TEN-E Packaging Services, Inc.

UNITED NATIONS / DOT PERFORMANCE CERTIFICATION

31A PERIODIC DESIGN REQUALIFICATION

575 Gallon Stainless Steel IBC for Liquids
(111700)

TEST REPORT #: 25-MN40043

(un) 31A / Y / * / USA / +AA11249 / 8709 / 4685

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

TESTING PERFORMED FOR:

TITAN IBC
701 West Sargent Street
Beatrice, NE 68310

ATTN: Randy Vogt

TESTING PERFORMED BY:

TEN-E PACKAGING SERVICES, INC.
1666 County Road 74
Newport, MN 55055
Phone: 651-459-0671
Fax: 651-459-1430

May 16, 2025

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TABLE OF CONTENTS

SECTION I: CERTIFICATION **3**
SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS **4**
COMPONENT INFORMATION 5
SECTION III: TEST PROCEDURES AND RESULTS **8**
VIBRATION TEST 8
BOTTOM LIFT TEST 9
TOP LIFT TEST 10
STACKING TEST 11
LEAKPROOFNESS TEST 12
HYDROSTATIC PRESSURE TEST 13
DROP TEST 14
REGULATORY AND INDUSTRY STANDARD REFERENCES **15**
SECTION IV MATHEMATICAL CALCULATIONS **16**

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SECTION I: CERTIFICATION

PERIODIC DESIGN REQUALIFICATION of the Titan IBC 575 Gallon Stainless Steel IBC for Liquids (111700)

TEN-E Packaging Services, Inc. is a current DOT UN Third-Party Certification Agency under §107.403 and certifies that the **Titan IBC** 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	49 CFR REFERENCE	TEST LEVEL	TEST CONTENTS	TEST COMPLETED	TEST RESULTS
Vibration	178.819	3.45 Hz – 1 Hour	Water	May 2, 2025	PASS
Bottom Lift	178.811	6,163.1 Kg	Water	May 7, 2025	PASS
Top Lift	178.812	9,791.9 Kg – 5 Minutes	Water	May 8, 2025	PASS
Stacking	178.815	8,709.0 Kg – 5 Minutes	Water	May 12, 2025	PASS
Leakproofness	178.813	20 kPa – 10 Minutes	Empty	May 16, 2025	PASS
Hydrostatic	178.814	65/200 kPa – 10 Minutes	Water	May 16, 2025	PASS
Drop	178.810	1.96 m	Water	May 16, 2025	PASS

TEST REPORT NUMBERS:	25-MN40043, 24-MN40056
UN MARKING: (CFR 49 – 178.703)	(un) 31A / Y / * / USA / +AA11249 / 8709 / 4685
PACKAGING IDENTIFICATION CODE:	31A (178.705 Metal IBC)
PERFORMANCE STANDARD:	Y (Packaging meets Packing Group II and III tests)
MONTH AND YEAR OF MANUFACTURE:	*
STATE AUTHORIZING ALLOCATION OF THE MARK:	USA
PACKAGING CERTIFICATION AGENCY:	(+AA) TEN-E Packaging Services, Inc. (Newport, MN CAA #2006030022)
THIRD PARTY PACKAGING IDENTIFICATION:	+AA11249
STACKING TEST LOAD:	8,709.0 Kg (19,200.0 Lbs.)
MAXIMUM PERMISSIBLE GROSS MASS:	4,685.5 Kg (10,329.6 Lbs.)
PERIODIC DESIGN REQUALIFICATION DATE:	May 16, 2026
ADDITIONAL REQUIRED METAL IBC MARKINGS (CFR 49 – 178.703(b)(2)):	
RATED CAPACITY AT 20ºC (liters):	Insert Rated Capacity
TARE MASS (Kg):	Insert Individual IBC Tare Mass
DATE OF LAST LEAKPROOFNESS TEST:	Insert Month & Year of Last Leakproofness Test
DATE OF LAST INSPECTION:	Insert Month & Year of Last Inspection
BODY MATERIAL AND MINIMUM THICKNESS (mm):	Insert Body Material and Minimum Thickness
SERIAL # ASSIGNED BY MANUFACTURER:	Insert Serial Number Assigned by Manufacturer

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

Titan IBC
701 West Sargent Street
Beatrice, NE 68310

Oscar Mejia
Technician
TEN-E Packaging Services, Inc.
1666 County Road 74
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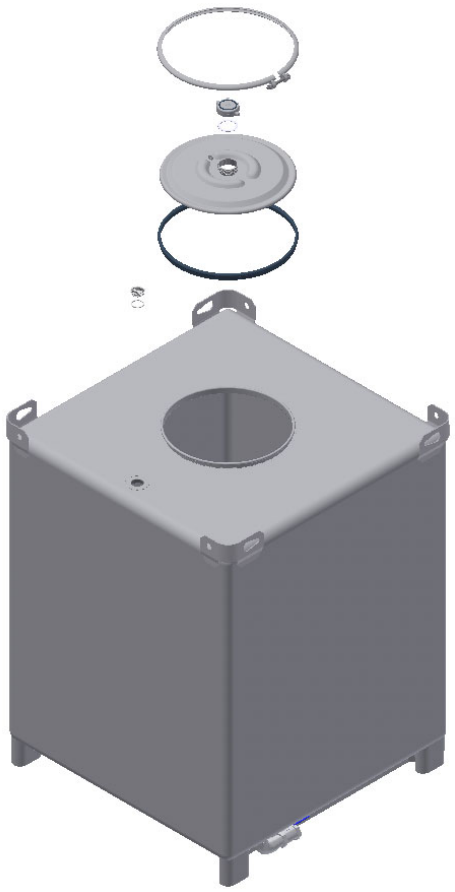
SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS

575 Gallon Stainless Steel IBC for Liquids (111700)

ASSEMBLY DRAWING



TEST LEVELS		
Certification Type:	Periodic Design Requalification	
Packaging Code Designation:	31A	
Packing Group:	II	
Specific Gravity:	1.96	
Test Pressure:	65/200 kPa	
TEST SAMPLE PREPARATION (Refer to Section IV)		
Overall IBC Tare Weight: (Sample #1)	292.0 Kg	643.7 Lbs.
Net Fill Weight (98% Maximum Capacity):		
Water (Sample #1)	2,242.3 Kg	4,943.4 Lbs.
IBC Test Weight:		
Water (Sample #1)	2,534.3 Kg	5,587.1 Lbs.
Maximum Permissible Gross Mass:	4,686.9 Kg	10,332.7 Lbs.
CLOSING METHODS		
22.5" Cover:		
Application Torque:	40 Ft-Lbs.	
Equipment:	Torque Wrench #742	
3" Fill Cap:		
Application Torque:	40 Ft-Lbs.	
Equipment:	Torque Wrench #742	
2" Bung Plug:		
Application Torque:	30 Ft-Lbs.	
Equipment:	Torque Wrench #740	

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.

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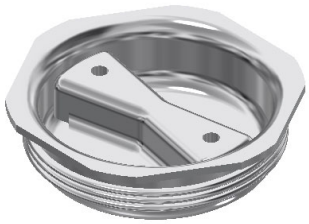
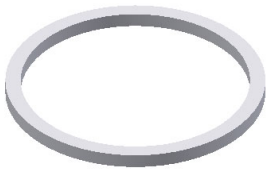
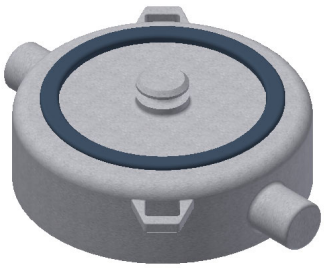
COMPONENT INFORMATION

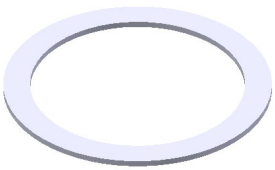
BUNG PLUG (140033)		DRAWING
Manufacturer: Sigma Tool Industrial, Taiwan		
Description:	2” NPS Threaded Bung Plug	
Quantity:	1	
Material:	Stainless Steel 304	
Tare Weight:	145 Grams	
Overall Dimensions:		
• **Height**	0.816” (20.73 mm)	
• **Diameter**	3.107” (78.92 mm)	
Thread Dimensions:		
• **T**	2.316” (58.82 mm)	
• **E**	2.233” (56.72 mm)	
Markings (QC Audit):	None	
GASKET (140008)		
Manufacturer: Rieke Corporation – TSPC, Inc., Chicago, IL		
Description:	EPDM Gasket, White	
Tare Weight:	4.955 Grams	
Thickness:	0.106” (2.69 mm)	
Diameter:	2.825” (71.76 mm)	





FUSIBLE CAP (140015)		DRAWING
Manufacturer: Girard Equipment, Vero Beach, FL		
Description:	3” Threaded Fusible Cap – GJ36000	
Quantity:	1	
Material:	Stainless Steel	
Tare Weight:	695 Grams	
Overall Dimensions:		
• **Height**	1.635” (41.53 mm)	
• **Bottom Diameter**	3.924” (99.67 mm)	
• **Top Handle to Handle**	5.227” (132.76 mm)	
Thread Dimensions:		
• **T**	3.500” (88.89 mm)	
• **E**	3.352” (85.14 mm)	
Markings (QC Audit):	Girard Equipment Inc. 1-800-526-4330 U.S.A. FLOW RATE @ 5 PSIG 110,000 CFH @ 32-1/2 PSIG 275,000 CFH @ 39 PSIG 350,000 CFH @ 45-1/2 PSIG 385,000 CFH H 88303 HIH	
GASKET (140097)		
Manufacturer: Master Packing & Rubber Co., Cedar Rapids, IA		
Description:	Teflon Gasket, White	
Tare Weight:	9.684 Grams	
Thickness:	0.082” (2.08 mm)	
Diameter:	3.497” (88.82 mm)	





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CLAMP RING (140011)		DRAWING
Manufacturer: Drum Parts Midwest, Cleveland, OH		
Description:	22-1/2” Nut/Bolt Style Locking Ring	
Material:	5/8” – NC Plated Steel	
Thickness	0.104” (2.64 mm)	
Tare Weight:	1,531 Grams	
Inside Dimensions:		
• **Circumference**	73.747” (1,873.17 mm)	
• **Height**	0.781” (19.84 mm)	
NUT/BOLT ASSEMBLY		
Material:	5/8” Plated Steel	
Dimensions:	5/8” x 5” (18.88 mm x 127.00 mm)	
Tare Weight:	223 Grams	
Markings (QC Audit):		
• **Ring**	None	
• **Bolt**	307A LB	
• **Nut**	LWFC	
MANWAY COVER (130322)		
Manufacturer: Van Am Tool, St. Joseph, MO		
Description:	22-1/2” Steel Manway Style Cover with 3” Center Threaded Opening	
Material:	Stainless Steel 304L	
Tare Weight:	3,923 Grams	
Dimensions:		
• **Height**	2.627” (66.72 mm) (to top of 3” NPT half nipple threads)	
• **Outside Diameter**	23.759” (603.47 mm)	
• **Inside Diameter**	23.598” (599.39 mm)	
GASKET (140010)		
Manufacturer: Philpott Rubber Company, Brunswick, OH		
Description:	EPDM Multi-Seal Full Wrap Gasket, Black	
Tare Weight:	108 Grams	
Thickness:	0.163” (4.14 mm)	
Diameter:	23.598” (599.39 mm)	
3” Half Nipple Thread Dimensions:		
• **T**	3.438” (87.32 mm)	
• **E**	3.286” (83.47 mm)	
Markings (QC Audit):	None	

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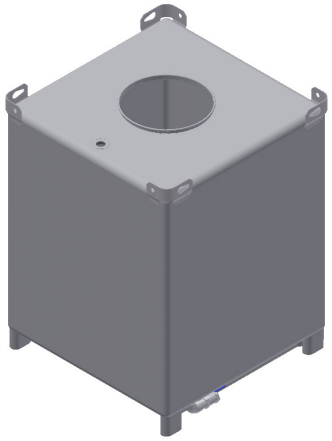
TANK (111700)					DRAWING
Manufacturer: Titan IBC, LLC, Beatrice, NE					
Description:	575 Gallon Stainless Steel Container with: • 2 Piece Body Design • 22” Manway Opening • (4) Top Corner Lifting Lugs • (4) Corner Support Legs • (1) NPS Threaded Top Opening and 2” Bottom Ball Valve				
Material:	304 Stainless Steel (10 gauge)				
• **Top**	0.155” (3.937 mm)	0.155” (3.937 mm)	0.155” (3.937 mm)	0.154” (3.912 mm)	
• **Sidewall**	0.154” (3.912 mm)	0.155” (3.937 mm)	0.154” (3.912 mm)	0.154” (3.912 mm)	
• **Bottom**	0.155” (3.937 mm)	0.156” (3.962 mm)	0.155” (3.937 mm)	0.155” (3.937 mm)	
Tare Weight:	285.360 Kg (629.1 Lbs.)				
Capacity:					
• **Rated**	575 Gallons				
• **Overflow**	604.5 Gallons (2,288.0 Kg)				
Side Seam:	Welded				
Overall Dimensions:					
• **Length**	48” (1,219.2 mm) 49” (Lifting Lugs) (1,244.6 mm)				
• **Width**	42” (1,066.8 mm) 42-3/4” (Lifting Lugs) (1,085.85 mm)				
• **Height (Top Head)**	71-1/2” (1,816.1 mm)				
• **Height (Lifting Lugs)**	77-1/2” (1,968.5 mm)				
Lifting Lugs:	(4) 304 Stainless Steel Lifting Lugs				
Leg Assembly:	(4) 304 Stainless Steel Leg Assembly				
Top Opening Dimensions:					
• **Outside Diameter**	23.508” (597.10 mm)				
• **Inside Diameter**	22.503” (571.58 mm)				
• **Height**	1.227” (31.17 mm)				
2” Plug Thread Dimensions:	**Major Diameter**		**Minor Diameter**		
	2.349” (59.67 mm)		2.243” (56.97 mm)		
Markings (QC Audit):	(un) 31A / Y / - / USA / M5972 8164 KG / 4391 KG / 2082 L KG / – / - TITAN IBC 701 West Sargent Road Beatrice NE. 68310 www.titanibc.com ASTM A240 304SS 3.0 MM 550 GAL / 641 LBS / 9682 LBS. / MODEL NO. 110596 Customer Serial NO. TEST ASTM A 240/A 240M TYPE 304L/304 2B 920255 0.1350 x 72.00 HEAT #544638 OUTOKUMPU STAINLESS USA				
VALVE ASSEMBLY					
Description:	2” Stainless Steel NPT Half Nipple, 2” Stainless Steel Threaded Elbow, 2” x 3” NPL 2” 316 Stainless Steel Ball Valve				
Material:	Stainless Steel				
Markings (QC Audit):	Ball Valve 150-2 1000WOG 2” 316 CF8M				
VALVE GUARD					
Description:	1				
Material:	Stainless Steel				



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SECTION III: TEST PROCEDURES AND RESULTS

VIBRATION TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	• An IBC passes the vibration test if there is no rupture or leakage. (§178.819)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TABLE DISPLACEMENT:	1”	
TEST FREQUENCY:	3.45 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using 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.

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BOTTOM LIFT TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	• For all IBC design types designed to be lifted from the base, there may be no permanent deformation which renders the IBC unsafe for transportation and no loss of contents. (§178.811)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
NUMBER OF LIFTS:	6 (Three-Way Entry with 2 Lifts per Direction of Entry)	
FORK TINE PENETRATION:	Entry 1 & 2: 36” Entry 3: 31.5”	
COMBINED GROSS MASS LIFTED:	6,163.1 Kg (13,587.2 Lbs.) (Refer to Section IV)	
TEST EQUIPMENT:	Fork Truck Dead Load Weights	

BOTTOM LIFT TEST SET-UP AND RESULTS (SAMPLE #2)

Direction of Entry #1	Direction of Entry #2	Direction of Entry #3

Results		Comments/Observations
Lift #1: **PASS**	Lift #4: **PASS**	The IBC met the criteria for passing the test. No leakage or damage.
Lift #2: **PASS**	Lift #5: **PASS**	
Lift #3: **PASS**	Lift #6: **PASS**	

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TOP LIFT TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	• For all IBC design types designed to be lifted from the top, there may be no permanent deformation which renders the IBC, including the base pallets when applicable, unsafe for transportation, and no loss of contents. (§178.812)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST DURATION:	5 Minutes	
COMBINED GROSS MASS LIFTED:	9,791.9 Kg (21,587.2 Lbs.) (Refer to Section IV)	
NUMBER OF LIFTS:	2	
LIFTING ORIENTATION:	Vertical	
TEST EQUIPMENT:	Crane Dead Load Weights	

TOP LIFT TEST SET-UP AND RESULTS (SAMPLE #1)

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

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STACKING TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	• For metal, rigid plastic and composite IBCs, there may be no permanent deformation, which renders the IBC unsafe for transportation, and no loss of contents. (§178.815)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST LOAD APPLIED:	8,709.0 Kg (19,200.0 Lbs.) (Refer to Section IV)	
TEST DURATION:	5 Minutes	
TEST EQUIPMENT:	L.A.B. 6630 Compression System	

STACKING TEST SET-UP AND RESULTS (SAMPLE #1)

Results	Comments/Observations
PASS	The IBC met the criteria for passing the test. 0” maximum deflection after 5 Minutes. No leakage or damage.

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LEAKPROOFNESS TEST

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

LEAKPROOFNESS TEST SET-UP AND RESULTS (SAMPLE #1)

Set-Up Photo	Leakproofness Photo	Leakproofness Photo

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

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HYDROSTATIC PRESSURE TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	• For metal IBCs subjected to the 65 kPa test pressure, there may be no leakage or permanent deformation that would make the IBC unsafe for transportation. • For metal IBCs intended to contain liquids there may be no leakage when subjected to the 200 kPa and 250 kPa test pressures. (§178.814)
WATER TEMPERATURE:	19.5°C (67.1°F)	
FILL CAPACITY:	Maximum Capacity	
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	65 kPa and 200 kPa	
TEST DURATION:	10 Minutes	
AREA OF PRESSURIZATION:	Through Top Closure	
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.

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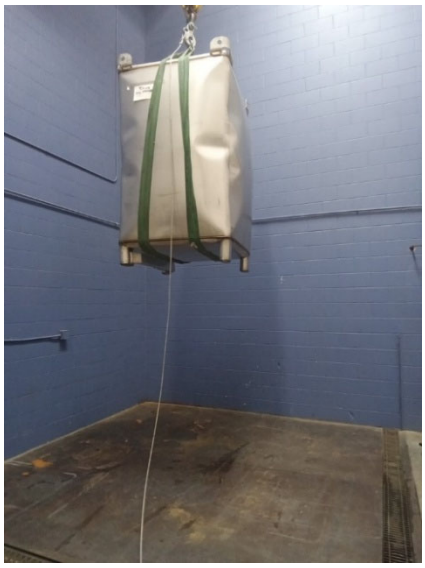
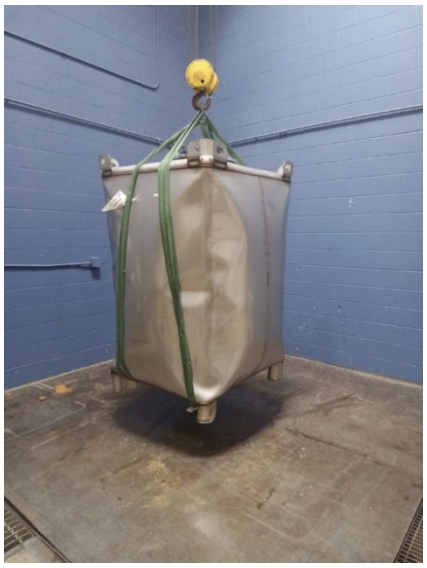
DROP TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	• For all IBC design types, there may be no damage which renders the IBC unsafe to be transported for 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 upon impact is not considered a failure provided that no further leakage occurs. (§178.810)
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
DROP HEIGHT:	1.96 Meters (78”) (Refer to Section IV)	
DROP ORIENTATION:	Most Vulnerable Part of Base	
TEST EQUIPMENT:	Quick Release Hook Mechanism 5 Ton Overhead Hoist	

DROP TEST SET-UP AND RESULTS (SAMPLE #1)		
Set-Up Photo	**Post Drop Photo**	**Post Drop Photo**
		
Results	**Comments/Observations**	
PASS	The IBC met the criteria for passing the test. No leakage or damage.	

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REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES			
TEST	**49 CFR①**	**UN②**	**IMDG③**
	October 2024 Edition	**23rd Edition**	**2024 Edition**
Vibration:	178.819	6.5.6.13	6.5.6.13
Bottom Lift:	178.811	6.5.6.4	6.5.6.4
Top Lift:	178.812	6.5.6.5	6.5.6.5
Stacking:	178.815	6.5.6.6	6.5.6.6
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:	ASTM④ D7387:	Standard Test Method for Vibration Testing of IBCs Used for Shipping Liquid Hazardous Materials (Dangerous Good)
	ISO⑤ 2247:	Packaging – Complete, Filled Transport Packages – Vibration Test at Fixed Low Frequency
Stacking:	ASTM④ D8409:	Standard Guide for Conducting Stacking Tests on UN Packagings Using Guided or Unguided Loads
	ASTM④ D4577:	Standard Test Method for Compression Resistance of a Container Under Constant Load
	ISO⑤ 2234:	Packaging – Complete, Filled Transport Packages – Stacking Test using Static Load
Pressure:	ASTM④ D8134:	Standard Guide for Conducting Internal Hydrostatic Pressure Tests on United Nations (UN) IBC Design Types
Drop:	ASTM④ D5276:	Standard Test Method for Drop Test of Loaded Containers by Free Fall
	ASTM④ D7790:	Standard Test Method for the Preparation of Plastic Packagings Containing Liquids for United Nations (UN) Drop Testing
	ISO⑤ 2248:	Packaging – Complete, Filled Transport Packages – Vertical Impact Test by Dropping

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.

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SECTION IV MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall IBC Tare Weight (IBCTW):	**292.0**	**Kg**	**643.7**	**Lbs.**
Overflow Capacity (OFC):				
Water	**2,288.0**	**Kg**	**5,044.1**	**Lbs.**
Actual Load Applied for Bottom Lift (BLALA):	**3,628.8**	**Kg**	**8,000.0**	**Lbs.**
Actual Load Applied for Top Lift (TLALA):	**7,257.6**	**Kg**	**16,000.0**	**Lbs.**
Packing Group	**II**			
Product Specific Gravity (PSG):	**1.96**		**Min Wt To be Applied**	
Packing Group Multiplication Factor (MF):	**1.00**		7,328.4	Lbs. (Btm Lift)
# of IBC Stacked During Transportation (#IBC):	**2**		15,077.6	Lbs. (Top Lift)

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

OFC	x	98%				
2,288.0	x	98% =	**2,242.3**	**Kg**	**4,943.4**	**Lbs. Water**

IBC TEST WEIGHT (IBCW)

Overall IBC Tare Weight (IBCTW) + 98% Overflow Capacity (OFC)

IBCTW	+	98% OFC =				
292.0	+	2,242.2	**2,534.3**	**Kg**	**5,587.1**	**Lbs. Water**

AUTHORIZED IBC GROSS MASS (AIBCGM)

Overall IBC Tare Weight (IBCTW) + (Product SG (PSG) x 98% Overflow (OFC))

IBCTW	+	(PSG	x	98% OFC)
292.0	+	1.96	x	2,242.2
		4,686.9	**Kg**	**10,332.7** **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 Required Load		
4,686.9	x	1.25	=	**5,858.8**	**Kg**	**12,916.2** **Lbs.**

Combined Gross Mass Lifted

Actual Load Applied (ALA) + IBC Test Weight (IBCW)

IBCW	+	ALA	=	Total Load Lifted		
2,534.3	+	3,628.8	=	**6,163.1**	**Kg**	**13,587.2** **Lbs.**

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TOP LIFT CALCULATIONS

The IBC must be loaded to 2.0 times the combined maximum permissible gross mass with load being evenly distributed

Minimum Required Load

Authorized IBC Gross Mass x 2.0

AIBCGM	x	2.0	=	Minimum Required Load			
4,686.9	x	2.0	=	**9,373.8**	**Kg**	**20,665.5**	**Lbs.**

Combined Gross Mass Lifted

Actual Load Applied (ALA) + IBC Test Weight (IBCW)

IBCW	+	ALA	=	Total Load Lifted			
2,534.3	+	7,257.6	=	**9,791.9**	**Kg**	**21,587.2**	**Lbs.**

STACK TEST CALCULATIONS

The IBC must be loaded to 1.8 times the combined maximum permissible gross mass of the number of similar IBCs that may be stacked on top of the IBC during transportation

Minimum Required Load

Authorized IBC Gross Mass x # of IBC Stack During Transportation (-1) x 1.8

AIBCGM	x	#IBC (-1)	x	1.8	=	Minimum Required Load			
4,686.9	x	1.00	x	1.8	=	**8,436.6**	**Kg**	**18,599.3**	**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**
1.96	x	1.00		**Required Drop Height**	**Actual Drop Height**
		1.96	**Meter**	**77.2 Inches**	**78 Inches**

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