

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.

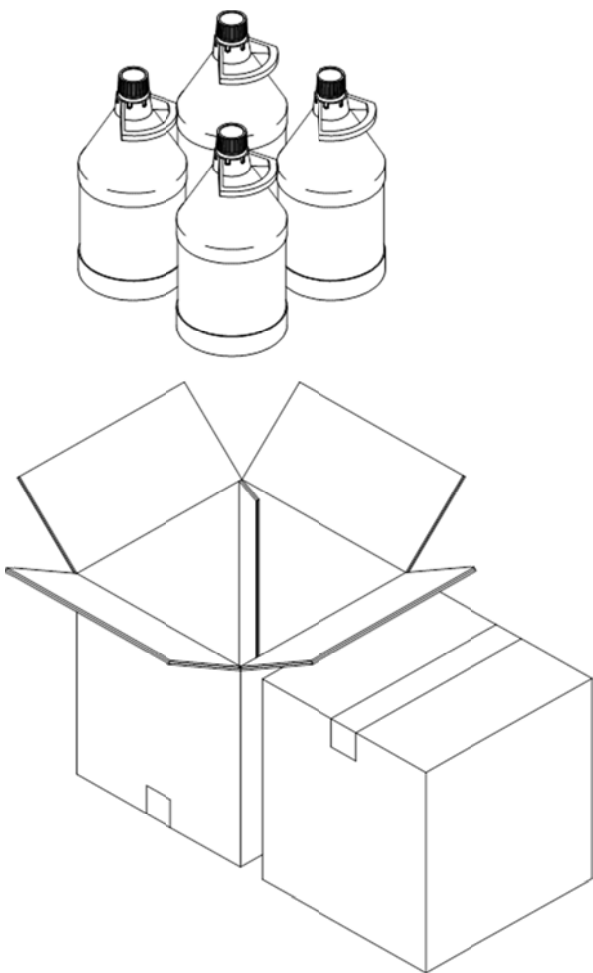
**MANUFACTURER:**

**PurePak Technology Corporation**  
 324 South Bracken Lane  
 Suite 3  
 Chandler, AZ 85224

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

**SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS**

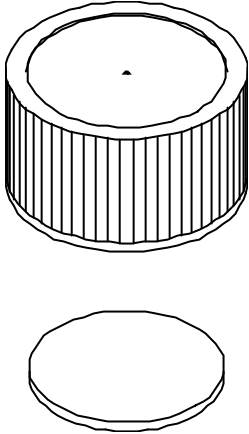
**4 x 9 Pint Beta Plastic Bottle Packaging with Vented Closure and Two Case Sealing Mechanisms**

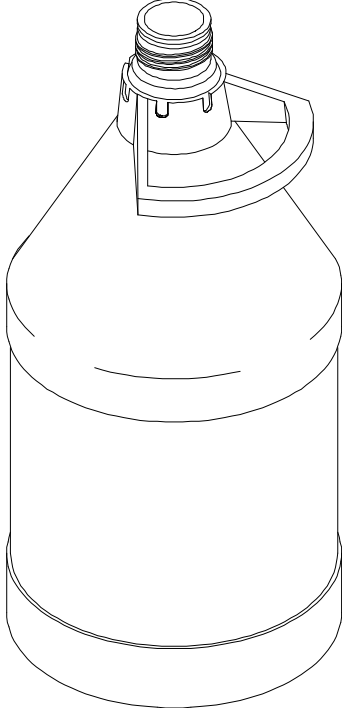
ASSEMBLY DRAWING	TEST LEVELS		
	Certification Type:	Design Qualification	
	Packaging Code Designation:	4G	
	Packing Group:	II	
	Specific Gravity:	1.2	
	<b>TEST SAMPLE PREPARATION</b> (Refer to Section IV)		
	Overall Packaging Tare Weight:	1,748.0 Grams	
	Fill Capacity (98% Maximum Capacity):		
	Methanol/Water	4,010.5 Grams	
	Water	4,147.4 Grams	
	Package Test Weight:		
	Methanol/Water	17.7 Kg	39.0 Lbs
	Water	18.3 Kg	40.3 Lbs
	Authorized Package Gross Mass:	23.3 Kg	51.3 Lbs
	<b>CLOSING METHODS – INNER PACKAGING</b>		
	Application Torque:	50 In-Lbs	
Equipment:	Kaps All Electronic Torque Tester		
<b>CLOSING METHODS – SHIPPER</b>			
<b>Top Flaps:</b>			
Manufacturer:	3M: St. Paul, MN		
Type:	Options #1 & #2: 3M Scotch Brand Pressure Sensitive Tape supplied by client		
Width:	48 mm (2")		
Overlap:	2" Minimum		
Tape Pattern:	Center Seam		
Inner Flaps:	Meet		
Outer Flaps:	Meet		
<b>Bottom Flaps:</b>			
Manufacturer:	3M: St. Paul, MN		
Type:	Option #1) 3M Scotch Brand Pressure Sensitive Tape supplied by client Option #2) Hot Melt Adhesive (Prepared by Client as for Transport) (Three Strips of Thermoset Adhesive – 1/2" x 4")		
Width:	48 mm (2")		
Overlap:	2" Minimum		
Tape Pattern:	Center Seam		
Inner Flaps:	Meet		
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
<b>Manufacturer: Rexam Plastic Packaging: Evansville, IN (QIM-317-4937)</b>		
<b>Description:</b>	38mm Vented Threaded Closure	
<b>Quantity:</b>	4	
<b>Material:</b>	Polypropylene	
<b>Tare Weight:</b>	10.30 Grams	
<b>Overall Dimensions:</b>		
• <b>Height</b>	1.016" ± 0.015"	
• <b>Diameter</b>	1.701" ± 0.015"	
<b>Thread:</b>		
• <b>Type</b>	38	
• <b>Style</b>	439	
<b>Finish Dimensions:</b>		
• <b>T</b>	1.483" ± 0.007"	
• <b>E</b>	1.389" ± 0.007"	
<b>Markings (QC Audit):</b>	24	
<b>Liner</b>		
• <b>Description</b>	Perforated Disc with a Non-Woven Teflon (Zitex) Surface Membrane	
• <b>Tare Weight</b>	0.57 Grams	
• <b>Thickness</b>	0.051"	
• <b>Diameter</b>	1.390"	

PLASTIC BOTTLE		DRAWING
<b>Manufacturer: PurePak Technology Corporation: Chandler, AZ</b>		
<b>Description:</b>	9 Pint Beta Plastic Bottle with Oval Handle	
<b>Quantity:</b>	4	
<b>Material/Pigment:</b>	High Density Polyethylene – Equistar LR 7340 / Natural	
<b>Method of Manufacture:</b>	Blow Molded	
<b>Tare Weight:</b>	190 Grams ± 5 Grams	
<b>Capacity:</b>		
• <b>Rated</b>	9 Pint	
• <b>Overflow</b>	4,194.0 Grams (1.1 Gallons)	
<b>Overall Dimensions:</b>		
• <b>Height</b>	12.694" ± 0.045"	
• <b>Diameter</b>	6.231" ± 0.117"	
<b>Thread Dimensions:</b>		
• <b>T</b>	1.461" ± 0.041"	
• <b>E</b>	1.367" ± 0.056"	
<b>Wall Thickness:</b>		
• <b>Minimum</b>	0.030"	
<b>Markings (QC Audit):</b>	SPI "2" HDPE Recycling Symbol PPT 4/15 1 M4851 / 4600	

**SHIPPER**

**Manufacturer: PCA: Phoenix, AZ (Projects – 507089, 507097 & 507098)**

**Description:** Regular Slotted Container

**Material/Flute (Inner to Outer):** 51 ECT Double Wall Mottled White Corrugated Fiberboard; C/B-Flute

**Basis Weight (Outer to Inner) Lbs./MSF:**

• **Specification** 42MW-23M-35-23M-35

**Tare Weight:** 811 Grams

**DIMENSIONS**

	<b>Specification Dimensions (Inside)</b>	<b>Measured Dimensions (Outside)</b>
• <b>Length</b>	12-3/4"	13-3/8"
• <b>Width</b>	12-3/4"	13-1/4"
• <b>Height</b>	13"	14-1/4"
<b>Board Caliper (Nominal):</b>	0.265"	
<b>Manufacturer's Joint:</b>	Inside Glued, 1-1/2" Lap	
<b>No Box Manufacturer's Certification:</b>		
<b>Markings (QC Audit):</b>	NONE	







**SECTION III: TEST PROCEDURES AND RESULTS**

**DROP TESTS  
Flaps**

**Taped Top & Glued Bottom**

TEST INFORMATION		TEST CRITERIA
<b>TEST CONTENTS:</b>	Methanol/Water Solution (0.967 SG)	<ul style="list-style-type: none"> <li>For packaging containing liquid, each packaging does not leak.</li> <li>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.</li> <li>Any discharge from a closure is slight and ceases immediately after impact with no further leakage.</li> <li>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)</li> </ul>
<b>SAMPLE PREPARATION:</b>	Refer to Section II	
<b>CONDITIONING:</b>	-18°C (0°F) Freezer #201	
<b>CONTENTS TEMP.:</b>	-18.3°C (-1.0°F)	
<b>DROP HEIGHT:</b>	1.2 Meters (48") (Refer to Section IV)	
<b>TEST EQUIPMENT:</b>	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
		
<b>PASS:</b> No leakage or damage.	<b>PASS:</b> No leakage or damage.	<b>PASS:</b> No leakage or damage.
*Sample #4: Flat on Short Side	*Sample #5: Bottom Corner	**Sample #1: Top Corner
		
<b>PASS:</b> No leakage or damage.	<b>PASS:</b> No leakage. Deformation to shipper on impact.	<b>PASS:</b> 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**

**Taped Top & Bottom Flaps**

TEST INFORMATION		TEST CRITERIA
<b>TEST CONTENTS:</b>	Methanol/Water Solution (0.967 SG)	<ul style="list-style-type: none"> <li>For packaging containing liquid, each packaging does not leak.</li> <li>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.</li> <li>Any discharge from a closure is slight and ceases immediately after impact with no further leakage.</li> <li>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)</li> </ul>
<b>SAMPLE PREPARATION:</b>	Refer to Section II	
<b>CONDITIONING:</b>	-18°C (0°F) Freezer #201	
<b>CONTENTS TEMP.:</b>	-18.2°C (-0.76°F)	
<b>DROP HEIGHT:</b>	1.2 Meters (48") (Refer to Section IV)	
<b>TEST EQUIPMENT:</b>	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
		
<b>PASS:</b> No leakage or damage.	<b>PASS:</b> No leakage or damage.	<b>PASS:</b> No leakage or damage.
*Sample #15: Flat on Short Side	*Sample #16: Bottom Corner	**Sample #12: Top Corner
		
<b>PASS:</b> No leakage or damage.	<b>PASS:</b> No leakage. Deformation to shipper on impact.	<b>PASS:</b> 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**  
Flaps

**Taped Top & Glued Bottom**

TEST INFORMATION		TEST CRITERIA
<b>TEST CONTENTS:</b>	Water	<ul style="list-style-type: none"> <li>There must be no leakage of the filling substance from the inner receptacle, or inner packaging.</li> <li>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.</li> </ul> (§178.606)
<b>SAMPLE PREPARATION:</b>	Refer to Section II	
<b>CONDITIONING:</b>	73°F / 50% RH Quality Room #202	
<b>TEST LOAD APPLIED:</b>	498.9 Kg (1,100.0 Lbs) (Refer to Section IV)	
<b>TEST DURATION:</b>	24 Hours	
<b>TEST EQUIPMENT:</b>	L.A.B. Validator Plus Compression System	

STACKING TEST SET-UP & RESULTS			
	Sample #	Maximum Deflection After 24 Hours	Results
	6	0.054"	<b>PASS</b>
	7	0.054"	<b>PASS</b>
	8	0.054"	<b>PASS</b>
	Comments/Observations		
<p>Following the stack test there was no leakage or damage likely to result in failure of the packaging.</p>			


STACKING STABILITY TEST SET-UP & RESULTS		
	Results	CRITERIA FOR PASSING THE TEST
	<b>PASS</b>	<ul style="list-style-type: none"> <li>In guided load tests, stacking stability must be assessed after test completion.</li> <li>Two filled packagings of the same type must be placed on the test sample.</li> <li>The stacked packages must maintain their position for one hour.</li> </ul> (§178.606)
<p>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.</p>		

**STACKING & STACKING STABILITY TESTS**


**Taped Top & Bottom Flaps**

TEST INFORMATION		TEST CRITERIA
<b>TEST CONTENTS:</b>	Water	<ul style="list-style-type: none"> <li>• There must be no leakage of the filling substance from the inner receptacle, or inner packaging.</li> <li>• 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. (§178.606)</li> </ul>
<b>SAMPLE PREPARATION:</b>	Refer to Section II	
<b>CONDITIONING:</b>	73°F / 50% RH Quality Room #202	
<b>TEST LOAD APPLIED:</b>	498.9 Kg (1,100.0 Lbs) (Refer to Section IV)	
<b>TEST DURATION:</b>	24 Hours	
<b>TEST EQUIPMENT:</b>	L.A.B. 5250 Compression System	

**STACKING TEST SET-UP & RESULTS**

	Sample #	Maximum Deflection After 24 Hours	Results
	17	0.056"	<b>PASS</b>
	18	0.056"	<b>PASS</b>
	19	0.056"	<b>PASS</b>
<b>Comments/Observations</b>			
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
	<b>PASS</b>	<ul style="list-style-type: none"> <li>• In guided load tests, stacking stability must be assessed after test completion.</li> <li>• Two filled packagings of the same type must be placed on the test sample.</li> <li>• The stacked packages must maintain their position for one hour. (§178.606)</li> </ul>
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.		

**VIBRATION TEST  
Flaps**

**Taped Top & Glued Bottom**

TEST INFORMATION		TEST CRITERIA
<b>TEST CONTENTS:</b>	Water	<ul style="list-style-type: none"> <li>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.</li> <li>A packaging passes the vibration test if there is no rupture or leakage from any of the packages.</li> <li>No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.</li> </ul> <p>(§178.608)</p>
<b>SAMPLE PREPARATION:</b>	Refer to Section II	
<b>CONDITIONING:</b>	73°F / 50% RH Quality Room #202	
<b>TABLE DISPLACEMENT:</b>	1"	
<b>TEST FREQUENCY:</b>	4.0 Hz	
<b>TEST DURATION:</b>	1 Hour	
<b>TEST EQUIPMENT:</b>	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**

**Taped Top & Bottom Flaps**

TEST INFORMATION		TEST CRITERIA
<b>TEST CONTENTS:</b>	Water	<ul style="list-style-type: none"> <li>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.</li> <li>A packaging passes the vibration test if there is no rupture or leakage from any of the packages.</li> <li>No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.</li> </ul> <p>(§178.608)</p>
<b>SAMPLE PREPARATION:</b>	Refer to Section II	
<b>CONDITIONING:</b>	73°F / 50% RH Quality Room #202	
<b>TABLE DISPLACEMENT:</b>	1"	
<b>TEST FREQUENCY:</b>	4.0 Hz	
<b>TEST DURATION:</b>	1 Hour	
<b>TEST EQUIPMENT:</b>	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
<p><b>NUMBER OF SAMPLES:</b> 5</p> <p><b>SAMPLE SIZE:</b> 5" x 5" (Minimum)</p> <p><b>CONDITIONING:</b> 73°F / 50% RH Quality Room #202</p> <p><b>WATER APPLIED:</b> 100 mL / Sample</p> <p><b>TEST DURATION:</b> 30 Minutes / Sample</p> <p><b>TEST EQUIPMENT:</b> UWE Analytical Balance Gurley Cobb Water Absorption Fixtures</p>	<ul style="list-style-type: none"> <li>An increase in mass greater than 155 g/m<sup>2</sup> over the 30 minute duration represents an unacceptable level of water resistance. (§178.516)</li> </ul>

<b>COBB WATER ABSORPTION TEST RESULTS</b>	
<b>Sample #</b>	<b>Water Absorbed</b>
1	143 g/m <sup>2</sup>
2	146 g/m <sup>2</sup>
3	131 g/m <sup>2</sup>
4	147 g/m <sup>2</sup>
5	126 g/m <sup>2</sup>
<b>AVERAGE:</b>	<b>138.6 g/m<sup>2</sup></b>
<b>RESULT</b>	<b>PASS</b>

## REGULATORY AND INDUSTRY STANDARD REFERENCES

### REGULATORY REFERENCES

TEST	49 CFR <sup>①</sup>	UN <sup>②</sup>	IMDG <sup>③</sup>
	October 2014 Edition	18 <sup>th</sup> Edition	2014 Edition
<b>Drop:</b>	178.603	6.1.5.3	6.1.5.3
<b>Stacking:</b>	178.606	6.1.5.6	6.1.5.6
<b>Vibration:</b>	178.608	---	---
<b>Cobb:</b>	178.516(b)(1)	6.1.4.12.1	6.1.4.12.1

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)

### INDUSTRY STANDARD REFERENCES

<b>Drop:</b>	ASTM <sup>④</sup> D5276:	Standard Test Method for Drop Test of Loaded Containers by Free Fall
	ASTM <sup>④</sup> D7790	Standard Test Method for the Preparation of Plastic Packagings Containing Liquids for United Nations (UN) Drop Testing
	ISO <sup>⑤</sup> 2248:	Packaging – Complete, Filled Transport Packages – Vertical Impact Test by Dropping
<b>Stacking:</b>	ASTM <sup>④</sup> D4577:	Standard Test Method for Compression Resistance of a Container Under Constant Load
	ISO <sup>⑤</sup> 2234:	Packaging – Complete, Filled Transport Packages – Stacking Test using Static Load
<b>Vibration:</b>	ASTM <sup>④</sup> D999:	Standard Test Method for Vibration Testing of Shipping Containers
	ISO <sup>⑤</sup> 2247:	Packaging – Complete, Filled Transport Packages – Vibration Test at Fixed Low Frequency
<b>Cobb:</b>	ISO <sup>⑤</sup> 535:	Paper and Board – Determination of Water Absorption – Cobb Method

④ American Society for Testing and Materials (ASTM)

⑤ 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**

**INFORMATION USED FOR CALCULATIONS**

Overall Packaging Tare Weight (PTW):	1,748.0 Grams	
Overflow Capacity (OFC):		<b>Methanol/Water SG</b>
Methanol/Water	4,092.3 Grams	<b>SG: 0.967</b>
Water	4,232.0 Grams	
Number of Inner Packagings (# IP):	4	
Packing Group	II	
Product Specific Gravity (PSG):	1.200	
Packing Group Multiplication Factor (MF):	1.00	
Overall Height of one Package (OH):	14.25 Inches	
Stack Test-# of Samples Tested Simultaneously:	3	

**98% OF OVERFLOW**

Overflow Capacity (OFC) x 98%

<u>OFC</u>	x	<u>98%</u>		
4,092.3	x	98% =	4,010.5 Grams	Methanol/Water
4,232.0	x	98% =	4,147.4 Grams	Water

**PACKAGE TEST WEIGHTS**

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

<u>PTW</u>	+	<u>(98% OFC)</u>	x	<u># IP)</u>	
1,748	+	4,010.5	x	4	Methanol/Water
1,748	+	4,147.4	x	4	Water
Methanol/Water:		17.7	Kg	39.0	Lbs.
Water:		18.3	Kg	40.3	Lbs.

**AUTHORIZED PACKAGE GROSS MASS CALCULATION (APGM)**

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

<u>PTW</u>	+	<u>(PSG)</u>	x	<u>98% OFC</u>	x	<u># IP)</u>
1,748	+	1.2	x	4,147	x	4
		21.6	Kg	47.6	Lbs.	



**DROP HEIGHT**

Calculation For Product 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
1.2	x	1.00		
		1.20	Meter	
			<u>Required Drop Height</u>	<u>Actual Drop Height</u>
			47.2 Inches	48 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

<u>(118)</u>	/	<u>OH)</u>	-1	=	<u># 3m HS</u>
118	/	14.25	-1	=	7.3

**Stacking Test Load Calculation (Individual Package)**

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

<u>APGM</u>	x	<u># 3m HS</u>	
21.6	x	7.3	
		157.7 Kg	347.7 Lbs.

**Stacking Test Load Calculation**

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

<u>Samples</u>	x	<u>(APGM</u>	x	<u># 3m HS)</u>
3	x	21.6	x	7.3
		473.1 Kg		1,043.0 Lbs.