

**UNITED NATIONS / DOT
PERFORMANCE CERTIFICATION**



31HA1 PERIODIC DESIGN REQUALIFICATION

**MX330 - 330 Gallon Composite IBC with 6" Fill Port Cap
on Steel Pallet (Basell Resin)**

TEST REPORT #: 17-MN40094



31HA1 / Y / ** / USA / +AA5805 / 3855 / 2056

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

TESTING PERFORMED FOR:

SCHÜTZ CONTAINER SYSTEMS

200 Aspen Hill Road

P.O. Box 5950

North Branch, NJ 08876-5950

ATTN: Brian Minnich

TESTING PERFORMED BY:

TEN-E PACKAGING SERVICES, INC.

1666 County Road 74

Newport, MN 55055

Phone: 651-459-0671

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October 9, 2017

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SECTION I: CERTIFICATION

**Periodic Design Requalification of the Schütz
 MX330 - 330 Gallon Composite IBC with 6" Fill Port Cap on Steel Pallet (Basell Resin)**


TEN-E Packaging Services, Inc. is a current DOT UN Third-Party Certification Agency under §107.403 and certifies that the **Schütz Container Systems** 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
Vibration	178.819	3.3 Hz – 1 Hour	Water	October 5, 2017	PASS
Bottom Lift	178.811	2675.4 Kg	Water	October 5, 2017	PASS
Stacking	178.815	3855.6 Kg – 24 Hours	Water	October 6, 2017	PASS
Leakproofness	178.813	20 kPa – 10 Minutes	Empty	October 9, 2017	PASS
Hydrostatic	178.814	100 kPa – 10 Minutes	Water	October 9, 2017	PASS
Drop	178.810	1.6 m	Methanol/Water	October 6, 2017	PASS
TEST REPORT NUMBER(S):			17-MN40094, 14-4138		
UN MARKING: (CFR 49 – 178.703)					
PACKAGING IDENTIFICATION CODE:			31HA1 (178.707 Composite 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:			+AA5805		
STACKING TEST LOAD:			3,855.5 Kg (8,500.0 Lbs.)		
MAXIMUM PERMISSIBLE GROSS MASS:			2,056.3 Kg (4,533.3 Lbs.)		
PERIODIC DESIGN REQUALIFICATION DATE:			October 9, 2018		
ADDITIONAL REQUIRED RIGID PLASTIC & COMPOSITE IBC MARKINGS (CFR 49 – 178.703(b)):					
RATED CAPACITY AT 20°C (liters):			1250 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		
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 **Schütz Container Systems** for services rendered. In the event of future changes to the above referenced test standards, it is the responsibility of **Schütz Container Systems** 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:
 Schütz Container Systems
 200 Aspen Hill Road
 P.O. Box 5950
 North Branch, NJ 08876-5950




 Patricia L. Garin
 Manager, Technical Services
 TEN-E Packaging Services, Inc.
 1666 County Road 74
 Newport, MN 55055

SECTIONS II & V: PACKAGING DESCRIPTIONS / COMPONENT DRAWINGS

MX330 - 330 Gallon Composite IBC with 6" Fill Port Cap on Steel Pallet (Basell Resin)

ASSEMBLY DRAWING	TEST LEVELS				
	Certification Type:	Periodic Design Requalification			
	Packaging Code Designation:	31HA1			
	Packing Group:	II			
	Specific Gravity:	1.6			
	Test Pressure:	100 kPa			
	TEST SAMPLE PREPARATION (Refer to Section IV)				
	Overall IBC Tare Weight: (Sample #1 and Sample #2)	67.0 Kg			
	Net Fill Weight (98% Maximum Capacity):				
	Water	(Sample #1)	1,247.6 Kg		
	Methanol/Water	(Sample #2)	1,194.7 Kg		
IBC Test Weight:					
Water	(Sample #1)	1,314.6 Kg	2,898.1 Lbs.		
Methanol/Water	(Sample #2)	1,261.7 Kg	2,781.5 Lbs.		
Maximum Permissible Gross Mass:	2,063.1 Kg	4,548.3 Lbs.			
CLOSING METHODS					
6" Fill Port Cap:					
Application Torque	75 Ft-Lbs.				
Equipment	Torque Wrench #742				
Dispensing Valve (By Manufacturer):					
Valve to IBC Body	Threaded onto body with 2 complete turns. Shear pin then pushed into place.				
Closure	Hand Tight and Foil Seal				
Refer to Appendix A for Manufacturer's Closure Instructions					

COMPONENT INFORMATION

6" THREADED CAP (Drawing No. 3-23948)		DRAWING
Manufacturer: Schütz Container Systems, North Branch		
Description:	Solid Screw Cap DN150 (6")	
Material:	High Density Polyethylene, Black	
Tare Weight:	416 Grams	
Overall Dimensions:		
• Height	38 mm (1.50")	
• Bottom Diameter	189 mm (7.44")	
Thread Dimensions:		
• Major Diameter	164.1 mm (6.46")	
• Minor Diameter	157.5 mm (6.20")	
Markings (QC Audit):	 31HA1 SCHÜTZ 32 S 7/16 SPI "02" PE-HD Recycling Symbol	
Gasket Description:	White Lucopren	
Tare Weight:	12 Grams	
Thickness:	6.2 mm (0.24")	
Diameter:	142 mm (5.59")	

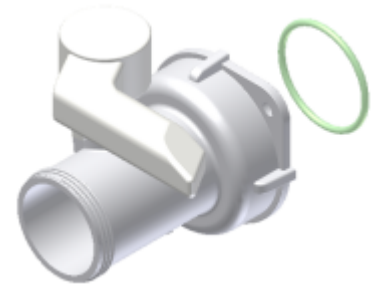
DISPENSING VALVE (4-27482-B)

Manufacturer: Schütz Container Systems, North Branch, NJ

50mm BUTTERFLY VALVE

DRAWING

Description:	50 mm Screwable Butterfly Valve, DN 50 Integrated Nut S75x6 and 2" Camlok with Flap Handle and PP Safety Guard Clip	
Material:	High Density Polyethylene with Glass Filled PP Handle	
Tare Weight:	215 Grams	
Overall Dimensions:		
• Length (with cap)	140 mm	(5.51")
• Width	96.5 mm	(3.80")
• Height	125.5 mm	(4.94")
Thread Dimensions	To Accommodate Closure	To Accommodate Closure
• Major Diameter	58.9 mm (2.32")	75.4 mm (2.97")
• Minor Diameter	56.1 mm (2.21")	70.1 mm (2.76")
Markings (QC Audit):	SCHÜTZ 7 6/17 18 A41408X1015426436 SPI "05" PP Recycling Symbol SPI "2" PE-HD Recycling Symbol SPI "PP-GF" Recycling Symbol	
Gasket:		
Material:	Green Rubber	
Tare Weight:	3.975 Grams	
Diameter	63.5 mm (2.50")	
Thickness	3.6 mm (0.14")	



DISPENSING VALVE (4-27482-B) - Continued		DRAWING
NPS THREADED VALVE CLOSURE		
Material:	High Density Polyethylene, White	
Tare Weight:	21.021 Grams	
Overall Dimensions:		
• Height	26.9 mm (1.06")	
• Diameter	76.7 mm (3.02")	
Thread Dimensions:		
• Major Diameter	60.2 mm (2.37")	
• Minor Diameter	57.4 mm (2.26")	
Markings (QC Audit):	SCHÜTZ 8/17 9 SPI "2" PE-HD Recycling Symbol	
Disk		
Material:	High Density Polyethylene, Red	
Tare Weight:	6.763 Grams	
Overall Dimensions:		
• Diameter	60.5 mm (2.38")	
• Height:	6.1 mm (0.24")	
Markings (QC Audit):	SCHÜTZ 19 6 SPI "02" PE-HD Recycling Symbol	
Liner:		
Material:	Polyethylene Foam Liner	
Tare Weight:	0.567 Grams	
Diameter:	54.6 mm (2.15")	
Thickness:	3.6 mm (0.14")	
Seal:	PE/Foil Induction Seal	

RIGID PLASTIC INNER RECEPTACLE (Drawing No.: 2-42634-B)		DRAWING
Manufacturer: Schütz Container Systems, North Branch, NJ		
Description:	330 Gallon Rigid Plastic Inner Receptacle with <ul style="list-style-type: none"> • Butress Threaded Top Opening • Threaded Bottom Dispensing Valve Opening 	
Material:	High Density Polyethylene, Natural	
Resin Type:	Basell	
Resin Manufacturer:	Lupolen 4261 AG UV 60005	
Certificate of Compliance:	See following page	
Method of Manufacture:	Blow Molded	
As Molded Density*:	0.940 g/cc	
As Molded Melt Index*:	5.360 g/ 10 min (190/21.6)	
Tare Weight:		
• Minimum	18.5 Kg	
• Actual	20.0 Kg	
Capacity:		
• Rated	330 Gallons	
• Overflow	336.3 Gallons	
Overall Dimensions:		
• Length	1160 mm (45.67")	
• Width	960 mm (37.80")	
• Height:		
• Shoulder	1215 mm (47.83")	
• Hold Down Loop	1245 mm (49.02")	
6" Fill Port Opening Dimensions (Drawing No. 3-41514-B):		
• Type/Style	Butress DN150 (6")	
• Major Diameter	S165x7	
• Minor Diameter	152.9 mm (6.02")	
• Inside Diameter	144.0 mm (5.67")	
• Height	34.5 mm (1.36")	
Dispensing Valve Opening Dimensions:		
• Type/Style	DN50	
• Diameter (OD)	83 mm	
• Major Diameter	75.6 mm (2.94")	
• Minor Diameter	69.2 mm (2.72")	
Wall Thickness (Nominal):	1.8 mm	
Wall Thickness (Minimum):		
• Corner Bottom	1.6 mm	
• Corner Top	1.8 mm	
• Side Panels	1.8 mm	
• Bottom Edge	1.8 mm	
• Outlet Area	4.0 mm	
• Water Drainage Left/Right	2.2 mm	
Markings (QC Audit):	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px; margin-right: 10px;"> u n </div> <div> 31HA1 / M4127 / USA SCHUETZ 5 (PB) SCHÜTZ C74 9/17 SPI "2" PE-HD Recycling Symbol </div> </div>	
Corner Support Inserts:		
Material:	High Density Polyethylene	
Tare Weight:	294 Grams (each)	
Overall Dimensions:	304.8 mm (12" L) x 203.2 mm (8" W) x 177.8 mm (7" H)	
Markings (QC Audit):	SCHÜTZ 16.3	

* As molded density and melt index values may not be directly comparable to the value reported on the COC due to variances in how tests are conducted and due to the variance in the form of the material tested (COC/Resin Pellets vs. Plastic Strips from Molded Part/"As Molded" tests).



CERTIFICATE OF COMPLIANCE

CUSTOMER: TEN-E Packaging
ADDRESS: 1666 County Road 74
Newport, MN 55055

Sample Type (Check One)
(X) IBC Tight Head Drum Open Head Drum

TEN-E Project Number: 17-MN40094

QUANTITY: 2

DATE SHIPPED: 9/22/17

ARTICLE #: 846600

DESCRIPTION: MX330 UN Nat/6”R TP 2” Solid Bfly 50 VI
NPS 3 pcs steel frame 2-Plt SL:XL?TI

Resin Manufacturer: Basell

Resin type (from data sheet): Lupolen 4261 AG UV 60005

Resin Lot Number: MI517H1001

Resin Melt Flow (from COA): 6.4 g/10 mi


Resin Density (from COA): 0.9456 g/cm³

Name: Otilia Alexa

Date: 9/22/17

OUTER RECEPTACLE AND PALLET (3-5593)

Manufacturer: Schütz Container Systems, North Branch, NJ


SUPPORT BARS		DRAWING
Material:	Galvanized Steel; 1 mm Nominal Thickness	
Tare Weight:	416 Grams (Each)	
Length:	977.9 mm (38-1/2")	
Attachment Method	(2) Star Head Screws per Bar	
CAGE		
Description:	Galvanized Steel Cage With <ul style="list-style-type: none"> (2) Front and Rear Galvanized Steel Panels with Clips Galvanized Tubular Style Bars Galvanized Steel Plate 4-Way Entry Galvanized Steel Frame Pallet (1000x1200) (Dwg. No. 3-4095.1) 	
Material:	Galvanized Steel; 1 mm Nominal Thickness	
Tare Weight	44.5 Kg (Includes Cage, Plate and Pallet)	
Overall Dimensions:		
• Length	1200 mm (47.24")	
• Width	1000 mm (39.37")	
• Height w/o Pallet	1233 mm (48.54")	
• Height with Pallet	1350 mm (53.15")	
Attachment Method	(9) Star Head Screws (1) each corner (1) each centered on two sides and back (1) each side of recessed area for outlet flange	
Markings (QC Audit):	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; border-radius: 50%; width: 20px; height: 20px; display: flex; flex-direction: column; justify-content: center; align-items: center; margin-right: 5px;"> u n </div> <div> <p>31HA1 / Y / 0917 / USA / +AA5805 3724 / 2056 / 1249L / 67 KG / 100 kPa</p> <p>SCHUETZ5 ECOBULK/RECOBULK 846600/ECOBULK/MX330/22.09.17/S5/1/002 1015513104 SCHÜTZ 4/7</p> </div> </div>	

SECTION III: TEST PROCEDURES AND RESULTS

VIBRATION TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> 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:	3.3 Hz	
TEST DURATION:	1 Hour	
TEST EQUIPMENT:	Vertical motion using L.A.B. 6000 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	<ul style="list-style-type: none"> 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:	8 (Four-Way Entry with 2 Lifts per Direction of Entry)	
FORK TINE PENETRATION:	Entry 1 & 2: 36" Entry 3 & 4: 30"	
COMBINED GROSS MASS LIFTED:	2,675.4 Kg (5,898.2 Lbs.) (Refer to Section IV)	
TEST EQUIPMENT:	Fork Truck Dead Load Weights	


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:
			
Results		Comments/Observations	
Lift #1: PASS	Lift #5: PASS	The IBC met the criteria for passing the test. No leakage or damage.	
Lift #2: PASS	Lift #6: PASS		
Lift #3: PASS	Lift #7: PASS		
Lift #4: PASS	Lift #8: PASS		

STACKING TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> 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:	3,855.6 Kg (8,500.0 Lbs.) (Refer to Section IV)	
TEST DURATION:	24 Hours	
TEST EQUIPMENT:	L.A.B. 6630 Compression System	



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

	Results	Comments/Observations
	PASS	<p>The IBC met the criteria for passing the test.</p> <p>0" maximum deflection after 24 Hours.</p> <p>No leakage or damage.</p>

LEAKPROOFNESS TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Empty	<ul style="list-style-type: none"> 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. <p>(§178.813)</p>
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	20 kPa	
TEST DURATION:	10 Minutes	
AREA OF PRESSURIZATION:	Through Top Head	
TEST EQUIPMENT:	Regulated Air Source #: 2 Pressure Gauge #: 615 & 640	



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

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

HYDROSTATIC PRESSURE TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Water	<ul style="list-style-type: none"> For rigid plastic and composite IBC design types intended to contain solids loaded or discharged under pressure or intended to contain liquids, there may be no leakage and no permanent deformation which renders the IBC unsafe for transportation. (§178.814)
WATER TEMPERATURE:	20°C	
FILL CAPACITY:	Maximum Capacity	
SAMPLE PREPARATION:	Refer to Section II	
CONDITIONING:	Ambient	
TEST PRESSURE:	100 kPa	
TEST DURATION:	10 Minutes	
AREA OF PRESSURIZATION:	Through Top Head	
TEST EQUIPMENT:	Regulated Water Source #: 2 Pressure Gauge #: 615 & 640	




HYDROSTATIC PRESSURE TEST SET-UP AND RESULTS (SAMPLE #1)

		Results
		PASS
		Comments/Observations
<p>The IBC met the criteria for passing the test.</p> <p>No leakage. Weld on back side of cage broke.</p>		

DROP TEST

TEST INFORMATION		TEST CRITERIA
TEST CONTENTS:	Methanol/Water Solution (0.969 SG)	<ul style="list-style-type: none"> 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:	-18°C (0°F) Chamber #202	
TEST CONTENTS TEMP.:	-19.3°C (-2.7°F)	
DROP HEIGHT:	1.6 Meters (63.0") (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 #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. Damage to cage, bottle and pallet upon impact.	

REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES			
TEST	49 CFR ^①	UN ^②	IMDG ^③
	October 2016 Edition	19 th Edition	2016 Edition
Vibration:	178.819	6.5.6.13	---
Bottom Lift:	178.811	6.5.6.4	6.5.6.4
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:	ASTM ^④ D7387: Standard Test Method for Vibration Testing of IBCs Used for Shipping Liquid Hazardous Materials (Dangerous Good)
	ISO ^⑤ 2247: Packaging – Complete, Filled Transport Packages – Vibration Test at Fixed Low Frequency
Stacking:	ASTM ^④ D4577: Standard Test Method for Compression Resistance of a Container Under Constant Load
	ISO ^⑤ 2234: Packaging – Complete, Filled Transport Packages – Stacking Test using Static Load
Pressure:	ASTM ^④ D7660: Standard Guide for Conducting Internal Pressure Tests on United Nations (UN) Packagings
Drop:	ASTM ^④ D5276: Standard Test Method for Drop Test of Loaded Containers by Free Fall
	ASTM ^④ D7790: Standard Test Method for the Preparation of Plastic Packagings Containing Liquids for United Nations (UN) Drop Testing
	ISO ^⑤ 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.

SECTION IV MATHEMATICAL CALCULATIONS

INFORMATION USED FOR CALCULATIONS

Overall IBC Tare Weight (IBCTW)-Sample 1:	67.0 Kg	
Overall IBC Tare Weight (IBCTW)-Sample 2:	67.0 Kg	
Overflow Capacity (OFC):		
Methanol/Water	1,219.0 Kg	
Water	1,273.0 Kg	
Actual Load Applied for Bottom Lift (BLALA):	3,000.0 Lbs.	Min Wt To Be Applied
Packing Group		2,787.1 Lbs. (Btm Lift)
Product Specific Gravity (PSG):	1.6	
Packing Group Multiplication Factor (MF):	1.00	
# of IBC Stacked During Transportation (#IBC):	2	

98% OF OVERFLOW

Overflow Capacity (OFC) x 98%

<u>OFC</u>	x	<u>98%</u>			
1,273.0	x	98% =	1,247.6 Kg	Water	Sample #1
1,219.0	x	98% =	1,194.7 Kg	Methanol/Water	Sample #2

IBC TEST WEIGHT (IBCW)

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

<u>IBCTW</u>	+	<u>98% OFC =</u>			
67.0	+	1,247.6	1,314.6 Kg	2,898.1 Lbs. Water	Sample #1
67.0	+	1,194.7	1,261.7 Kg	2,781.5 Lbs. Methanol/Water	Sample #2

AUTHORIZED IBC GROSS MASS (AIBCGM)

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

<u>IBCTW</u>	+	<u>(PSG</u>	x	<u>98% OFC)</u>	
67.0	+	1.6	x	1,247.6	
		2,063.1 Kg		4,548.3 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

<u>AIBCGM</u>	x	<u>1.25</u>	=	<u>Minimum Required Load</u>			
2,063.1	x	1.25	=	2,579.0 Kg	5,685.7	Lbs.	

Combined Gross Mass Lifted

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

<u>IBCW</u>	+	<u>ALA</u>	=	<u>Total Load Lifted</u>			
1,314.6	+	1,360.8	=	2,675.4 Kg	5,898.2	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

<u>AIBCGM</u>	x	<u>#IBC (-1)</u>	x	1.8	=	<u>Minimum Required Load</u>		
2,063.1	x	1.00	x	1.8	=	3,713.8 Kg	8187.4	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:	<u> </u>
1.6	x	1.00		<u>Required Drop Height</u>	<u>Actual Drop Height</u>
		1.60	Meter	63.0 Inches	63 Inches

APPENDIX A: MANUFACTURER'S CLOSURE INSTRUCTIONS**SCHUETZ**
packaging update
PACKAGING CLOSURE INFORMATION**CLOSURE SPECIFICATIONS FOR TIGHT HEAD DRUMS**

PLUGS MUST BE TORQUED TO THE FOLLOWING

2" NPT AND 2" BUTTRESS - 150 kPa and higher - 30 FT LBS, 100 kPa = 20 ft lbs

Dip tubes - 20 ft lbs 3/4" NPT - 9 FT LBS

Note: Closures must have gaskets to seal

CLOSURE SPECIFICATIONS FOR OPEN HEAD DRUMS

CLOSE AND SECURE LID WITH LOCKING RING - ATTACH HOLDING PIN FOR HANDLE TO KEEP RING CLOSED.

PLUGS MUST BE TORQUED TO THE FOLLOWING :

2" NPT AND 2" BUTTRESS - 20 FT LBS

3/4" NPT - 9 FT LBS

note: closures must have gaskets to seal

CLOSURE SPECIFICATIONS FOR IBC'S

FILL PORT CAP AND VALVE MUST BE TORQUED TO THE FOLLOWING:

6" AND 9" FILL PORT CAP - 75 FT LBS

2" plug in 6" or 9" fill port cap must be torqued to 15 ft lbs. (Schuetz does not recommend that you remove this plug. Filling should be done through the 6" or 9" opening)

* 56 x 4 mm plug - 20 ft lbs

Old style valves

VALVE NUT - 55 FT LBS

note: caps, valves, and plugs must have gaskets to seal

New Style valves - two turns and line up the hole in the valve body and the hole in the bottle insert and insert clip.

NOTE: After filling and prior to transport, the shipper should check the tightness of closures to determine if the effects of heating, cooling or gasket relaxation have resulted in the need to tighten the closure

* - Underline indicates the latest change to the instructions.