

UNITED NATIONS / DOT PERFORMANCE CERTIFICATION



4G PERIODIC RETEST

4 x 1 Gallon Plastic 150 Gram Bottle Packaging and Two Case Sealing Variables

TEST REPORT #: 25-CA20106

u 4G / Y23.5 / S / ** USA / +CC7715

**Insert the last two digits of the year of manufacture

TESTING PERFORMED FOR:

PUREPAK TECHNOLOGY CORPORATION

75 West Baseline Road Suite D44 Gilbert, AZ 85233

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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July 23, 2025



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NOTES AND COMMENTS

Testing was conducted on the 4 x 1 Gallon Plastic 150 Gram Bottle Packaging with Two Case Sealing Variables:

- #1) Taped Top and Bottom Flaps
- #2) Taped Top and Hot Melt Glued Bottom Flaps



SECTION I: CERTIFICATION

Periodic Retest of the Purepak Technology Corporation 4 x 1 Gallon Plastic 150 Gram Bottle Packaging and Two Case Sealing Variables

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	49 CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS	
Drop	178.603	1.5 m	Methanol/Water Solution	July 3, 2025	PASS	
Stacking #1	178.606	204.1 Kg – 24 Hours	Empty	July 3, 2025	PASS	
Stacking #2	178.606	204.1 Kg – 24 Hours	Empty	July 2, 2025	PASS	
Pressure	173.27	95 kPa - 30 Minutes	Water	July 23, 2025	PASS	
Vibration	178.608	3.7 Hz – 1 Hour	Water	July 2, 2025	PASS	
Cobb	178.516	30 Minutes		July 23, 2025	PASS	
TEST REPOR	RT NUMBERS:		25-CA20106, 21-CA20122	2		
• • • • • • • • • • • • • • • • • • • •	UN MARKING: (CFR 49 – 178.503) u 4G / Y23.5 / S / ** USA / +CC7715					
PACKAGING IDENTIFICATION CODE: 4G - Fiberboard Box (178.516)						
PERFORMANCE STANDARD: Y (Packaging meets Packing Group II and III tests)			tests)			
AUTHORIZE	AUTHORIZED GROSS MASS: 23.5 Kg (51.8 Lbs.)					
"S" DESIGNA	"S" DESIGNATION: Denotes Inner Packagings					
		**Insert the last two digits of the year of manufacture				
			USA			
PACKAGING CERTIFICATION AGENCY:		(+CC) TEN-E Packaging Services, Inc. (Ontario, CA CAA #2006030021)				
THIRD PARTY PACKAGING IDENTIFICATION:		+CC7715				
PERIODIC RETEST DATE: July 23, 2027						

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 TENE 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 75 West Baseline Road Suite D44 Gilbert, AZ 85233 Matthew C. Anderson
Project Manager
TEN-E Packaging Services, Inc.
326 North Corona Avenue
Ontario. CA 91764



SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS

Variable #1: 4 x 1 Gallon Plastic 150 Gram Bottle Packaging (Taped Top and Bottom Flaps) **ASSEMBLY DRAWING TEST LEVELS** Certification Type: Periodic Retest Packaging Code Designation: 4G Packing Group: Ш Specific Gravity: 1.5 95 kPa Internal Pressure: **TEST SAMPLE PREPARATION** (Refer to Section IV) 1,408 Grams Overall Packaging Tare Weight: Fill Capacity (98% Maximum Capacity): Methanol/Water Solution 3,679 Grams 3,849 Grams Water Package Test Weight: Methanol/Water Solution 16.1 Kg 35.4 Lbs. 37.0 Lbs. Water 16.8 Kg Authorized Package Gross Mass: 24.4 Kg 53.7 Lbs. **CLOSING METHODS - INNER PACKAGING** 38mm Polypropylene Closure: Application Torque: 50 In-Lbs. Equipment: Torque Wrench #W702 **CLOSING METHODS - SHIPPER Top Flaps:** Manufacturer: 3M. St. Paul. MN 3M MMM115894 Pressure Sensivtive Tape Type: Width: 48 mm (2") 2" Minimum Overlap: Tape Pattern: Center Seam **Bottom Flaps:** Manufacturer: 3M, St. Paul, MN 3M MMM115894 Pressure Sensivtive Tape Type: Width: 48 mm (2") Overlap: 2" Minimum Tape Pattern: Center Seam

For Packaging's 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.



Variable #2: 4 x 1 Gallon Plastic 150 Gram Bottle Packaging (Taped Top and Glued Bottom Flaps) **ASSEMBLY DRAWING TEST LEVELS** Certification Type: Periodic Retest Packaging Code Designation: 4G Packing Group: Ш 1.5 Specific Gravity: Internal Pressure: 95 kPa **TEST SAMPLE PREPARATION** (Refer to Section IV) Overall Packaging Tare Weight: 1,408 Grams Fill Capacity (98% Maximum Capacity): Methanol/Water Solution 3,679 Grams Water 3,849 Grams Package Test Weight: Methanol/Water Solution 16.1 Kg 35.4 Lbs. Water 16.8 Kg 37.0 Lbs. Authorized Package Gross Mass: 24.4 Kg 53.7 Lbs. **CLOSING METHODS - INNER PACKAGING** 38mm Polypropylene Closure: **Application Torque:** 50 In-Lbs. Equipment: Torque Wrench #W702 **CLOSING METHODS – SHIPPER** Top Flaps: Manufacturer: 3M, St. Paul, MN 3M MMM115894 Pressure Sensivtive Tape Type: Width: 48 mm (2") 2" Minimum Overlap: Tape Pattern: Center Seam **Bottom Flaps:** (Prepared by Client as for Transport) Hot Melt Adhesive (Three Strips of Type: Thermoset Adhesive – 1/2" x 4") (PHC-9256)

For Packaging's 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

CLOS	URE (QIM-317-4937)	DRAWING
Manufacturer: Berry Plas	tics, Evansville, IN	
Description:	38mm Threaded Ribbed Closure	
Quantity:	4	
Material:	Polypropylene	
Tare Weight:	10.44 Grams	
Overall Dimensions:	,	(Man and Man a
Height	1.016" ± 0.015"	
Diameter	1.701" ± 0.015"	
Thread Dimensions:		
• T	1.481" ± 0.007"	
• E	1.389" ± 0.007"	and the second second
Markings (QC Audit):	2	
LINER:		
Description:	Polyethylene Foam Liner	
Tare Weight:	0.70 Grams	
Thickness:	0.057"	
Diameter:	1.381"	
PL	ASTIC BOTTLE	DRAWING
	echnology Corporation, Chandler, AZ	DRAWING
	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with	DRAWING
Manufacturer: PurePak T Description: Quantity:	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4	DRAWING
Manufacturer: PurePak T Description: Quantity: Material:	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture:	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight:	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity:	1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: Rated	1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: Rated Overflow	1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: Rated	1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Height Diameter	1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams 1 Gallon 3.927 Liters (1.037 Gallons)	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: • Rated • Overflow Overall Dimensions: • Height • Diameter Thread Dimensions:	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams 1 Gallon 3.927 Liters (1.037 Gallons) 12.350" ± 0.090" 6.072" ± 0.080"	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: • Rated • Overflow Overall Dimensions: • Height • Diameter Thread Dimensions:	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams 1 Gallon 3.927 Liters (1.037 Gallons) 12.350" ± 0.090" 6.072" ± 0.080"	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: • Rated • Overflow Overall Dimensions: • Height • Diameter Thread Dimensions: • T	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams 1 Gallon 3.927 Liters (1.037 Gallons) 12.350" ± 0.090" 6.072" ± 0.080"	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: • Rated • Overflow Overall Dimensions: • Height • Diameter Thread Dimensions: • T • E Wall Thickness:	1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams 1 Gallon 3.927 Liters (1.037 Gallons) 12.350" ± 0.090" 6.072" ± 0.080" 1.461" ± 0.015" 1.367" ± 0.015"	DRAWING
Manufacturer: PurePak T Description: Quantity: Material: Method of Manufacture: Tare Weight: Capacity: • Rated • Overflow Overall Dimensions: • Height • Diameter Thread Dimensions: • T	echnology Corporation, Chandler, AZ 1 Gallon Round Plastic Bottle with Integrated Handle 4 High Density Polyethylene Blow Molded 149.0 Grams ± 6.0 Grams 1 Gallon 3.927 Liters (1.037 Gallons) 12.350" ± 0.090" 6.072" ± 0.080"	DRAWING



SHIPPER (731197 & 830600)						
Manufacturer: Packaging C	Manufacturer: Packaging Corporation of America, Plano TX					
Description:	Regular Slotted Container					
Material/Flute (Outer to Inner):	Double Wall Mottled White Corrugated Fil	berboard; B/C-Flute				
Basis Weight (Outer to Inne	er) Lbs./MSF:					
Specification	35 / 23 / 35 / 23 / 35					
Tare Weight:	767 Grams					
	DIMENSIONS					
	Specification Dimensions (Inside)	Measured Dimensions (Outside)				
• Length	12-5/16"	12-7/8"				
• Width	12-5/16"	12-7/8"				
• Height	12-5/8"	13-7/8"				
Board Caliper (Nominal):	0.267"					
Manufacturer's Joint:	Inside Glued, 1-3/8" Lap					
Markings (QC Audit):	u 4G / Y23.5 / S / 24 USA / +CC7715 HANDLE WITH CARE THIS SIDE UPC804179 ARTWORK DATE 04/05/21 12.3125 X 12.3125 X 12.625 ID					
BOX CERTIFICATE						
(A) Corrugated Manufacturer:	PACKAGING CORPORATION OF AMERICA	A CERTIFICATE THIS				
(B) Structure:	Double Wall	B				
(C) ECT:	51 Lbs. Per Inch	BOX MEETS ALL CONSTRUCTION REQUIREMENTS OF APPLICABLE FREIGHT CLASSIFICATION EDGE CRUSH C				
(D) Size Limit:	105"	TEST (ECT) LBS/IN SIZE LIMIT D INCHES				
(E) Gross Wt. Lt:	120 Lbs.	GROSS E LBS				
(F) Location:	PLANO, TEXAS	F				



SECTION III: TEST PROCEDURES AND RESULTS

DROP TESTS Variable #1

TEST	INFO	RMATION	TEST CRITERIA
TEST CONTENTS:	Met	hanol/Water Solution (0.964 SG)	For packaging containing liquid, each packaging does not leak.
SAMPLE PREPARATION:	Refe	er to Section II	There can be no damage to the outer packaging likely to adversely
CONDITIONING:	-18°	°C (0°F) Freezer #W201	affect safety during transport. Inner receptacles, inner packagings or articles must remain completely
CONTENTS TEMP.:	-18.	5°C (-1.3°F)	within the outer packaging and there must be no leakage of the filling
DROP HEIGHT:		Meters (60") fer to Section IV)	 substance from the inner packaging. Any discharge from a closure is slight and ceases immediately after
TEST EQUIPMENT:	L.A.	B. Accu Drop 160	impact with no further leakage. (§178.603)
	ROP	ORIENTATIONS AND TEST RES	SULTS
Sample #1: Flat on Bottom		Sample #2: Flat on Top	*Sample #3: Flat on Long Side
PASS: No leakage or damag		PASS: No leakage or damage.	PASS: No leakage or damage.
*Sample #4: Flat on Short Si	de	*Sample #5: Bottom Corner	**Sample #1: Top Corner
PASS: No leakage or damag	e.	PASS: No leakage. Slight deformation at impact corner.	PASS: No leakage. Slight deformation at impact corner.

^{*}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 Variable #2

TEST	INFORMATION	TEST CRITERIA
TEST CONTENTS:	Methanol/Water Solution (0.964 SG)	For packaging containing liquid, each packaging does not leak.
SAMPLE PREPARATION:	Refer to Section II	There can be no damage to the outer packaging likely to adversely affect and the damage to the outer packaging likely to adversely affect and the damage to the outer packaging transport. In packaging transport, and the outer packaging transport is a second to the outer packaging transport.
CONDITIONING:	-18°C (0°F) Freezer #W201	affect safety during transport. Inner receptacles, inner packagings or articles must remain completely
CONTENTS TEMP.:	-18.5°C (-1.3°F)	within the outer packaging and there must be no leakage of the filling
DROP HEIGHT:	1.5 Meters (60") (Refer to Section IV)	 substance from the inner packaging. Any discharge from a closure is slight and ceases immediately after
TEST EQUIPMENT:	L.A.B. Accu Drop 160	impact with no further leakage. (§178.603)
	PROP ORIENTATIONS AND TEST RE	SULTS
Sample #12: Flat on Bottor	n Sample #13: Flat on Top	*Sample #14: Flat on Long Side
PASS: No leakage or damag	, ,	PASS: No leakage or damage.
*Sample #15: Flat on Short S	ide *Sample #16: Bottom Corner	**Sample #12: Top Corner
PASS: No leakage or damag	e. PASS: No leakage. Slight deformation at impact corner.	PASS: No leakage. Slight deformation at impact corner.

^{*}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.



performance of the packaging.

STACKING TEST Variable #1

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	
SAMPLE PREPARATION:	Refer to Section II	There can be no deterioration that could adversely affect transport safety or any
CONDITIONING:	Ambient	distortion liable to reduce the package's
TEST LOAD APPLIED:	204.1 Kg (450.0 Lbs.) (Refer to Section IV)	strength, cause instability in stacks of packages, or cause damage to inner packagings that is likely to reduce safety
TEST DURATION:	24 Hours	in transport. (§178.606)
TEST EQUIPMENT:	Dead Load Weights	

Sample # Maximum Deflection After 24 Hours 9 1/16" PASS 10 0" PASS Comments/Observations: Following the 24-hour stack test, there was no damage likely to affect the

Stacking Stability: Not conducted; required only for guided load tests.



STACKING TEST Variable #2

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	
SAMPLE PREPARATION:	Refer to Section II	There can be no deterioration that could adversely affect transport safety or any
CONDITIONING:	Ambient	distortion liable to reduce the package's
TEST LOAD APPLIED:	204.1 Kg (450.0 Lbs.) (Refer to Section IV)	strength, cause instability in stacks of packages, or cause damage to inner packagings that is likely to reduce safety
TEST DURATION:	24 Hours	in transport. (§178.606)
TEST EQUIPMENT:	Dead Load Weights	

STACKING TEST SET-UP & RESULTS Sample # Maximum Deflection After 24 Hours 20 1/16" PASS 21 0" PASS 22 1/16" PASS

Comments/Observations: Following the 24-hour stack test, there was no damage likely to affect the performance of the packaging.

Stacking Stability: Not conducted; required only for guided load tests.



PRESSURE DIFFERENTIAL TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	
WATER TEMPERATURE:	22.2°C (72.1°F)	
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	Packaging for which retention of
CONDITIONING:	Ambient	liquid is a basic function must be capable of withstanding the
TEST PRESSURE:	95 kPa	pressure requirements without leakage.
TEST DURATION:	30 Minutes	(§173.27(c))
AREA OF PRESSURIZATION:	Through the Bottom	
TEST EQUIPMENT:	Regulated Water Source #: 1 Digital Pressure Gauge #: W605	

HYDROSTATIC PRESSURE TEST SET-UP AND RESULTS





Sample #	Results
1	PASS
2	PASS
3	PASS

Comments/Observations

All three samples maintained the 95 kPa test pressure for 30 minutes without leakage.



VIBRATION TEST Variable #1

TEST	TEST CRITERIA	
TEST CONTENTS:	Water	Immediately following the period of
SAMPLE PREPARATION:	Refer to Section II	vibration, each package must be removed from the platform, turned on its side and observed for any
CONDITIONING:	Ambient	evidence of leakage. • A packaging passes the vibration
TABLE DISPLACEMENT:	1"	test if there is no rupture or leakage from any of the packages.
TEST FREQUENCY:	3.7 Hz	No test sample should show any deterioration which could
TEST DURATION:	1 Hour	adversely affect transportation safety or any distortion liable to
TEST EQUIPMENT:	Vertical motion using L.A.B. Palletizer Vibration System	reduce packaging strength. (§178.608)

VIBRATION TEST SET-UP AND RESULTS				
The state of the s	Sample #	Results	Comments/Observations	
	6	PASS		
	7	PASS	No leakage or damage.	
	8	PASS		



VIBRATION TEST Variable #2

TEST	TEST INFORMATION					
TEST CONTENTS:	Water	Immediately following the period of				
SAMPLE PREPARATION:	Refer to Section II	vibration, each package must be removed from the platform, turned on its side and observed for any				
CONDITIONING:	Ambient	evidence of leakage. • A packaging passes the vibration				
TABLE DISPLACEMENT:	1"	test if there is no rupture or leakage from any of the packages.				
TEST FREQUENCY:	3.7 Hz	No test sample should show any deterioration which could				
TEST DURATION:	1 Hour	adversely affect transportation safety or any distortion liable to				
TEST EQUIPMENT:	Vertical motion using L.A.B. Palletizer Vibration System	reduce packaging strength. (§178.608)				

VIBRATION TEST SET-UP AND RESULTS								
The state of the s	Sample #	Results	Comments/Observations					
	17	PASS						
	18	PASS	No leakage or damage.					
	19	PASS						



COBB WATER ABSORPTION TEST

TES	T INFORMATION	TEST CRITERIA		
NUMBER OF SAMPLES:	5			
SAMPLE SIZE:	5" x 5" (Minimum)	 An increase in mass greater than 155 g/m² over the 30 		
CONDITIONING:	73°F / 50% RH Quality Room #W202			
WATER APPLIED:	100 mL / Sample	minute duration represents an unacceptable level of water resistance. (§178.516)		
TEST DURATION:	30 Minutes / Sample			
TEST EQUIPMENT:	UWE Analytical Balance Gurley Cobb Water Absorption Fixtures	(3 :: =10 10)		

COBB WATER ABSORPTION TEST RESULTS							
REPRESENTATIVE SET-UP PHOTO	Sample #	Water Absorbed					
	1	105.0 g/m²					
	2	113.0 g/m²					
	3	117.0 g/m²					
	4	112.0 g/m²					
TENIE	5	116.0 g/m²					
TENE	AVERAGE:	112.6 g/m²					
Setting the Standard	RESULT	PASS					



REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES								
	49 CFR①	UN@	IMDG3	ICAO@	IATA®			
TEST	October 2024 Edition	23 rd Edition	2024 Edition	2025-2026 Edition	66 th 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;1.1.6	5.0.2.9			
Vibration:	Vibration: 178.608			4;1.1.1 & 4;1.1.4	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)
- Technical Instructions for the Safe Transport of Dangerous Good by Air (ICAO)
- © International Air Transport Association (IATA) Dangerous Goods Regulations

INDUSTRY STANDARD REFERENCES							
	ASTM® D5276:	Standard Test Method for Drop Test of Loaded Containers by Free Fall					
Drop:	ASTM® D7790:	Standard Test Method for the Preparation of Plastic Packagings Containing Liquids for United Nations (UN) Drop Testing					
	ISO⑦ 2248:	Packaging – Complete, Filled Transport Packages – Vertical Impact Test by Dropping					
	ASTM® D8409:	Standard Guide for Conducting Stacking Tests on UN Packagings Using Guided or Unguided Loads					
Stacking:	ASTM® D4577:	Standard Test Method for Compression Resistance of a Container Under Constant Load					
	ISO⑦ 2234:	Packaging – Complete, Filled Transport Packages – Stacking Test using Static Load					
Hydrostatic Pressure:	ASTM® D7660:	Standard Guide for Conducting Internal Pressure Tests on United Nations (UN) Packagings					
	ASTM® D999:	Standard Test Method for Vibration Testing of Shipping Containers					
Vibration:	ISO⑦ 2247:	Packaging – Complete, Filled Transport Packages – Vibration Test at Fixed Low Frequency					
Cobb:	ISO® 535:	Paper and Board – Determination of Water Absorption – Cobb Method					

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.

② International Organization for Standardization (ISO)



SECTION IV: MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS							
Overall Packaging Tare Weight (PTW):	1,408.0 Grams						
Overflow Capacity (OFC):		Methanol/Water					
Methanol/Water	3,754.0 Grams	SG: 0.964					
Water	3,927.0 Grams						
Number of Inner Packagings (# IP):	4						
Packing Group	II						
Product Specific Gravity (PSG):	1.500						
Packing Group Multiplication Factor (MF):	1.00						
Overall Height of one Package (OH):	13.88 Inches						
Stack Test-# of Samples Tested Simultaneously:	0						

			98% OF OVERFL	OW					
Overflow Capacity (OFC) x 98%									
OFC	х	98%							
-			=						
3.754.0	x	98% =	3,679.0 Grams	Methanol/Water					
-, -	^	30 /0 —	•	Methanol/Water					
3,927.0	Х	98% =	3,848.5 Grams	Water					
3,0 = 1 10			5,5 1515 5131115						

	PACKAGE TEST WEIGHTS									
Overa	Overall Pkg Tare Weight (PTW) + (98% Overflow Capacity (OFC) x # of Inner Pkg (# IP)									
PTW	_ + .	(98% OFC	_ x	# IP)	<u></u>					
1,408.0	+	3,679.0	x	4	Methanol/Water					
1,408.0	+	3,848.5	x	4	Water					
Methanol/Water	r:	16.1	kg	35.4	lb					
Water:		16.8	kg	37.0	lb					

	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)	
·	1,408.0	_ + _	1.5		X	3,848.5		x	4	
			24.4	kg		53.7	lb			



	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									
	1.5	x	1.00		Required Drop Height	Actual Drop Height				
			1.50	Meter	59.1 Inches	60 Inches				

	STACKING TEST MINIMUM LOAD CALCULATIONS									
	Number of Packages in a 3m High Stack (118.2 / Overall Pkg Height (OH) -1)									
	118.2 / Overall Height of one Pkg (OH) - 1									
(118.2	/	OH)	-1	. =	# 3m HS					
118.2	1	13.88	-1	=	7.6					
		Stacking T	est Load Ca	lculation (Ir	ndividual Pack	age)				
	Author	ized Pkg Gross	Mass (APGI	M) x # of Pk	g in a 3m High	Stack (# 3m HS)				
APGM	x	# 3m HS								
24.4	x	7.6								
		185.5 kg	J	409	.0 lb					