

Section 1

Re: ECOBULK 330 gal. MX 330 UN

Report Number: HM 13494
Date of Report: 2/27/2026
Date of Test: 2/25/2026

Test performed by: **Advanced Packaging Technology Laboratories, Inc.**
200 Larkin Drive, Unit H
Wheeling, IL 60090

Test conducted for: **Schuetz Container Systems**
200 Aspen Hill Road
North Branch, NJ 08876

Attention: Brian Minnich

Items tested: One (1) sample set of composite IBC's intended for the transport of hazardous liquids.

Container: 330 GAL/1250-liter HDPE rectangular receptacle inside steel frame work

Approximate Overall Dimensions on Pallet (O.D.): 47.5" L X 39.5" W X 53.25" H

Nominal Tare Weight: 156.421 lbs.
Nominal Gross Weight: 5410.7 lbs.

Object of test: Design re-qualification testing to determine compliance with applicable sections of 49 CFR pertaining to the transport of dangerous goods – Packing Group II.

Findings: As submitted and tested, this package design was considered to comply with noted requirements.



31HA1 / Y / 02 26* / USA / M4128 / 4445 / 2454
Tare Weight: 70.95 kg

Marking is not to scale, for example purposes only. Marking must be in accordance with 178.3.
*indicates the month and last two digits of year of manufacture as per 178.703 (a) (1) (iv).

Expiration: This package certification expires 1 year from the date of this report.

Rafael Cameron
UN/DOT Manager

Charles Hernandez
UN/DOT Project Lead

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Section 2 - Package Description

IBC

Package Identification:	UN 31HA1			
Manufacturer:	SCHUTZ, North Branch, NJ 08876			
Tank Style:	Rectangular style container with rectangular tubular steel grid cage, with steel frame pallet and bottom steel plate, corner protectors			
Protector Material:	Black HDPE			
Cage/Plate Material:	Galvanized steel			
Palletized Base Material:	Galvanized steel			
Manufacturing Method:	Frame: Welded and assembled with hardware Inner Receptacle: blow molded			
Part Number:	ECOBULK 330 gal. MX 330 UN			
Maker's Certification:	31HA1/Y/0226/USA/+AA5805/ 3855/2060/1250L/67KG/100 kPa Scheutz4			
Outer dimensions				
Length	47.5	in (min)	1206.5	mm (min)
Width	39.5	in (min)	1003.3	mm (min)
Overall Height	53.25	in (min)	1352.55	mm (min)
Nestled Stacking Height	52.375	in (min)	1330.325	mm (min)
Steel Framework Tare Weight	24494.4	grams	54	lbs.
Steel Protective Bottom Frame Pallet Tare Weight	18597.6	grams	41	lbs.
Two (2) Tubular style bracing bars @ 423.4 grams each	846.8	grams	1.866	lbs.
Four (4) corner protectors @ 287.2 grams each	1148.8	grams	2.532	lbs.
Seven (7) - T40 1-1/4" torx screw @ 13.9 grams each	97.3	grams	0.214	lbs.
Three (3) - T40 1-1/4" torx screw with nut @ 9.7 grams each	29.1	grams	0.064	lbs.
Four (4) - T40 torx screw with washer @ 19.0 grams each	76	grams	0.167	lbs.
Quantity:	One (1)			
Unique features:	None			
Note:	<ul style="list-style-type: none"> Unit was received with all components in place as a finished IBC All item identifications are found in the drawing at the back of this report. Assembly is found in the drawings. The lab did not assemble this unit. Four (4) corner protectors molded to protect the bottom corners of the inner receptacle Two (2) steel tubular style bars are used to secure the top of the container to steel frame. 			

Inner Receptacle

Manufacturer:	SCHUTZ, North Branch, NJ 08876						
Part number:	MX 330 UN Nat						
Style:	330-gallon plastic receptacle						
Manufacturing method:	Extrusion blow molded						
Material:	Opaque "Natural" HDPE						
Location:	Inside steel framework						
Discharge Type:	DN50 HPDE integrated ball valve with induction foil seal						
Indicated Capacity	330	Gallons		1249.05	Liters		
	98% of Maximum Capacity	331.428	Gallons		1254.454	Liters	
	Maximum Capacity	338.192	Gallons		1280.059	Liters	
	Dimensions:	Diameter	N/A	in	N/A	mm	
Dimensions:	Length	44.75	in	1136.65	mm		
	Width	37.875	in	962.025	mm		
	Height	47	in	1193.8	mm		
Thickness range:		Minimum	Maximum		Minimum	Maximum	
	Top	0.141	0.325	in	3.581	8.255	
	Bottom	0.131	0.188	in	3.327	4.775	
	Sides	0.122	0.192	in	3.098	4.876	
Gram weight:	22680.0 grams (50.0 lbs.)						
Quantity:	One (1)						
Orientation:	See closure instructions						
Resin manufacturer:	Proprietary						
Resin grade:	Proprietary						
Melt-flow index:	Proprietary					g/10 min	
Density:	Proprietary					g/cm ³	

6" Receptacle Closure

Manufacturer:	SCHUTZ, North Branch, NJ 08876						
Part number:	DN 150						
Style:	Twist type screw cap with 2" top screw type opening						
Closure material:	Red HDPE, Opaque "Natural" HDPE						
Closure gram weight:	224.2 grams						
O-Ring material:	EDPM (Ethylene propylene Dien Monomer) Synthetic Rubber						
O-Ring gram weight:	12.0 grams						
Dimensions:	Diameter	7.45	in	189.23	mm		
	Height	1.92	in	48.768	mm		
	Thickness (min)	0.16	in	4.064	mm		
O-Ring dimensions:	Diameter	6.07	in	154.178	mm		
	Thickness (min)	0.23	in	5.842	mm		
Application torque:	75 ft. lbs.						
Quantity:	One (1)						
Equipment:	Torque Wrench (1503MFRMH-QR)						

2" plug

Manufacturer:	SCHUTZ, North Branch, NJ 08876				
Part Number:	G2				
Style:	2" threaded bung plug				
Closure Material:	Opaque "Natural" Polypropylene				
Closure Gram Weight	25.2 grams				
Dimensions:	Diameter	2.44	in	61.976	mm
	Height	1.23	in	31.242	mm
	Thickness (min)	0.14	in	3.556	mm
Application Torque:	20 ft. lbs.				
Quantity:	One (1)				
Equipment:	Torque Wrench (1503MFRMH-QR)				

Additional Test Information

Overall tare weight of package:	156.421	lbs.	70.93	kg.
Test contents:	Methanol / water solution			
Specific Gravity	0.95			
Test weight of package:	2837.201	lbs.	1286.71	kg.
Authorized package gross weight based on SG:	5410.7		lbs.	

Third-Party Laboratory Assembly and Closure Instructions

1. Third party testing laboratory received the IBC welded and assembled.
2. Remove cap and plug from top of IBC.
3. Fill IBC to correct weight and levels.
4. Seal and secure IBC 6" opening closed with 6" HDPE twist type cap and torque the cap to 75ft/lbs. with Torque Wrench (1503MFRMH-QR).
5. Seal G2 twist type bung cap on top of 6" HDPE twist type cap. Torque G2 cap to 20 ft. /lbs. with Torque Wrench (1503MFRMH-QR).

Equipment used to prepare the packages for testing

- Tape dispenser- ULINE, 2" wide hand-held, #H-150
- Tape dispenser- ULINE, 3" wide hand-held, #H-1162
- Glue gun- 3M Industrial, Set @ 220° F, # 75S9
- Poly bag sealer- MEC roller style, Set @ 410° F, #ME-803HW
- Bander- ULINE H-540/ H-572 strapping tensioner
- Hand assembled
- Other: Torque Wrench (1503MFRMH-QR)
- Other: Toyota Forklift Truck, #30690

SCHUETZ
packaging update
PACKAGING CLOSURE INFORMATION
March 22, 2023

CLOSURE SPECIFICATIONS FOR TIGHT HEAD DRUMS

PLUGS MUST BE TORQUED TO THE FOLLOWING

2" NPS AND 2" BUTTRESS - 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" NPS AND 2" BUTTRESS - 20 FT LBS

3/4" NPS - 9 FT LBS

note: closures must have gaskets to seal

CLOSURE SPECIFICATIONS FOR IBC'S

FILL PORT CAP 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 17 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 and 2" buttress plug - 20 ft lbs**

Dip tubes - 20 ft lbs

Old style valves and EVOH valves

VALVE NUT - 55 FT LBS

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

New Style valves – the valves are molded on and can not be replaced.

*** - Undertline italic indicates the latest change to the instructions.**

Section 3 – Testing Procedures and Results

Package Preparation – For All Testing

The packages were filled to a minimum of 98% full (see Section 4 for calculation).

Package Panel Orientation – For All Test setups



Vibration Standard

Test Method: 49 CFR 178.819 using ASTM 999-08 (Method A1)

Test contents of inner containers:	Water			
Number of packages tested:	One (1)			
Weight of packages tested:	2837.201		lbs.	
Duration:	1 hour			
Frequency:	4.15	Hz	249	rpm

The packages were conditioned in accordance with 49 CFR 178.802 to 50% +/- 2% relative humidity at 23 °C +/- 2 °C for at least 24 hours. The samples were placed on the table and the steel shim (2" wide x 20" long by 1/16" thick, steel) was used (inserted a minimum of 10" under the test sample and along the full length of the IBC on all sides) to assist in adjusting the frequency.

Results

Package #	Pass / Fail	Description of Results
1	Pass	No visible damage or leakage. The IBC remained centered on the pallet. The pallet remained intact and all boards showed no signs of fatigue.

Pass/Fail Criteria

A packaging passes the vibration test if there is no rupture or leakage. The test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.

Bottom Lift Test

Test Method: 49 CFR 178.811

Test contents of inner containers:	Water
Number of packages tested:	One (1)
Number of possible entry/lifting points:	Four (4)

The packages were conditioned in accordance with 49 CFR 178.802 to 50% +/- 2% relative humidity at 23 °C +/- 2 °C for at least 24 hours. The tested IBC was raised and lowered twice by a lift truck with the forks centrally positioned and spaced at three quarters of the dimension of the side of entry. The forks must penetrate to three quarters of the direction of entry. The test must be repeated from each possible direction of entry.

Bottom lift test weight:	6800.00	lbs.	3084.459	kg
Rounded up from required weight:	6763.37	lbs.	3067.844	kg

See Section 4 for Calculation

Results

Package #	Pass / Fail	Description of Results
1	Pass	No damage or leakage of contents. The package lifted clear of the ground without any IBC damage.

Stacking Test (Nestling Feature)

Test Method: 49 CFR 178.815

Free standing:	<input checked="" type="checkbox"/>	Guided Load:	<input type="checkbox"/>
Packages tested:	One (1)	Test duration:	24 hours

The packages were conditioned in accordance with 49 CFR 178.802 to 50% +/- 2% relative humidity at 23 °C +/- 2 °C for at least 24 hours.

Stacking test weight:	9800.00	lbs.	4445.25	kg
Rounded up from:	9739.26	lbs.	4417.699	kg

See Section 4 for Calculation.

The stacking test load was applied to the top of the packages by loading the unit with the stacking test weight (above) and the weight was maintained for 24 hours.

Results

Package #	Pass / Fail	Description of Results
1	Pass	No damage or leakage of content. No change in appearance, looks like new.

Pass/Fail Criteria

No loss of contents and no permanent deformation which renders the corrugated intermediate bulk container unsafe for transportation, and no loss of content.

Drop Test

Test Method: 49 CFR 178.810

Test contents of inner containers:	Methanol / water solution	
Number of packages tested:	One (1)	
Drop height:	1.9	meters

Testing was conducted to certify the package for Packing Group:	II	
Specific Gravity	1.9	
Weight of package as tested:	2837.201	lbs.

Conditioning

The packages were conditioned in accordance with 49 CFR 178.802 to -18 °C or lower for at least 24 hours. Drop testing was conducted within two (2) minutes after removing the test package from the conditioning chamber.

Results

Package #	Orientation	Results & Description
2	Bottom angled to corner no more than 5 degrees	Pass. Steel framework bowed outward on impact. Steel bags framework bowed outward. Container is able to be lifter through all 4 entry points. Top steel bracing bars bowed inward. No leakage.

Pass/Fail Criteria

A package is considered to successfully pass the drop tests if no loss of contents is achieved. A slight discharge that stops flowing from a closure upon impact is not considered to be a failure of the intermediate bulk container if it stops.

Hydrostatic Pressure Test

Test Method: 49 CFR 178.814 10 minutes minimum duration.

Sample Number	Applied Pressure	Duration	Pass/Fail
IBC #1	100 kPa	30 min.	Pass

Pass/Fail Criteria

An IBC passes the hydrostatic test if for each test sample there is no leakage of liquid from the package.

Leakproofness Test

Test Method: 49 CFR 178.813 Duration determined by time necessary to check for leaks.

Sample Number	Applied Pressure	Duration	Pass/Fail
IBC #1	20 kPa	30 min.	Pass

Pass/Fail Criteria

No leakage

Stack Test Weight (Nestling Feature)

Load = $1.8 \times N$

N = combined maximum permissible gross mass of number of IBC's intended to be stacked.

S= Number of IBC's stacked on top. S=1

Where: $N = S \times 5410.7$ lbs.

Required applied weight = 9739.26 lbs.

Actual superimposed weight	9800.00	lbs.	4444.444	kg
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Bottom Lift Test Weight

Load = $1.25 \times$ Gross Mass

Required applied weight = 6763.37 lbs.

Actual applied load	6800.00	lbs.	3083.90	kg
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Section 4 - Calculations

Capacity

Capacity of IBC:	338.192	gallons	1280.059	liters
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Weight of Test Package

Steel Framework:	24494.4	grams	24.494	kg	54	lbs.
Steel Base w/ pallet:	22680	grams	22.68	kg	50	lbs.
Inner Receptacle:	21319.2	grams	21.319	kg	47	lbs.
Closure and hardware:	2459.4	grams	2.459	kg	5.421	lbs.
Total:	70953	grams	70.953	kg	156.421	lbs.

Filled Test Package Weight

Weight of fill (100% full):	2680.78	lbs.	1215.773	kg
Weight of filled package:	2837.201	lbs.	1286.712	kg

Drop Test Height

Maximum specific gravity of certification:	1.9
Packing group of certification:	II
Drop height:	1.9 meters

Note: Drop Height was adjusted as per 178.810 (d) (3) (ii)

Marked Weight to Accommodate Actual Product

Weight of fill	5254.326	lbs.	2382.914	kg
Total tare weight	156.421	lbs.	70.939	kg
Weight of fill + Tare weight	5410.747	lbs.	2453.853	kg
Marked weight rounded down	5410.7	lbs.	2453	kg

Certified Weights

Certified actual product weight	5254.326	lbs.	2383.346	kg
Certified product weight + Tare weight	5410.747	lbs.	2454.298	kg
Certified gross weight (rounded down)	5410.7	lbs.	2454	kg

Section 5 - Drawings and Pictures of Packaging Components





Packaging - Specification
ECOBULK

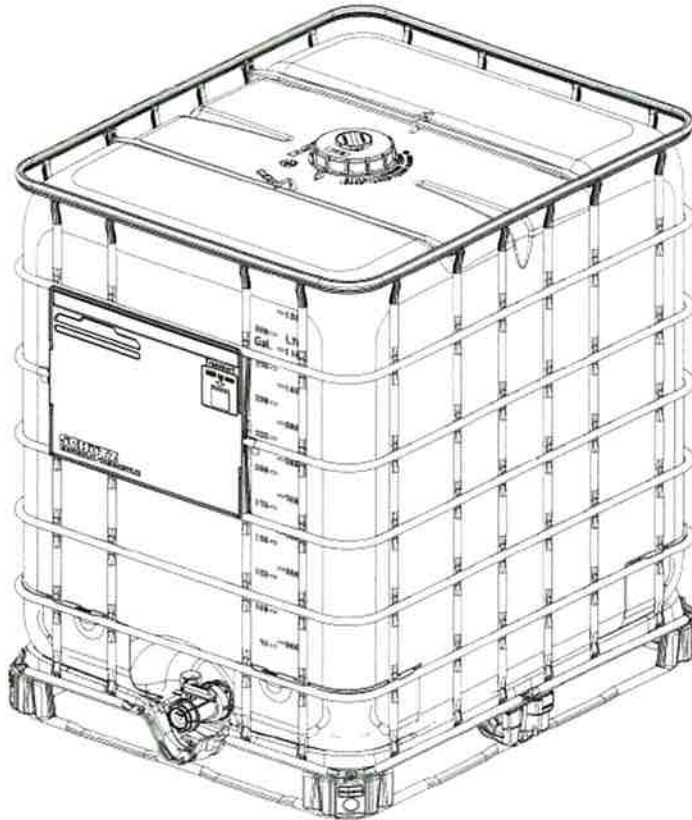


Transportcontainer ECOBULK 330 gal.
 MX330 UN Nat/6"R TP closed
 int.Ball 50 VI Cam 1PCA/Steel frame
 2-Pft XL:XL

Schuetz Container Systems Inc.
 200 Aspen Hill Road
 NORTH BRANCH NJ 08876
 USA

Article-No. 4021119

Date Mar 24, 2025
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These pictures are for illustration purposes only and do not necessarily correspond to the specified products.

Weights and measures

Nominal Capacity	1.250 l	330 gal US
Brimful Capacity	1,260 l	332.863 gal US
Length	1,200 mm	47.240 in
Width	1,000 mm	39.370 in
Height with pallet	1,350 mm	53.150 in
Weight total approx	66.7 kg	147.1 lbs US

Pallet

Packaging - Specification
ECOBULK



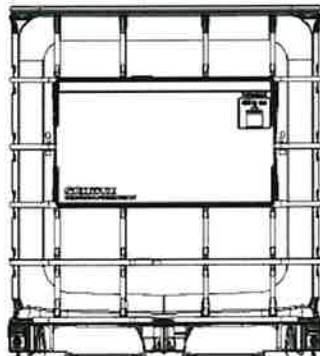
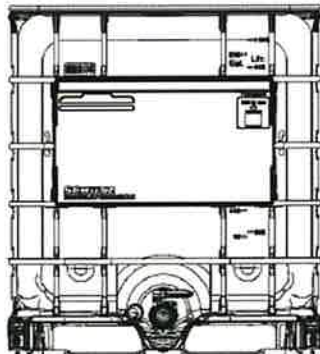
Transportcontainer ECOBULK 330 gal.
 MX330 UN Nat/6"R TP closed
 int.Ball 50 VI Cam 1PCA/Steel frame
 2-Pit XL:XL

Schuetz Container Systems Inc.
 200 Aspen Hill Road
 NORTH BRANCH NJ 08876
 USA

Article-No. **4021119**

Date **Mar 24, 2025**
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Pallet type	Steel-framepallet, zined
Opening height	min. 90mm, 4-way entry
Outer container	
Grid	Steel, galvanized
Bottom plate	Steel, galvanized
Corner protector	black
Label plate	extra large - 8 field, with Schütz-Ticket
additional label plate	backside extra large - 8 field



Inner container	
Rectangular blow molded tank of high density polyethylene	
Container	PE-HD, natural

Filling opening	
Screw cap	DN150 / 6", PE-HD, red
O-ring gasket	TPE
Sealing-cap	without

Packaging - Specification
ECOBULK

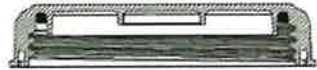


Transportcontainer ECOBULK 330 gal.
 MX330 UN Nat/6"R TP closed
 int.Ball 50 VI Cam 1PCA/Steel frame
 2-Pft XL:XL

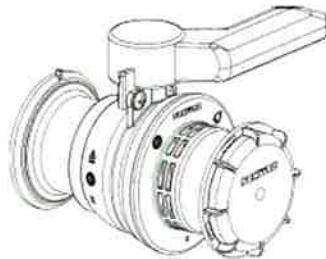
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Plug	without Plug
Discharge opening	
Outlet valve	ball-valve DN50/2", integrated
Case	PE-HD
Connection thread	Camlok
Flap gasket / Ball gasket	FKM
Handle color	grey, Handle protection
Screw cap	PE-HD
Screw cap gasket	PE, foamed
Screw cap color	natural
Outlet nozzle	without nozzle



Features

UN-Marking

UN31HA1/Y/MM YY/USA/+AA5805/~3855/2056/1250L/67KG/100KPA SCHUETZ#

Heavy metals

Concentration level of heavy metals (Pb, Cd, Cr VI and Hg) in packaging does not exceed 100 ppm

Delivery

Ready for filling. The customer or filler is responsible for testing the material compatibility of the filling material with the packaging

This specification is manufactured and delivered in accordance with the current status of the SCHÜTZ "Quality Management Standard for Supplies of Packaging Materials", which you can view at the following link: www.schuetz.net/qmstandard

The maximum filling temperature depends on the respective filling product (specific heat capacity), but must not exceed 70° C (158° F) for HDPE packaging and 60° C (140° F) for LDPE packaging with an integrated inliner. Deformation such as sink and marks or wrinkling around edges and corners can be caused by temperature and pressure differences during filling, transport, storage or depending on the vapour pressure of the filling product. To exclude these kinds of deformations, we recommend the use of an aeration and deaeration system suitable for the

Appendix A - Test Equipment and Instrumentation

Instrument or Equipment	Manufacturer	Model Number	Serial Number
Gram Scale	Mettler Toledo	PG4002-S	1122253714
Electronic Scale	American Scientific Products	TL-1600S	19538
Vibration Table	MTS	840	381A
Compression Tester	Tinius-Olsen	Electromatic	62560
Digital Micrometer	Mitutoyo	Digimatic	29376130
Mechanical Micrometer	Mitutoyo	MIC	LFM-1
Puncture Tester	TMI	A942	A942
Conditioning Chamber #2	Midwest Labs	922A	55455
Conditioning Chamber #6	Thermotron	SM-16C	23409
Conditioning Chamber #12	Thermotron	SM-16C	23408
Conditioning Chamber #16	Thermotron	SM-32C	42371
Drop Hook	Vestil	LM-HP	N/A
Fork Lift	Caterpillar	GC25K	AT 82C-90656
Fork Lift	Allis Chalmers	ACC40 PS	ALF111630

Calibration reports, certifications or additional information available upon request.

Appendix B - Definitions / Abbreviations / Conversions

Definitions

Proprietary – Customer was unable to obtain the required data or the MFG refused to provide this data due to trade secrets.

Types of Fiberboard: Single - wall (**SW**), Double - wall (**DW**), Triple - wall (**TW**)

Abbreviations

MD - Machine direction

CMD - Cross direction

N/A - Not applicable

N/T - Not tested

N/I - Not indicated

DNA - Does not apply

MSF – 1000 square feet

B/A – Board analysis

Conversions

1 gallon water = 8.344 lbs.

1 mm = 25.4 inches

1 kg. = 2.2046 lbs.

1 ounce = 28.349 grams

meters³ = 0.028 ft³

1 fl. Oz. = 29.573 cc

mils = inches / 0.001

1 meters = 39.369 inches

1 meters = 3.28 feet

1 lbs. = 453.6 grams

1 gal = 3.785 liters