

UNITED NATIONS / DOT PERFORMANCE CERTIFICATION



31HH1 DESIGN QUALIFICATION

Poly IBC UC 2.0 1000 Liter All Plastic Composite Framed IBC with KTJ Quick Connect II & III Dip Tubes and KTJ Non-Vented Bung Closure

TEST REPORT #: 24-MN40068

(u) 31HH1/Y/*/USA/+AA11220/0/2010

TESTING PERFORMED FOR:

RIKUTEC AMERICA, INC.

2510-B West Whitner Street Anderson, SC 29624

ATTN: Alex Pytka

TESTING PERFORMED BY:

TEN-E PACKAGING SERVICES, INC.

1666 County Road 74 Newport, MN 55055 Phone: 651-459-0671

Fax: 651-459-1430

June 13, 2024

^{*} Insert the month and year (last two digits) of manufacture



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SECTION I: CERTIFICATION

DESIGN QUALIFICATION of the Rikutec America, Inc. Poly IBC UC 2.0 1000 Liter All Plastic Composite Framed IBC with KTJ Quick Connect II & III Dip Tubes and KTJ Non-Vented Bung Closure

TEN-E Packaging Services, Inc. is a current DOT UN Third-Party Certification Agency under §107.403 and certifies that the **Rikutec America, Inc.** 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.

TEST REFERENCE LEVEL CONTENTS COMPLETED RE Vibration 178.819 3.6 Hz – 1 Hour Water June 10, 2024 June 10, 2024 Bottom Lift 178.811 2,696.9 Kg Water June 11, 2024 Leakproofness 178.813 20 kPa – 10 Minutes Empty June 11, 2024 Hydrostatic 178.814 100 kPa – 10 Minutes Water June 11, 2024 Drop 178.810 1.9 m Methanol/Water June 13, 2024 TEST REPORT NUMBER: 24-MN40068 UN MARKING: (CFR 49 – 178.703) 0 31HH1 / Y / * / USA / +AA11220 / 0 / 201 PACKAGING IDENTIFICATION CODE: 31HH1 (178.707 Composite IBC)	TEST RESULTS PASS PASS PASS PASS PASS PASS PASS		
Vibration 178.819 3.6 Hz – 1 Hour Water June 10, 2024 Bottom Lift 178.811 2,696.9 Kg Water June 11, 2024 Leakproofness 178.813 20 kPa – 10 Minutes Empty June 11, 2024 Hydrostatic 178.814 100 kPa – 10 Minutes Water June 11, 2024 Drop 178.810 1.9 m Methanol/Water June 13, 2024 TEST REPORT NUMBER: 24-MN40068 UN MARKING: (CFR 49 – 178.703) 24-MN40068 PACKAGING IDENTIFICATION CODE: 31HH1 (178.707 Composite IBC) PERFORMANCE STANDARD: Y (Packaging meets Packing Group II and III tests	PASS PASS PASS PASS PASS		
Bottom Lift 178.811 2,696.9 Kg Water June 11, 2024	PASS PASS PASS PASS		
Leakproofness 178.813 20 kPa – 10 Minutes Empty June 11, 2024 Hydrostatic 178.814 100 kPa – 10 Minutes Water June 11, 2024 Drop 178.810 1.9 m Methanol/Water June 13, 2024 TEST REPORT NUMBER: 24-MN40068 UN MARKING: (CFR 49 – 178.703) under 31HH1 / Y /* / USA / +AA11220 / 0 / 201 PACKAGING IDENTIFICATION CODE: 31HH1 (178.707 Composite IBC) PERFORMANCE STANDARD: Y (Packaging meets Packing Group II and III tester	PASS PASS PASS		
Hydrostatic 178.814 100 kPa - 10 Minutes Water June 11, 2024	PASS PASS		
Drop 178.810 1.9 m Methanol/Water June 13, 2024 TEST REPORT NUMBER: 24-MN40068 UN MARKING: (CFR 49 – 178.703) u n 31HH1 / Y / * / USA / +AA11220 / 0 / 201 PACKAGING IDENTIFICATION CODE: 31HH1 (178.707 Composite IBC) PERFORMANCE STANDARD: Y (Packaging meets Packing Group II and III tests)	PASS		
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(CFR 49 – 178.703) PACKAGING IDENTIFICATION CODE: PERFORMANCE STANDARD: (n) 31HH1 / Y / * / USA / +AA11220 / 0 / 201 31HH1 (178.707 Composite IBC) Y (Packaging meets Packing Group II and III tests	010		
PERFORMANCE STANDARD: Y (Packaging meets Packing Group II and III tests			
MONTH AND YEAR OF MANUFACTURE: *	Y (Packaging meets Packing Group II and III tests)		
STATE AUTHORIZING ALLOCATION OF THE MARK: USA			
PACKAGING CERTIFICATION AGENCY: (+AA) TEN-E Packaging Services, Inc. (Newport, MN CAA #2006030022)	(+AA) TEN-E Packaging Services, Inc. (Newport, MN CAA #2006030022)		
THIRD PARTY PACKAGING IDENTIFICATION: +AA11220			
STACKING TEST LOAD: 0 Kg (not intended to be stacked in transportation	0 Kg (not intended to be stacked in transportation)		
MAXIMUM PERMISSIBLE GROSS MASS: 2,010 Kg (4,431 Lbs.)			
PERIODIC DESIGN REQUALIFICATION DATE: June 13, 2025	June 13, 2025		
CLIENT COMPETENT AUTHORITY APPROVAL: CA2020110503	•		
ADDITIONAL REQUIRED RIGID PLASTIC & COMPOSITE IBC MARKINGS (CFR 49 – 178.703(b)):			
RATED CAPACITY AT 20°C (liters): 1000 Liters			
TARE MASS (Kg): Insert Individual IBC Tare Mass			
GAUGE TEST PRESSURE (kPa): 100 kPa			
DATE OF LAST LEAKPROOFNESS TEST: Insert Month & Year of Last Leakproofness Test	șt		
DATE OF LAST INSPECTION: Insert Month & Year of Last Inspection	_		

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 **Rikutec America**, **Inc.** for services rendered. In the event of future changes to the above referenced test standards, it is the responsibility of **Rikutec America**, **Inc.** 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:

Rikutec America, Inc. 2510-B West Whitner Street Anderson, SC 29624 Oscar Mejia Technician TEN-E Packaging Services, Inc. 1666 County Road 74 Newport, MN 55055

Tyler Kinderman
Packaging Engineer
TEN-E Packaging Services, Inc.
1666 County Road 74
Newport, MN 55055



SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS

Poly IBC UC 2.0 1000 KTJ Quick Connect II & II				e	
ASSEMBLY DRAWING	TEST LEVELS				
	Certification Type:		Design Qualif	ication	
99	Packaging Code De	esignation:	31HH1		
2	Packing Group:		II		
1 8	Specific Gravity:		1.9		
697	Test Pressure:		100 kPa		
	TE	ST SAMPLE PR (Refer to Sec			
	Overall IBC Tare W (Sample #1 and Sar	•	95.0 Kg	209.4 Lbs.	
	Net Fill Weight (98%	6 Maximum Capa	icity):		
	Water	(Sample #1)	1,014.3 Kg	2,236.2 Lbs.	
	Methanol/Water	(Sample #2)	960.4 Kg	2,117.3 Lbs.	
	IBC Test Weight:				
	Water	(Sample #1)	1,109.3 Kg	2,445.5 Lbs.	
	Methanol/Water	(Sample #2)	1,055.4 Kg	2,326.7 Lbs.	
	Maximum Permissik	ole Gross Mass:	2,022.1 Kg	4,457.9 Lbs.	
	CLOSING METHODS				
	KTJ Quick Connect II Dip Tube:				
	Application Torqu	ıe:	25 Ft-Lbs.		
	Equipment:		Torque Wrend	ch #740	
	KTJ Quick Connec	t III Dip Tube:			
	Application Torqu	ıe:	25 Ft-Lbs.		
	Equipment:		Equipment: Torque Wrench #740		ch #740
	(2) KTJ Quick Connect Shipping Caps:				
	Valve to IBC Body		5 Ft-Lbs.		
	Equipment: Torque Wrench #740		ch #740		
	2" KTJ Non-Vented	•			
	Valve to IBC Body		25 Ft-Lbs.		
	Equipment:		Torque Wrend	ch #740	



COMPONENT INFORMATION

	CLOSURE (21310101)	DRAWING
Manufacturer: Kunstst	offtechnik Jaeger, Braunschweig, Germany	
Description:	2" Non-Vented Buttress Threaded Plug	
Quantity:	2	
Material:	Polypropylene, Natural	
Tare Weight:	34.400 Grams	
Overall Dimensions:		
Height	34.5 mm (1.358")	
Diameter	78.7 mm (3.102")	
Thread Dimensions:		
Major Diameter:	61.9 mm (2.437")	
Minor Diameter:	54.9 mm (2.162")	
Markings (QC Audit):	1	
POE PROFILE GASKET (22010202):		
Description:	Natural Polyolefin Profile Gasket	
Tare Weight:	2.963 Grams	
Thickness:	3.8 mm (0.15")	
Diameter:	72.5 mm (2.85")	



CLOSURE (41010051 - DT-62PE-XXX-915-TF)	DRAWING
Manufacturer: Kunststo	offtechnik Jaeger, Braunschweig, Germany	
Description:	1-1/2" Quick Connect II Threaded Sealing Cap	
Quantity:	1	
Material:	Polyethylene, Natural	
Tare Weight:	17.247 Grams	
Overall Dimensions:		
Height	25.1 mm (0.99")	
 Diameter 	75.7 mm (2.98")	
Thread Dimensions:		
• T	41.2 mm (1.62")	
• E	38.6 mm (1.52")	
Markings (QC Audit):	www.qc-system.com	
- , ,	patented U.S. Pat. No. 6,357,494	
GASKET		
Description:	Polyethylene, Natural	
Tare Weight:	0.519 Grams	4
Thickness:	2.8 mm (0.11")	AT STATE
Diameter:	35.6 mm (1.40")	
,	41010051 - DT-62PE-XXX-915-TF)	
Manufacturer: Kunststo	offtechnik Jaeger, Braunschweig, Germany	
Description:	2" Quick Connect II Buttress Threaded Insert	
-	with Dip Tube and Bottom Flexible Bellow	
Quantity:	1	
Material:	Polyethylene, Natural	
Tare Weight:	128 Grams	
Overall Dimensions:	1 007 4 (00 50W) (W. B. T. L.)	
Height	927.1 mm (36.50") (with Dip Tube)	
Insert Height	34.0 mm (1.34")	
• Diameter	79.0 mm (3.11")	
Thread Dimensions (2"		
Major Diameter	62.0 mm (2.44")	
Minor Diameter	54.6 mm (2.15")	
•	1/2" Shipping Cap - Side):	
Major Diameter	42.7 mm (1.68")	
Minor Diameter	40.4 mm (1.59")	
Thread Dimensions (3/4	1	
Major Diameter	26.6 mm (1.05")	
Minor Diameter	24.0 mm (0.94")	
Markings (QC Audit):	1B2 3A4 5C6	
POE PROFILE GASKET		
Description:	Natural Polyolefin Profile Gasket	
Tare Weight:	2.537 Grams	
Thickness:	3.8 mm (0.15")	
Diameter:	72.4 mm (2.85")	



CLOSURE (4	14020001 - DT3-62PP-XXX-1040-TF)	DRAWING
Manufacturer: Kunstst	offtechnik Jaeger, Braunschweig, Germany	
Description:	2" Quick Connect III Threaded Sealing Cap	
Quantity:	1	
Material:	Polypropylene , Natural	
Tare Weight:	50.484 Grams	
Overall Dimensions:		v.95
Height	26.1 mm (1.03")	
• Diameter	78.1 mm (3.07")	
Thread Dimensions:		
• T	52.1 mm (2.05")	
• E	50.0 mm (1.97")	
Markings (QC Audit):	None	
O-RING		
Description:	FEP Encapsulated O-Ring	
Tare Weight:	2.517 Grams	
Thickness:	3.5 mm (0.14")	
Diameter:	48.3 mm (1.90")	
DIP TUBE (4	4020001 – DT3-62PP-XXX-1040-TF)	
Manufacturer: Kunstst	offtechnik Jaeger, Braunschweig, Germany	27775
Description:	2" Quick Connect III Buttress Threaded Insert with Dip Tube and Bottom Flexible Bellow	
Quantity:	1	
Material:	Polypropylene, Natural	The second second
Tare Weight:	148 Grams	
Overall Dimensions:		
Height	1,060.5 mm (41.75") (with Dip Tube)	
Insert Height	32.6 mm (1.28")	
Diameter	80.3 mm (3.16")	
Thread Dimensions (2	' Container - Side):	
Major Diameter	61.5 mm (2.42")	
Minor Diameter	55.2 mm (2.17")	
Thread Dimensions (1	-1/2" Shipping Cap - Side):	
Major Diameter	53.5 mm (2.10")	
Minor Diameter	51.3 mm (2.02")	
Markings (QC Audit):	None	
POE PROFILE GASKE	T (22010202):	
Description:	Natural Polyolefin Profile Gasket	
Tare Weight:	2.882 Grams	
Thickness:	3.8 mm (0.15")	
Diameter:	72.4 mm (2.85")	



CLAMPING NUT (2.0)		DRAWING
Manufacturer: Rikutec	America, Inc., Whitinsville, MA	
Description:	Outer Buttress Threaded Clamping Nut used	
•	on 2.0 IBC designs	
Quantity:	3 (1 on each opening)	
Material:	Polyethylene, Blue and Black, Rubber	
Tare Weight:	60 Grams	
Overall Dimensions:		
Height	0.758"	
 Diameter 	5.905"	
Thread Dimensions:		
• T	3.446"	
• E	3.245"	
Markings (QC Audit):	RIKUTEC 12/23	
warkings (QC Audit).	SPI "2" Recycling Symbol	

PLASTIC INNE	R RECEPTACLE (11001047)	DRAWING
Manufacturer: Rikutec An	nerica, Inc., Whitinsville, MA	
	Rikutec 2.0 1000 Liter Rigid Inner	
Description:	Receptacle with (3) 2" Buttress Threaded	
	Top Fill Port Openings	
Material:	High Density Polyethylene, Natural	
	Two Layer Wall Design:	
Resin Type:	Inside: Lupolen 4261 A Q149	
	Outside: Lupolen 4261 AG UV 60005	
Method of Manufacture:	Blow Molded	
Tare Weight:	50.71 Lbs. (23.0 Kg)	
Capacity:		
Rated	1,000 Liter	
Overflow	273.4 Gallons (1,035.0 Liter)	
Overall Dimensions:		
Length	1,155.7 mm (45.50")	
Width	962.5 mm (37.88")	_
Height	1,044.7 mm (41.13")	_
2" Fill Port Opening Thread Dimensions		_
Major Diameter	64.8 mm (2.55")	
Minor Diameter	57.1 mm (2.25")	
Clamping Nut Thread Dimensions		
Major Diameter	85.52 mm (3.367")	
Minor Diameter	81.23 mm (3.198")	
Dip Tube Opening Thread	Dimensions	
Major Diameter	64.8 mm (2.55")	
Minor Diameter	57.4 mm (2.26")	
Wall Thickness (Minimum): 2.387 mm (0.09")	
	31HH1 / Y / 0124 / D / BAM 6808-RIKUTEC	
Markings (QC Audit):	RIKUTEC 23H245538MD7	
	14783 Made in Germany	
	SPI "2" PE-HD Recycling Symbol	



CO	VER – POLY BOX (2.0)	DRAWING
Manufacturer: Rikutec A	merica, Inc., Whitinsville, MA	
Description:	Top HUVEX Cover with (3) Access Holes Secured to Tote with (8) Plastic Pins	
Quantity:	1	
Material:	High Density Polyethylene, Natural	
Tare Weight:	10.5 Kg (23.15 Lbs.)	
Overall Dimensions:		
• Length	1,212.9 mm (47.75")	
Width	1,003.3 mm (39.50")	
Height	962.2 mm (37.88")	
Small Hole Diameter	142.0 mm (5.63")	
Large Hole Diameter	177.8 mm (7.00")	
Markings (QC Audit):	a 31HH1 / Y / 0124 / D / BAM /6808 RIKUTEC/ 3314 / 2070 / TR6F142 POLY-IBC UC 1000 Max Capacity 1060 Liter / Tare 96kg Gauge of Pressure: 100 kPa Hersteller: RIKUTEC Made in Germany SPI "2" PE HD Recycling Symbol	
	MED BASE - POLY BOX	
Description:	merica, Inc., Whitinsville, MA 4-Way Entry Plastic Outer Tote	
Quantity:	1	
Material:	HDPE / Foam / HDPE	
Tare Weight:	62.0 Kg (136.7 Lbs.) (with Bottom Frame)	
Overall Dimensions:		
Length	1,193.8 mm (47.00")	
Width	990.6 mm (39.00")	
Height	1,168.4 mm (46.00")	
FRAMED PALLET:		
Description:	Molded Pallet Feet and Bottom Detachable Plastic Framed Pallet with (8) Plastic Screws and Bolts	
Markings (QC Audit):		
• Frame	SPI "2" PE-HD Recycling Symbol	
• Box	None	



SECTION III: TEST PROCEDURES AND RESULTS

VIBRATION TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TABLE DISPLACEMENT:	1"	 An IBC passes the vibration test if there is no rupture or leakage.
TEST FREQUENCY:	3.6 Hz	(§178.819)
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using L.A.B. 10000 Transportation Simulator	
	L.A.B. 10000 Transportation Simulator	

VIBRATION TEST SET-UP AND RESULTS (SAMPLE #1)			
	Results	Comments/Observations	
	PASS	The IBC met the criteria for passing the test. No leakage or damage.	



BOTTOM LIFT TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
NUMBER OF LIFTS:	8 (Four-Way Entry with 2 Lifts per Direction of Entry)	For all IBC design types designed to be lifted from the base, there may be no
FORK TINE PENETRATION:	Entry 1 & 2: 36" Entry 3 & 4: 30"	permanent deformation which renders the IBC unsafe for transportation and no loss of contents.
COMBINED GROSS MASS LIFTED:	2,696.9 Kg (5,945.6 Lbs.) (Refer to Section IV)	(§178.811)
TEST EQUIPMENT:	Fork Truck Dead Load Weights	

вот	BOTTOM LIFT TEST SET-UP AND RESULTS (SAMPLE #1)								
Direction of Entry #1	Direction of Entry #2	Direction of Entry #3	Direction of Entry #4						
Res	ults	Comments/C	Observations						
Lift #1: PASS	Lift #5: PASS								
Lift #2: PASS	Lift #6: PASS	The IBC met the criter	ia for passing the test.						
Lift #3: PASS	Lift #7: PASS	No leakage	or damage.						
Lift #4: PASS	Lift #8: PASS								



LEAKPROOFNESS TEST

TEST INFO	DRMATION	TEST CRITERIA		
TEST CONTENTS:	Empty			
SAMPLE PREPARATION:	Refer to Section II			
CONDITIONING:	Ambient	 For all IBC design types intended to contain solids that are loaded or 		
TEST PRESSURE:	20 kPa	discharged under pressure or		
TEST DURATION:	10 Minutes	intended to contain liquids, there may		
AREA OF PRESSURIZATION:	Through Top Head	be no leakage of air from the IBC. (§178.813)		
TEST EQUIPMENT:	Regulated Air Source #: 2 Pressure Gauge #:615 & 641	,		

LEAKPROOFN	LEAKPROOFNESS TEST SET-UP AND RESULTS (SAMPLE #1)							
Set-Up Photo	Leakproofness Photo	Leakproofness Photo						
STREET Y (SI - 34) USA -4A 1722 (9) 2019 Plant access from 100 (100) Copy present but in 4P _p course. 103) The plant of the thoughout 100 A 3 3 5 0 A 4 3 5 0 The plant of the thoughout 100 A 4 3 5 0 The plant of the thoughout 100 The plant of the thoughout 100 The plant of the thoughout 100 A 4 3 5 0 The plant of the thoughout 100 The p	The state of the s	TARE TERD PULL MENU						
Results	Comments/C	Observations						
PASS	The IBC met the criteria for passing the test. No leakage.							



HYDROSTATIC PRESSURE TEST

TEST INFO	RMATION	TEST CRITERIA		
TEST CONTENTS:	Water			
WATER TEMPERATURE:	20.3°C (68.5°F)			
FILL CAPACITY:	Maximum Capacity	For rigid plastic and composite IBC		
SAMPLE PREPARATION:	Refer to Section II	design types intended to contain solids loaded or discharged under pressure or		
CONDITIONING:	Ambient	intended to contain liquids, there may		
TEST PRESSURE:	100 kPa	be no leakage and no permanent deformation which renders the IBC		
TEST DURATION:	10 Minutes	unsafe for transportation.		
AREA OF PRESSURIZATION:	Through Top Head	(§178.814)		
TEST EQUIPMENT:	Regulated Water Source #: 2 Pressure Gauge #: 641			

HYDROSTATIC PRESSURE TEST SET-UP AND RESULTS (SAMPLE #1) Set-Up Photo Hydrostatic Pressure Photo Hydrostatic Pressure Photo







Results	Comments/Observations
PASS	The IBC met the criteria for passing the test. No leakage.



DROP TEST

TEST I	NFORMATION	TEST CRITERIA
TEST CONTENTS: SAMPLE PREPARATION: CONDITIONING:	Methanol/Water Solution (0.968 SG) Refer to Section II	For all IBC design types, there may be no damage which renders the IBC unsafe to be transported for
TEST CONTENTS TEMP.: DROP HEIGHT:	-18°C (0°F) Chamber #202 -18.4°C (1.1°F) 1.9 Meters (75") (Refer to Section IV)	 salvage or for disposable, and no loss of contents. The IBC shall be capable of being lifted by an appropriate means until clear of the floor for five minutes. A slight discharge from closures
DROP ORIENTATION: TEST EQUIPMENT:	Most Vulnerable Part of Base Quick Release Hook Mechanism 5 Ton Overhead Hoist	upon impact is not considered a failure provided that no further leakage occurs. (§178.810)

DROP T	DROP TEST SET-UP AND RESULTS (SAMPLE #2)						
Set-Up Photo	Post Drop Photo	Post Drop Photo					
Results	Comments/Observations						
PASS	The IBC met the criteria for passing the test. No leakage. All three clamping nuts broke off the bottle.						



REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES						
	49 CFR①	UN@	IMDG3			
TEST	October 2023 Edition	23 rd Edition	2022 Edition			
Vibration:	178.819	6.5.6.13	6.5.6.13			
Bottom Lift:	178.811	6.5.6.4	6.5.6.4			
Leakproofness:	178.813	6.5.6.7	6.5.6.7			
Hydrostatic Pressure:	178.814	6.5.6.8	6.5.6.8			
Drop:	178.810	6.5.6.9	6.5.6.9			

- 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					
Vibration	ASTM@ D7387:	Standard Test Method for Vibration Testing of IBCs Used for Shipping Liquid Hazardous Materials (Dangerous Good)				
Vibration:	ISO© 2247:	Packaging – Complete, Filled Transport Packages – Vibration Test at Fixed Low Frequency				
Pressure: ASTM [®] D8134: Standard Guide for Conducting Internal Hydrostatic Pressure United Nations (UN) IBC Design Types						
	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				
	ISO© 2248:	Packaging – Complete, Filled Transport Packages – Vertical Impact Test by Dropping				

- American Society for Testing and Materials (ASTM)
- (ISO) 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 IBC Tare Weight (IBCTW)-Sample 1: 95.0 Kg 209.4 Lbs.									
Overall IBC Tare Weight (IBCTW)-Sample 2:	95.0 Kg	209.4 Lbs.							
Overflow Capacity (OFC):									
Water	1,035.0 Kg	2,281.8 Lbs.							
Methanol/Water	980.0 Kg	2,160.5 Lbs.							
Actual Load Applied for Bottom Lift (BLALA):	1,587.6 Kg	3,500.0 Lbs.							
Packing Group	II								
Product Specific Gravity (PSG):	1.90	Min Wt To Be Applied							
Packing Group Multiplication Factor (MF):	1.00	3,126.8 Lbs. (Btm Lift)							
# of IBC Stacked During Transportation (#IBC):	0	· , ,							

	98% OF OVERFLOW								
	Overflow Capacity (OFC) x 98%								
_	OFC	x	98%						
	1,035.0	х	98% =	1,014.3	Kg	2,236.2	Lbs. Water	Sample #1	
	980.0	Х	98% =	960.4	Kg	2,117.3	Lbs. Methanol/Water	Sample #2	

IBC TEST WEIGHT (IBCW)							
Overall IBC Tare Weight (IBCTW) + 98% Overflow Capacity (OFC)							
IBCTW	+	98% OFC =					
95.0	+	1,014.3	1,109.3	Kg	2,445.5	Lbs. Water	Sample #1
95.0	+	960.4	1,055.4	Kg	2,326.7	Lbs. Methanol/Water	Sample #2

AUTHORIZED IBC GROSS MASS (AIBCGM)									
	Overall IBC Tare Weight (IBCTW) + (Product SG (PSG) x 98% Overflow (OFC))								
	IBCTW	+	(PSG		х	98% OFC)			
	95.0	_ + _	1.90		Χ	1,014.3	•		
			2,022.1	Kg		4,457.9	Lbs.		



BOTTOM LIFT CALCULATIONS									
The IBC must be loaded to 1.25 times the combined maximum permissible gross mass with load being evenly									
distributed									
Minimum Required Load									
Authorized IBC Gross Mass x 1.25									
AIBCGM	_ x _	1.25	=	Minimum Re	equired Load				
2,022.1	Х	1.25	=	2,527.8	Kg	5,572.7	Lbs.		
Combined Gross Mass Lifted									
Actual Load Applied (ALA) + IBC Test Weight (IBCW)									
IBCW	_ + _	ALA	=	Total Load Lifted					
1,109.3	+	1,587.6	=	2,696.9	Kg	5,945.6	Lbs.		

DROP HEIGHT								
Calculation For Product Specific Gravities Exceeding 1.2 Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)								
	F3G	_ × _	IVIF	_	Packing Group: II			
	1.90	Х	1.00		Required Drop Height	Actual Drop Height		
			1.90	Meter	74.8 Inches	75 Inches		