Section 1

Re: TW PG II

Report Number: HM 12080
Date of Report: 7/7/2023
Date of Test: 7/3/2023

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

Test conducted for: **Aramsco Inc.**
1480 Grandview Ave.
Paulsboro, NJ 08066

Attention: Jodi L. Jacoby

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

Box: 112 ECT RSC style / triple-wall C/M/A flute corrugated box.

Approximate Overall Dimensions on Pallet (O.D.): 38" L X 38" W X 42.875" H

Nominal Tare Weight: 57.991 lbs.
Nominal Gross Weight: 2463 lbs.

Object of test: Design 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.

UN 11G / Y / 07 23* / USA / +BR12103 / 2041 / 1117
Tare Weight: 26.3 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 Senior Project Engineer

Monica White
Lab Director

Table of Contents

Section 2 - Package Description

Fiberboard IBC

Package identification:	UN 11G				
Manufacturer:	WestRock, Cedar Rapids, IA				
Box style:	RSC		Flute:	CMA	
Material:	Fiberboard (Kraft)		Number of walls:	Three (3)	
Caliper:	0.616	in.	Combined weight of facings:	284.48	#/MSF
International box code:	0201				
Part number:	UN 11G BIN				
Box maker's certification:	Mullen burst:	N/A	ECT:	112	

Outer dimensions (including pallet & closed top)				
Length	38	in	965.2	mm
Width	38	in	965.2	mm
Height	42.875	in	1089.025	mm
Outer dimensions (box only)				
Length	37	in	939.8	mm
Width	36.875	in	936.625	mm
Height	38.5	in	977.9	mm
Inner dimensions (erected)				
Length	36.25	in	920.75	mm
Width	36	in	914.4	mm
Height	36.5	in	927.1	mm
Top flap inner gap	0	in	0	mm
Top flap outer gap	0	in	0	mm
Bottom flap inner gap	0	in	0	mm
Bottom flap outer gap	0	in	0	mm

Manufacturers joint width:	4.25" outside corner glued
Gram weight:	15422.4 grams (34.0 lbs.)
Quantity:	One (1)
Board combination indicated:	69-36-69-36-69-36-69
Board combination actual:	70.48-35.81C-70.48-34.33M-71.19-34.68A-72.33
Unique features:	None

IBC Closure

Manufacturer:	Nashua Tapes Products, Franklin, NY 42134					
Part number:	300					
Style:	2" wide PS duct tape					
Material:	Rubber adhesive polyethylene coated cloth backing					
Closure gram weight:	18.0 grams					
Dimensions:	Width	1.94	in	49.276	mm	
	Length	62	in	1574.8	mm	
	Thickness (min)	0.009	in	0.228	mm	
Orientation:	On the top; tape runs widthwise over the center gap extending a minimum of 12" over the edges. Three (3) strips run parallel overlapping 1".					
Quantity:	Three (3)					

Lining

Manufacturer:	Champion Plastics, Clifton, NJ 07011				
Part number:	86345				
Style:	6mil tubular style gusseted poly liner				
Location:	Inner Packaging				
Material:	Black LDPE				
Dimensions:	Thickness	0.0058	in	0.147	mm
	Width	42	in	1066.8	mm
	Depth	40.5	in	1028.7	mm
	Height	86.25	in	2190.75	mm
Gram weight:	1180.8 grams				
Quantity:	One (1)				

Lining Closure

Closure method:	Taped				
Manufacturer:	Nashua Tapes Products, Franklin, NY 42134				
Part number:	300				
Style:	2" wide PS duct tape				
Location:	Secures the top of the liner, 8" from the top of the bag opening				
Material:	Rubber adhesive polyethylene coated cloth backing				
Dimensions:	Thickness	1.94	in	49.276	mm
	Length	16	in	406.4	mm
	Width	0.009	in	0.228	mm
Gram weight:	3.7 grams				
Quantity:	One (1)				

Pallet

Manufacturer:	B & B Albany Pallet Co., Jamesville, NY 13078		
Part number:	ARAM-3838		
Style:	Partial four way entry non-reversible stringer pallet		
Manufacturing method:	Pallet assembled utilizing helically threaded nails.		
Material:	Hardwood	Species:	High Density Eastern Hardwoods

Pallet description:

Boards:	Size:	Location:
Five (5) widthwise top deck boards		Evenly spaced
Four (4) lengthwise stringer boards	38" L X 38" W X 4.375" H	Evenly spaced
Three (3) widthwise bottom deck boards		Evenly spaced

Additional pallet materials:	Nail quantity:	Sixty-four (64)
Pallet weight:	9616.3 grams (21.2 lbs.)	
Quantity:	One (1)	

Pallet Attachments

Closure method:	Nailed				
Manufacturer:	Independent Nails, Peru, IL 61354				
Part number:	Q6A050				
Style:	Square-Hed Cap Nails				
Location:	Attaches the bottom box flaps to the pallet top deck				
Material:	Steel				
Dimensions:	Length	0.95	in	24.13	mm
	Width	0.94	in	23.876	mm
	Height	2.02	in	51.308	mm
Gram weight:	6.9 grams				
Quantity:	Four (4)				

Additional Test Information

Overall tare weight of package:	57.991	lbs.	26.304	kg.
Test contents:	Fine sand (0.125mm-0.25mm) & lead shot #7			
Density	87.26		lbs. / ft^3	
Test weight of package:	2463.091	lbs.	1117.25	kg.
Authorized package gross weight based on Density	2463		lbs.	

Third-Party Laboratory Assembly and Closure Instructions

Package assembled per Customer or Filler's (End-User's) Assembly and Closure Instructions

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 - Jores Tech, Handheld Bag Sealer, one heat setting, #E-MMS-150CPE

☐ Bander – ULINE, H-540/ H-572 strapping tensioner

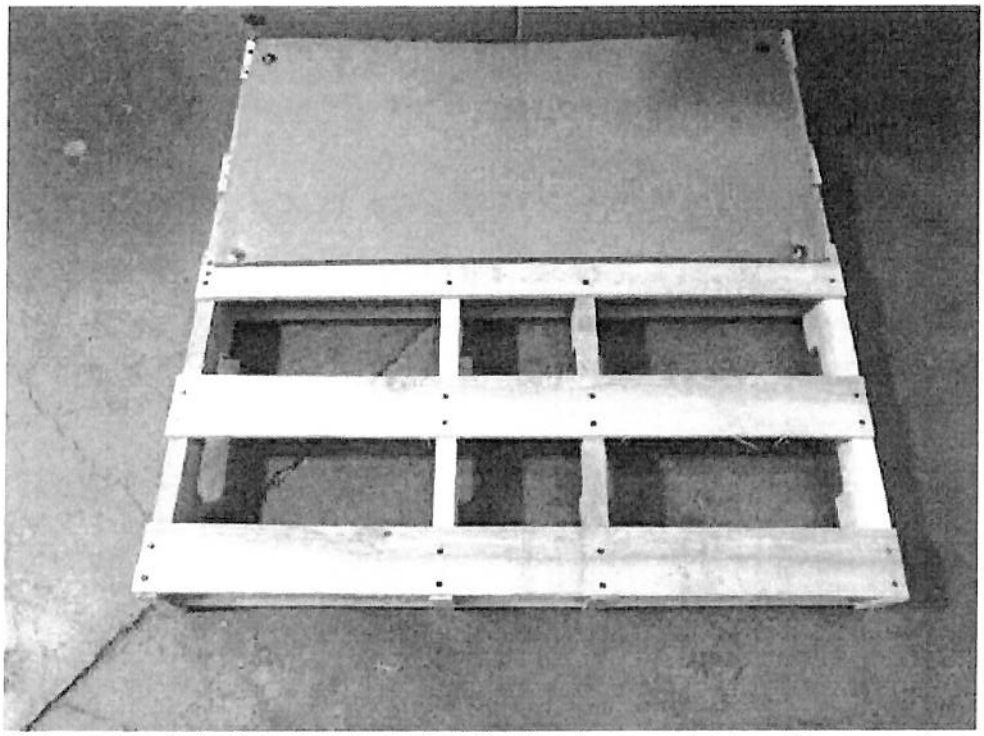
☒ Hand assembled

☒ Other: Standard Hammer

Customer or Filler's (End-User's) Assembly & Closure Instructions

Assembly / Closure Instructions

1. Place the wood pallet on level ground.
2. Square up the corrugated box.
3. Lay the box on its side, and using one bottom flap, line up the edge of the flap with the center of the pallet.
4. Nail the flap to the pallet, one (1) nail goes into each corner, be sure the nail is lined up with the deck boards or stringer boards for a secure connection.



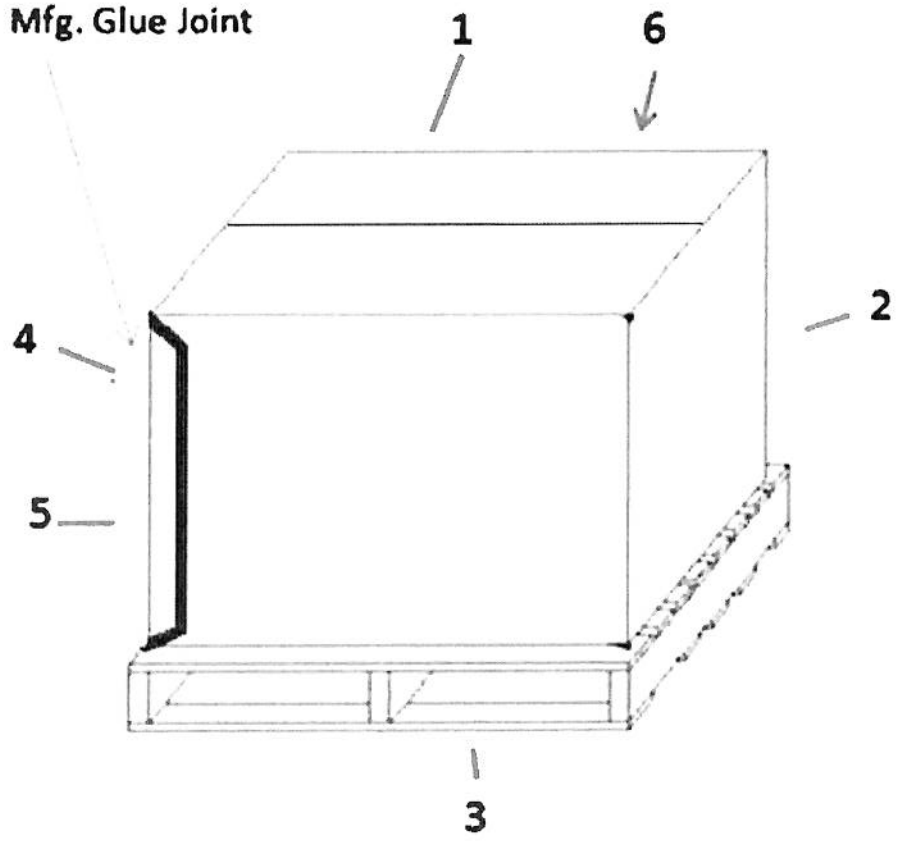
5. Fold the opposite bottom flap in and flip the box to an upright position.
6. Fold back the top flaps.
7. Place the poly liner into the box, be sure the liner is tucked into each corner and is pulled back over the box so filling is easier.
8. Fill the poly liner with product to the correct level and or weight not to exceed the maximum allowable net weight.
9. Secure the poly liner closed by gathering up the top portion of the liner, twisting the liner a minimum of 1 complete twist to make it tighter.
10. Secure the liner with a strip of 2" wide duct tape, minimum of 2 complete wraps, and the tape should be located 12" from the top edge of the liner.
11. Fold the top flaps closed.
12. Seal the top flaps. The 2" wide duct tape runs widthwise over the center gap extending a minimum of 12" over the edges; three (3) strips run parallel overlapping 1".

Section 3 – Testing Procedures and Results

Package Preparation – For All Testing

The packages were filled to a minimum of 95% full (see Section 4 for calculation).

Package Panel Orientation – For All Test setups



Vibration Standard

Test Method: 49 CFR 178.819

Test contents:	Fine sand (0.125mm-0.25mm) & lead shot #7			
Number of packages tested:	One (1)			
Weight of packages tested:	2463.091	lbs.		
Duration:	1 hour			
Frequency:	4.12	Hz	247.2	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:	Fine sand (0.125mm-0.25mm) & lead shot #7
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 additional test weight used to achieve bottom lift test weight and was applied to the top of the packages (centrally located). 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:	3100.00	lbs.	1406.15	kg
Rounded up from required weight:	3078.75	lbs.	1396.511	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 or pallet damage.

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.

Stacking Test

Test Method: 49 CFR 178.815

Free standing:	☒		Guided Load:		☐
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:	4500.00	lbs.	2041.186	kg
Rounded up from:	4433.40	lbs.	2010.977	kg

See Section 4 for Calculation.

The stacking test load was applied to the top of the packages by loading each package with the stacking test weight (above) and the weight was maintained for 24 hours. The above calculated weight represents a minimum of 1.8 times the expected gross stacking weight.

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:	Fine sand (0.125mm-0.25mm) & lead shot #7	
Number of packages tested:	One (1)	
Drop height:	1.2	meters

Testing was conducted to certify the package for Packing Group:	II	
Density	87.26	lbs. / ft^3
Weight of package as tested:	2463	lbs.

Conditioning

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. Drop testing was conducted within two (2) minutes after removing the test package from the conditioning chamber.

Results

Package #	Orientation	Results & Description
2	Flat on Bottom angled to manufacture's joint no more than corner 5°	Pass. Package had bowing in the side walls, a 30" tear up the manufacturer's joint and 33" tear up opposite corner starting from the bottom of the IBC. Two (2) of the five (5) top deck board cracked. The package remained intact and is considered safe for further shipment or disposal/salvage.

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.

Cobb Test

Test Method: ISO International Standard 535 as required by 49 CFR 178.708 (c) (2).

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. Five (5) samples were tested from the IBC and subjected to a water absorption test in accordance with ISO International Standard 535.

Results

Sample Number	Water Absorption		Pass / Fail
1	114	g/m2	Pass
2	119	g/m2	Pass
3	111	g/m2	Pass
4	122	g/m2	Pass
5	116	g/m2	Pass
Average	116.4	g/m2	Pass

Pass/Fail Criteria

An increase in mass of greater than 155 g/m2 over the 30 minute duration of the test represents an unacceptable level of water resistance.

Puncture Test

Test Method: ISO International Standard 3036 as required by 49 CFR 178.708 (c) (2) i.

On double wall, and triple wall corrugated and solid fiberboard, make four punctures which comprise a set. One set constitutes one test. The plane of the curved pendulum arm is used as the reference in relating the position of the specimens to the testing machine. Directions refer to the direction of the corrugations of corrugated board or grain direction of uncombined sheets or solid fiber. The orientation of the specimens for a set follows; (a) parallel, with one surface down; (b) parallel, with the other surface down; (c) perpendicular, with one surface down; and (d) perpendicular, with the other surface down.

The results will be the average of at least two sets in scale units of three significant figures. (Each unit is equal to 0.0299 joules.) The total tearing length of the head is 107.7 mm (4.24 in.)

Panels Tested:	Three (3)

Results

Sample	Units	Joules	Pass/Fail
Top sample 1 average	**	38+	Pass
Top sample 2 average	**	38+	Pass
Side sample 1 average	1080	32.292	Pass
Side sample 2 average	1120	33.488	Pass
Bottom sample 1 average	**	38+	Pass
Bottom sample 2 average	**	38+	Pass

*Test value exceeds equipment capabilities

Pass/Fail Criteria

A resistance puncture force greater than 15 Joules (11 foot-pounds of energy) when averaged for two consecutive sets of tests for the top, bottom, and sides.

Section 4 - Calculations

Weight of Test Package

Weight of box:	34	lbs.	15.422	kg
Weight of components:	23.991	lbs.	10.882	kg

Capacity

Capacity of IBC:	27.56	ft^3	0.78	$meters^3$

Empty Package Weight

IBC:	15422.4	grams	15.422	kg	34	lbs.
Lid/Pads:	N/A	grams	N/A	kg	N/A	lbs.
Inner packaging and components:	1266.1	grams	1.266	kg	2.791	lbs.
Pallet:	9616.3	grams	9.616	kg	21.199	lbs.
Total:	26304.8	grams	26.304	kg	57.991	lbs.

Filled Package Weight

Weight of fill (100% full):	2405.1	lbs.	1090.946	kg
Weight of filled package:	2463.091	lbs.	1117.25	kg

Drop Test Height

Maximum density of certification:	87.26	lbs. / ft^3
Packing group of certification:	II	
Drop height:	1.2	meters

Marked Weight to Accommodate Actual Product

Weight of fill	2405.1	lbs.	1090.946	kg
Total tare weight	57.991	lbs.	26.304	kg
Weight of fill + Tare weight	2463.091	lbs.	1117.25	kg
Marked weight rounded down	2463	lbs.	1117	kg

Certified Weights

Certified actual product weight	2405.1	lbs.	1090.946	kg
Certified product weight + Tare weight	2463.091	lbs.	1117.25	kg
Certified gross weight (rounded down)	2463	lbs.	1117	kg

Stack Test Weight

Load = 1.8 x 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 x 2463 lbs.
Required applied weight = 4433.4 lbs.

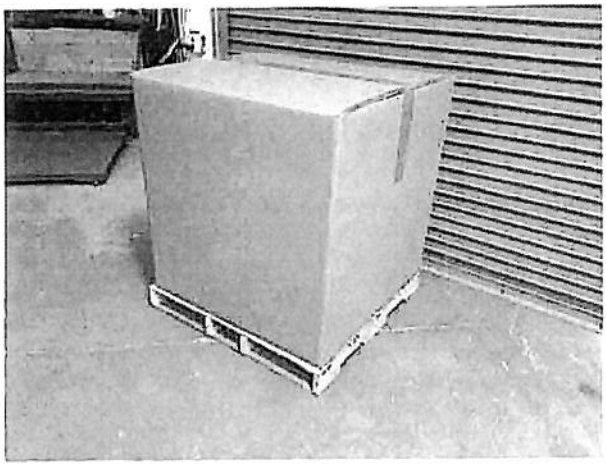
Actual stack weight	4500.00	lbs.	2041.186	kg

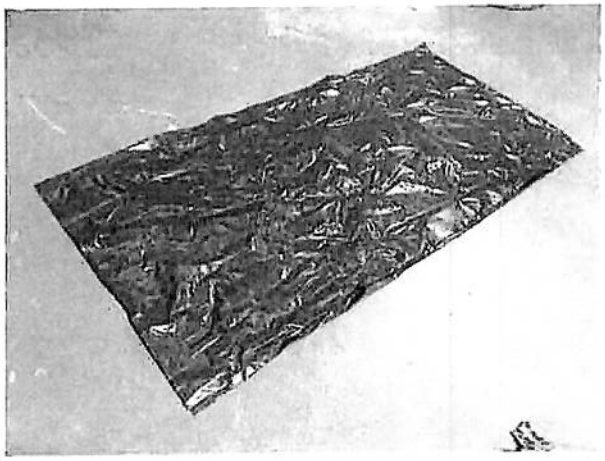
Bottom Lift Test Weight

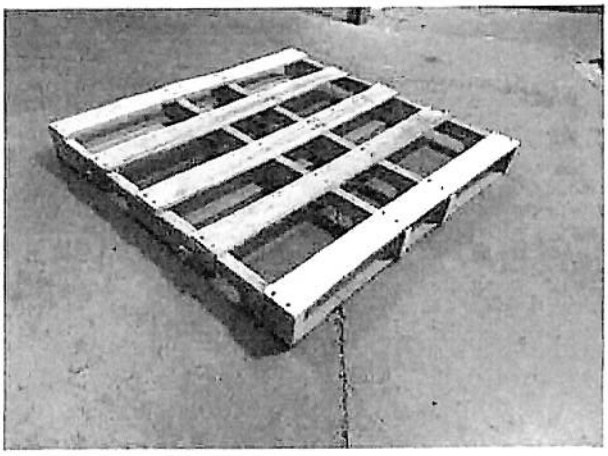
Load = 1.25 x Gross Mass
Required applied weight = 3078.75 lbs.

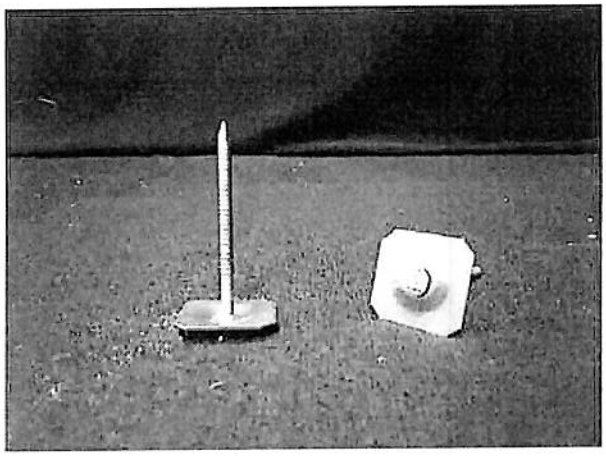
Actual applied load	3100.00	lbs.	1406.15	kg

Section 5 - Drawings and Pictures of Packaging Components





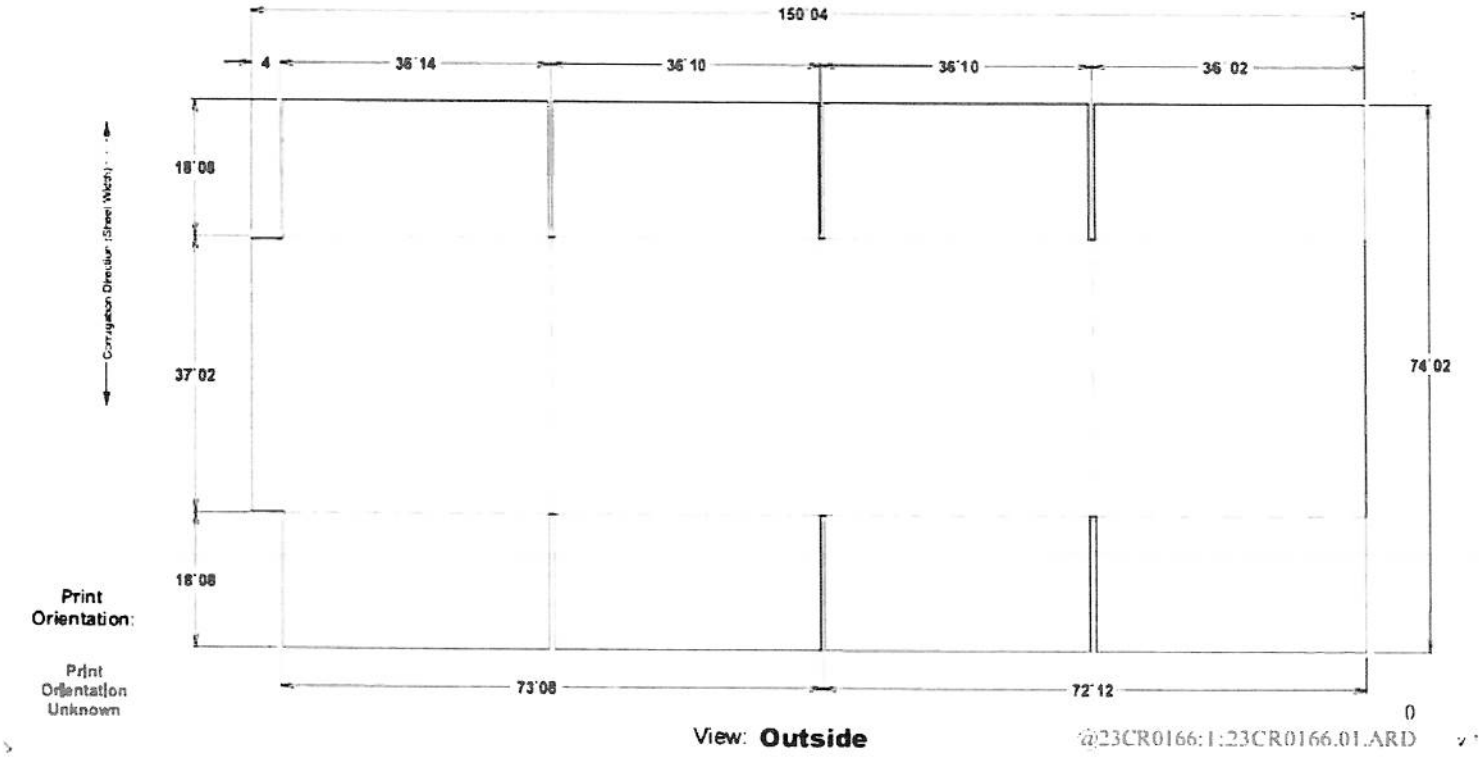




ADVANCED PACKAGING TECHNOLOGY LABORATORIES, INC.

Fiberboard IBC

Customer: Aramsco		CAD File **23CR0166.01**	WestRock Great Lakes BU Cedar Rapids, IA - Corrugated Cedar Rapids, IA
Design Style: RSC		Project Desc: 55980 HAZmat Box	
Description: BIN		Project #: 23CR0166	
Cust Part #:	MFG Joint: Glue Out	Coatings:	Corr Scores: yes
Size ID (in): (Length x Width x Depth) 36 x 36 x 35+7/8	EDW Style: 14 - RSC	Adhesive: WRA	Sales Rep: Rodney Aftuck
Size OD (in): x x		Board Desc: ECT 112 CMA (KL / KL)	Designed By: Jeffrey Chalk
Finished Blank Size (in): (Corr Dir) 74+1/8 x 150+1/4 (+/- 1/8")	Rule Length: 1106in	Board Comb: KL69HZ-ME33HT-KL69HZ-ME33HT-KL69HZ-*	Created: 5/16/2023 Printed: 5/16/2023
Blank: 77.34 Sq Ft 33.347 Lbs	Waste (Blank): 2.22% (1.72 sqft)	Tare Weight: 32.606 Lbs Good Board: 75.62 Sq Ft	Design Last Saved: 5/16/2023
HazMat Tracking#:	HazMat Test Date:	Brd Restrictions: Hazmat Print Info	KIWI PD#:
Patent Info		Approved By: Approval Date:	
Instructions			
Notes:			
Test Results:		Total Glue Length: 0 in	



Nashua Tapes Products 300

MULTI-PURPOSE DUCT TAPE

Excellent for general repair, bundling, patching and mending, conformable, excellent adhesion to variety of surfaces, no curl.

Applications

Features & Benefits

Home and general repair. Bundling, Versatile polyethylene coated cloth tape. Conforms well to patching and mending. Emergency irregular surfaces. Tears straight, hangs straight, curl resistant. tape for automotive breakdowns.

Product Construction

Special Conditions

Adhesive: Rubber

Low VOC

Backing: Polyethylene coated cloth

Certifications

LEED - Contributes toward satisfying EQ Credit 4.1 (Low Emitting Materials)

Performance Specifications

Measurement	US Value	Metric Value	Test Method
Adhesion to Backing	43oz/in	48g/mm	PSTC-1
Adhesion to Steel	46oz/in	51g/mm	PSTC-1
Maximum Temperature	200°F	93°C	
Tensile	23lb/in	0.41kg/mm	ASTM D-1000
Thickness	10Mils	0.25mm	ASTM D-1000

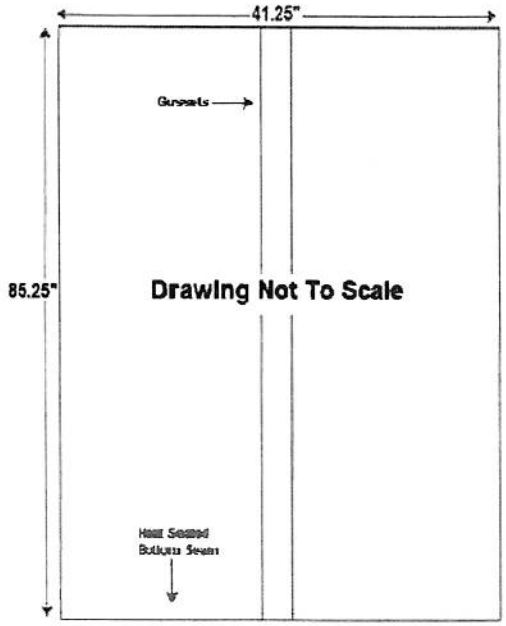
Tapes and Coatings Division, Franklin, KY 42134

CHAMPION PLASTICS
Manufacturer of Plastic Bags and Films

CHAMPION PLASTICS
220 CLIFTON BOULEVARD
CLIFTON, NJ 07011

Part Number: 86345

Width: 41.25"
Depth: 40.25"
Height: 85.25"
Thickness: .006" (6 Mil)
Style: Tubular, Gusseted
Material: Black LDPE (LTA Blown Film Resin)
Gram Weight: 1,222.0 Grams



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LEED - Contributes toward satisfying EQ Credit 4.1 (Low Emitting Materials)

Performance Specifications

Measurement	US Value	Metric Value	Test Method
Adhesion to Backing	43oz/in	48g/mm	PSTC-1
Adhesion to Steel	46oz/in	51g/mm	PSTC-1
Maximum Temperature	200°F	93°C	
Tensile	23lb/in	0.41kg/mm	ASTM D-1000
Thickness	10Mils	0.25mm	ASTM D-1000

Tapes and Coatings Division, Franklin, KY 42134

PALLET DESIGN SYSTEM Version 5.0

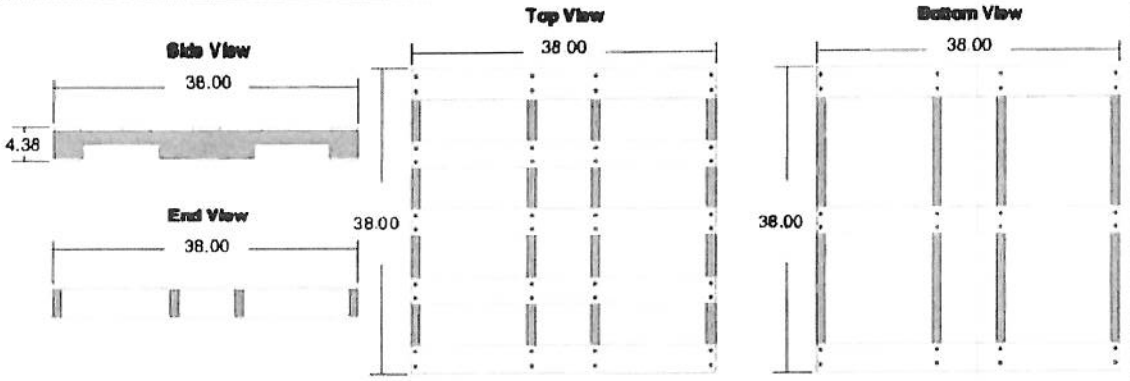
Pallet Specification Sheet

All dimensions in inches

Customer:
ARAMSCO
THOROFARE NJ
ATTENTION:DON MAURER
PH:856-686-6733 X:7733 FX:856-686-7261
DMAURER@ARAMSCO.COM

Prepared by:
B&B ALBANY PALLET CO
DRAWER T 4800 SOLVAY ROAD
JAMESVILLE, N Y 13078
Ph:315/492-1786 Email:bill dougherty@bblumber.com
ANALYSIS BY: BILL DOUGHERTY Fax:315/469-4945
PDS License: 30 Printed: December 05, 2012

Pallet ID: ARAM-3838
Classification: 38.00 x 38.00, Stringer-Class, Double Face Non-Reversible, Partial 4-Way, Limited-Use, New Manufacture



Components

Top Deck:
Style: Deckboard **Type:** New Lumber

Number	Thickness	Width	Length
5	0.438	3 500	38.00

Volume: 2.0 bd ft

Bottom Deck:
Style: Deckboard **Type:** New Lumber

Number	Thickness	Width	Length
3	0.438	3.500	38.00

Volume: 1.2 bd ft

Stringers:
Type: New Lumber

Number	Width	Height	Length
4	1.125	3.500	38.00

Volume: 4 2 bd ft
Partial 4-way Entry Notch:
Depth: 1.500 Length: 9.00 Location: 4.00 Radius: 0.00

Materials

Fasteners:

Fastener ID:	PRK2-12
Fastener Type:	Helically Threaded Nail
Fastener Length:	2 00
Thread Length:	1.50
Thread Diameter:	0.123
Wire Diameter:	0.105
Head Diameter:	0.250
Flutes:	5
Helices:	8 5
Pitch:	0.176
Thread Angle:	66
MBANT Angle:	38
FWC:	3.24
Total Number:	64

New Lumber:
Lumber ID: ONE

Species Class	Grade
High Density Eastern Hardwoods	Standard &BTR

Moisture Content (at manufacture and assembly): Green

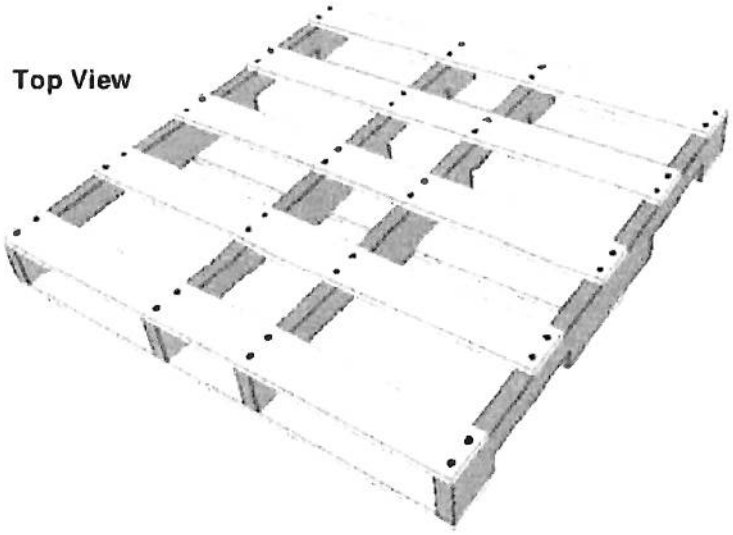
Total New Lumber Volume: 7.4 bd ft

Spec Sheet Notes:
MANUFACTURED 100% IN USA. CONSTRUCTION ALL NEW STATE HIGH DENSITY HARDWOODS.

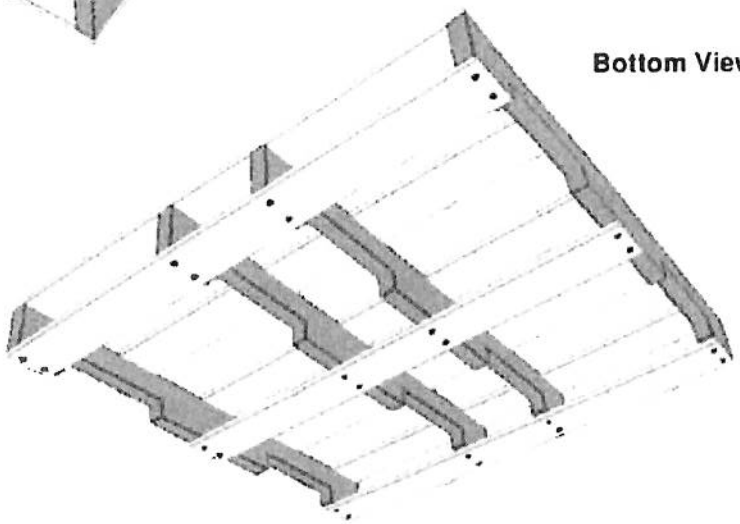
PALLET DESIGN SYSTEM Version 5.0
3-D Pallet Drawings

Pallet ID: ARAM-3838
Classification: 38.00 x 38.00, Stringer-Class, Double-Face Non-Reversible, Partial 4-Way, Limited-Use, New Manufacture

Top View



Bottom View



Customer:
ARAMSCO
THOROFARE NJ
ATTENTION:DON MAURER
PH:856-686-6733 X:7733 FX:856-686-7261
DMAURER@ARAMSCO.COM

Prepared by:
B&B ALBANY PALLET CO.
DRAWER T 4800 SOLVAY ROAD
JAMESVILLE, N.Y. 13078
Ph:315/492-1786 Email:bill.dougherty@bblumber.com
ANALYSIS BY: BILL DOUGHERTY Fax:315/469-4946
PDS License: 30 Printed: December 05, 2012

Independent Nails 100 Church Street Peru, IL 61354

Independent Nail Hand-Driven Specialty Nails

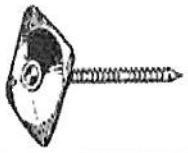
SQUARE-HED® CAP NAILS (INDEPENDENT-MADE)

RING SHANK:

- Features a large, "domed" cap designed to meet the roofing industry's specifications.
- Popular for built-up roofing, rigid insulation, packaging furniture, lining freight cars, sheathing and veneering.
- STRONGHOLD® ring shanks give excellent holding power.
- SQUARE-HED® cap nails are provided with a bright mill finish.
- For PLASTIC-HED® cap nails, see page 24.

SPIRAL SHANK:

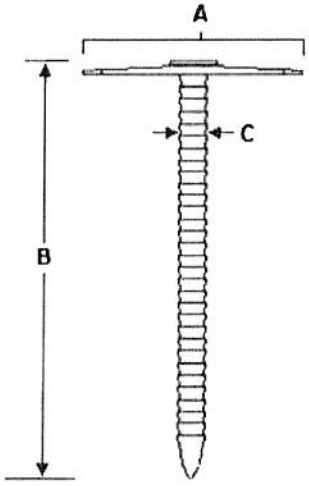
- These nails are made with a SCREWTITE® spiral shank for nailing into poured or precast gypsum roof decking.
- Diamond point penetrates easily and the shank drives well.
- SQUARE-HED® cap nails are provided with a bright mill finish.

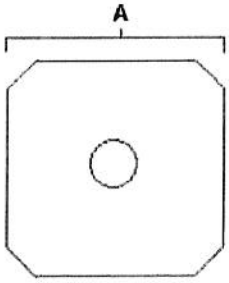


RING SHANK

LENGTH	DIAMETER	CAP SIZE	APPROXIMATE NAILS / LB	50 LB ITEM NUMBER
1"	.109"	15/16"	83	Q2A050
1¼"	.109"	15/16"	78	Q3A050
1½"	.125"	15/16"	65	Q4A050
1¾"	.125"	15/16"	62	Q5A050
2"	.125"	15/16"	58	Q6A050
2½"	.125"	15/16"	44	Q8A050
3"	.125"	15/16"	41	Q10A050

A - Width: 0.95"
B - Length: 2.02"
C - Shank Diameter: 0.127"





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 Chalbers	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
meters^3 = 0.028 ft^3
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