

UNITED NATIONS / DOT PERFORMANCE CERTIFICATION



4G DESIGN QUALIFICATION

4 x 1 Gallon Alpha and Delta F-Style Metal Can Packaging

TEST REPORT #: 10-2109 (REV 1)



** Insert year the packaging is manufactured

TESTING PERFORMED FOR:

INMARK, INC. 675 Hartman Road, Suite 100 Austell, GA 30168

ATTN: Mary Jo Freels

TESTING PERFORMED BY:

TEN-E Packaging Services, Inc.

1666 County Road 74 Newport, MN 55055 Phone: (651) 459-0671 Fax: (651) 459-1430

Issue Date: March 31, 2010 Revision Date: April 13, 2010



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NOTES AND COMMENTS

Note for Rev 1: Report 10-2109 issued on March 31, 2010 has been updated on April 13, 2010. The correct Shipper Specification information has been provided by the client.

This packaging was previously certified with a Delta F-Style Metal Can under report 08-2072. Design Qualification tests are being conducted due to the addition of an Alpha F-Style Metal Can. This design will retain the original certification number assigned, +AA2371.



SECTION I: CERTIFICATION

Design Qualification of the Inmark, Inc. 4 x 1 Gallon Alpha and Delta F-Style Metal Can Packaging

TEN-E PACKAGING SERVICES, INC. certifies that the **Inmark, 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, ICAO/IATA Regulations 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
Drop	178.603	1.5m	Water	March 24, 2010	PASS
Stacking	178.606	746.2 Kg – 24 Hrs.	Water	March 25, 2010	PASS
Pressure	173.27	95 kPa – 5 Min.	Water	March 23, 2010	PASS
Vibration	178.608	4.3 Hz – 1 Hr.	Water	March 24, 2010	PASS
Cobb	178.516	30 minutes		March 24, 2010	PASS
TEST REPOR	T NUMBERS:		10-2109 , 08-2072, 06-	2011, 03-2325, 01-2360,	, 99-2320
UN MARKING: (CFR 49 - 178.503) USA			u 4G / Y25.8 / USA / +AA2	S / ** 371	
PACKAGING IDENTIFICATION CODE:			4G - Fiberboard Box (178.516)	
PERFORMAN	NCE STANDARD:		Y (Packaging meets P	acking Group II and III to	ests)
AUTHORIZE	D GROSS MASS:		25.8 Kg (56.8 Lbs.)		
"S" DESIGNA	ATION:		Denotes Inner Packag	ings	
YEAR OF MA	NUFACTURE:		**Insert year the pack	aging is manufactured	
STATE AUTHORIZING THE MARK:			USA		
PACKAGING CERTIFICATION AGENCY:			(+AA) TEN-E Packag	ing Services, Inc.	
THIRD PARTY PACKAGE IDENTIFICATION:			+AA2371		
PERIODIC RETEST DATE:			March 25, 2012		

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

Inmark, Inc. 675 Hartman Road, Suite 100 Austell, GA 30168

Patricia L. Garin

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



SECTIONS II & V: PACKAGING DESCRIPTION / COMPONENT DRAWINGS

4 x 1 Gallon Alpha and Delta F-Style Metal Can Packaging				
ASSEMBLY DRAWING	TEST LEVELS			
	Certification Typ	be:	Desig	gn Qualification
_	Packaging Code	Designation:	4G	
	Packing Group:		II	
	Specific Gravity:	:	1.5	
	Internal Pressure	:	95 kI	Pa
	,	TEST SAMPLI	E PREPARATIO	ON
		(Refer to	Section IV)	
	Overall Packagin	ng Tare Weight:	1,977 Grams	S
	Fill Capacity (98	% Maximum Ca	pacity):	
	Delta F-Style	Can: Water	3,991 Grams	
	Package Test We	eight:		
	Water	8	17.8 Kg	(39.2 Lbs.)
			e	
	Authorized Package	e Gross Mass:	25.8 Kg	(56.8 Lbs.)
	CLOSI	NG METHODS	5 – INNER PAC	KAGING
\land	Application Tore	lue:	23 In-Lbs	
	(Alpha and Delta	(Style Cans)		
	Equipment:		Torque Meter #	#714
	C	CLOSING MET	HODS – SHIPP	ER
		Тор	Flaps:	
	Туре:	3M #375 Pres	sure Sensitive Ta	pe
	Width:	48mm (2")		
	Overlap:	2" Minimum		
	Tape Pattern:	Center Seam		
	Inner Flaps:	5-1/8" Width	Gap	
	Outer Flaps:	Meet		
		Botto	m Flaps:	
	Туре:	3M #375 Pres	sure Sensitive Ta	pe
	Width:	48mm (2")		
	Overlap:	2" Minimum		
	Tape Pattern:	Center Seam		
	Inner Flaps:	5-1/8" Width	Gap	
	Outer Flaps:	Meet		



COMPONENT INFORMATION

1-3/4"	ALPHA THREAD	ED CLOSURE		
Manufacturer: Van Blarcon	n Closures, Inc. Broo	klyn, NY		Drawing
Description/Type/Style:	1-3/4" Alpha Screw	Closure		
Quantity:	2			
Material:	Electrolytic Tin Plat	e		1
Tare Weight:	7.322 Grams	-		1 (
Overall Dimensions:				
Height	0.515"			
Diameter	1.915			
Finish Dimensions:				
• T	1.791"			
• E	1.752"			
Markings (OC Audit):	None			-
	LINER			
Description:	Laminated Pulp			
Tare Weight:	1 185 Grams			-1
Thickness:	0.052"	Diar	neter: 1 766"	
	INNER SEA	L		
Manufacturer: Van Blarcon	n Closures, Inc. Broo	klyn, NY		
Description:	Inner Seal	kiyii, 1 (1		-
Material:	80# Electrolytic Tin	Plate Thic	:kness: .010"	-
Tare Weight	3.135 Grams			
Overall Dimensions:	circe crains			
Height	0.187" + .005"			
Ton Diamatan	$1.540" \pm 0.15"$			-
I V TOD Diameter	1.570 1.015			
Bottom Diameter	1.440" + .002"			_
Bottom Diameter 1.3/4 ²	$1.440" \pm .002"$	METAL CAN		
Bottom Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corn	1.440" <u>+</u> .002" ALPHA F-STYLE poration. Atlanta, GA	METAL CAN		Drawing
Bottom Diameter Bottom Diameter <u>1-3/4</u> ^{**} Manufacturer: B-Way Corp Description:	1.440" ± .002" ALPHA F-STYLF poration, Atlanta, GA	2 METAL CAN 403 x 610 x 907 wit	h 1-3/4" Alpha	Drawing
Bottom Diameter Bottom Diameter <u>1-3/4" Manufacturer: B-Way Corp</u> Description:	1.440" ± .002" ALPHA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded	2 METAL CAN 403 x 610 x 907 wit Side Seam	h 1-3/4" Alpha	Drawing
Bottom Diameter Bottom Diameter <u>1-3/4"</u> Manufacturer: B-Way Corp Description: Ouantity:	1.440" ± .002" ALPHA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2	C METAL CAN 403 x 610 x 907 wit Side Seam	h 1-3/4" Alpha	Drawing
Bottom Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material:	1.440" <u>+</u> .002" ALPHA F-STYLE Poration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat	2 METAL CAN 403 x 610 x 907 wit Side Seam e	h 1-3/4" Alpha	Drawing
Bottom Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material:	1.440" ± .002" ALPHA F-STYLF oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top:	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side:	h 1-3/4" Alpha	Drawing
Bottom Diameter Bottom Diameter <u>1-3/4''</u> Manufacturer: B-Way Corp Description: Quantity: Material: Thickness:	1.440" ± .002" ALPHA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013"	2 METAL CAN 403 x 610 x 907 wit Side Seam e <u>Side:</u> 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
Bottom Diameter Bottom Diameter 1-3/4 ^x Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining:	1.440" ± .002" ALPHA F-STYLE Protocology of Content of Conten	2 METAL CAN 403 x 610 x 907 wit Side Seam e <u>Side:</u> 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
Top Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight:	1.340 1.013 1.440" ± .002" ALPHA F-STYLE oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
Top Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity:	1.340 1.013 1.440" ± .002" ALPHA F-STYLF oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
Top Diameter Bottom Diameter <u>1-3/4"</u> Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated	1.540 1.613 1.440" ± .002" ALPHA F-STYLF oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
Top Diameter Bottom Diameter <u>1-3/4''</u> Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow	1.340 <u>1</u> .813 1.440" ± .002" ALPHA F-STYLH oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
Top Diameter Bottom Diameter 1-3/4 ^{xx} Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions:	1.340 <u>1</u> .813 1.440" ± .002" ALPHA F-STYLE oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Bottom Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width 	$1.340^{\circ} \pm .003^{\circ}$ $1.440^{\circ} \pm .002^{\circ}$ ALPHA F-STYLE oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" ± 0.030 "	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Bottom Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth 	$1.540 \pm .003$ $1.440^{\circ} \pm .002^{\circ}$ ALPHA F-STYLF oration, Atlanta, GA1 Gallon Metal CanNozzle and Welded2Electrolytic Tin PlatTop:0.013"None358 Grams1 Gallon1.08 Gallons6.640" \pm 0.030"4.154" \pm 0.030"	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Top Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth Shoulder Height 	1.540 \pm .002" 1.440" \pm .002" ALPHA F-STYLF oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" \pm 0.030" 4.154" \pm 0.030" 9.498" \pm 0.020"	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Bottom Diameter Bottom Diameter 1-3/4^x Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overall Dimensions: Width Depth Shoulder Height Overall Height 	1.340 \pm .002" 1.440" \pm .002" ALPHA F-STYLH oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" \pm 0.030" 4.154" \pm 0.030" 9.498" \pm 0.020" 10.32" \pm 0.030"	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Bottom Diameter Bottom Diameter 1-3/4^x Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth Shoulder Height Overall Height Finish Dimensions: 	$1.340^{\circ} \pm .003^{\circ}$ $1.440^{\circ} \pm .002^{\circ}$ 'ALPHA F-STYLE oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" ± 0.030" 4.154" ± 0.030" 9.498" ± 0.020" 10.32" ± 0.030"	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Bottom Diameter Bottom Diameter 1-3/4^x Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth Shoulder Height Overall Height Finish Dimensions: T 	1.340 \pm .002" 1.440" \pm .002" ALPHA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" \pm 0.030" 4.154" \pm 0.030" 9.498" \pm 0.020" 10.32" \pm 0.030" 1.780" \pm .010"	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Top Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth Shoulder Height Overall Height Finish Dimensions: T Inside Diameter 	1.340 \pm .002" 1.440" \pm .002" ALPHA F-STYLF oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" \pm 0.030" 9.498" \pm 0.020" 10.32" \pm 0.030" 1.780" \pm .010" 1.721" \pm .002" /0	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011" 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Top Diameter Bottom Diameter 1-3/4" Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth Shoulder Height Finish Dimensions: T Inside Diameter Pitch 	1.340 \pm .013 1.440" \pm .002" ALPHA F-STYLH oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" \pm 0.030" 4.154" \pm 0.030" 9.498" \pm 0.020" 10.32" \pm 0.030" 1.780" \pm .010" 1.721" \pm .002" / $-$.0	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011" 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing
 Top Diameter Bottom Diameter 1-3/4^x Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Tare Weight: Capacity: Rated Overflow Overall Dimensions: Width Depth Shoulder Height Overall Height Finish Dimensions: T Inside Diameter Pitch Height 	$1.340^{\circ} \pm .013^{\circ}$ $1.440^{\circ} \pm .002^{\circ}$ ALPHA F-STYLE oration, Atlanta, GA 1 Gallon Metal Can Nozzle and Welded 2 Electrolytic Tin Plat Top: 0.013" None 358 Grams 1 Gallon 1.08 Gallons 6.640" ± 0.030 " 4.154" ± 0.030 " 9.498" $\pm 0.020^{\circ}$ 10.32" ± 0.030 " 1.780" $\pm .010$ " 1.780" $\pm .010^{\circ}$ 1.721" $+ .002^{\circ}$ / 0 7 0.625" $+ .010^{\circ}$	2 METAL CAN 403 x 610 x 907 wit Side Seam e Side: 0.011" 0.011" 0.011"	h 1-3/4" Alpha Btm: 0.013"	Drawing



1-3/4'	DELTA THREAD	ED CLOSURE		Drowing
Manufacturer: Van Blarcor	n Closures, Inc. Brook	lyn, NY		Drawing
Description/Type/Style:	1-3/4" Delta Screw C	losure		
Quantity:	2			
Material:	Electrolytic Tin Plate			
Tare Weight:	6.892 Grams] /
Overall Dimensions:				
Height	0.510"			
Diameter	1.878"			
Finish Dimensions:				
• T	1.786"			
• E	1.721"			
Markings (QC Audit):	None			1
	LINER			
Description:	Laminated Pulp			
Tare Weight:	1.332 Grams			
Thickness:	0.052"	Diar	neter: 1.766"	1 ()
	INNER SEAI	Ĺ		
Manufacturer: Van Blarcor	n Closures, Inc. Brook	yn, NY		
Description:	Inner Seal	•		1
Material:	80# Electrolytic Tin P	late Thic	kness: 0.010"	-
Tare Weight	2.837 Grams			
Overall Dimensions:				
Height	0.187" <u>+</u> .005"			1 ()
Top Diameter	1.540" <u>+</u> .015"			
Bottom Diameter	1.440" + .002"			
Markings (QC Audit):	Cut This Out			-
Markings (QC Audit): 1-3/4'	Cut This Out DELTA F-STYLE	METAL CAN		
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp	Cut This Out 'DELTA F-STYLE voration, Atlanta, GA	METAL CAN		Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description:	Cut This Out Delta F-STYLE Doration, Atlanta, GA 1 Gallon Metal Can 44	METAL CAN 03 x 610 x 907 wit	h 1-3/4" Alpha	Drawing
Markings (QC Audit): 1-3/4' Manufacturer: B-Way Corp Description:	Cut This Out DELTA F-STYLE Doration, Atlanta, GA 1 Gallon Metal Can 44 Nozzle and Welded S	METAL CAN 03 x 610 x 907 wit ide Seam	h 1-3/4" Alpha	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity:	Cut This Out Cut This Out DELTA F-STYLE Doration, Atlanta, GA 1 Gallon Metal Can 44 Nozzle and Welded S 2	METAL CAN 03 x 610 x 907 wit ide Seam	h 1-3/4" Alpha	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material:	Cut This Out 'DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 44 Nozzle and Welded S 2 Electrolytic Tin Plate	METAL CAN 03 x 610 x 907 wit ide Seam	h 1-3/4" Alpha	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material:	Cut This Out Cut This Out DELTA F-STYLE Doration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top:	METAL CAN 03 x 610 x 907 wit ide Seam Side:	h 1-3/4" Alpha Btm:	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness:	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010"	METAL CAN 03 x 610 x 907 wit ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4' Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining:	Cut This Out 'DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 44 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None	METAL CAN 03 x 610 x 907 wit ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 [°] Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam:	Cut This Out 'DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 44 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight:	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity:	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated:	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow:	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons	METAL CAN 03 x 610 x 907 wit ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions:	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons	METAL CAN 03 x 610 x 907 wit ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons 6.640" ± 0.030"	METAL CAN 03 x 610 x 907 wit ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth	Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons 6.640" ± 0.030" 4.154" ± 0.030"	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height	Cut This OutCut This OutDELTA F-STYLEDoration, Atlanta, GA1 Gallon Metal Can 4Nozzle and Welded S2Electrolytic Tin PlateTop:0.010"NoneWelded362 Grams1 Gallon1.07 Gallons6.640" \pm 0.030"4.154" \pm 0.030"9.498" \pm 0.020"	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height • Overall Height	Cut This OutCut This OutDELTA F-STYLEDoration, Atlanta, GA1 Gallon Metal Can 4Nozzle and Welded S2Electrolytic Tin PlateTop:0.010"NoneWelded362 Grams1 Gallon1.07 Gallons6.640" \pm 0.030"4.154" \pm 0.030"9.498" \pm 0.020"10.32" \pm 0.030"	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height Finish Dimensions:	$-$ Cut This Out' DELTA F-STYLEporation, Atlanta, GA1 Gallon Metal Can 4Nozzle and Welded S2Electrolytic Tin PlateTop:0.010"NoneWelded362 Grams1 Gallon1.07 Gallons6.640" \pm 0.030"4.154" \pm 0.030"9.498" \pm 0.020"10.32" \pm 0.030"	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height Finish Dimensions: • T	$-$ Cut This OutCut This Out' DELTA F-STYLEporation, Atlanta, GA1 Gallon Metal Can 4Nozzle and Welded S2Electrolytic Tin PlateTop:0.010"NoneWelded362 Grams1 Gallon1.07 Gallons6.640" \pm 0.030"4.154" \pm 0.030"9.498" \pm 0.020"10.32" \pm 0.030"1.760" \pm .005"	METAL CAN 03 x 610 x 907 wit ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4 ² Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height Finish Dimensions: • T • Inside Diameter	- Cut This Out Cut This Out ' DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons 6.640" ± 0.030" 4.154" ± 0.030" 9.498" ± 0.020" 10.32" ± 0.030" 1.760" ± .005" 1.722" + .001" /002	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4* Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height Finish Dimensions: • T • Inside Diameter • Pitch	Cut This Out Cut This Out DELTA F-STYLE poration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons 6.640" \pm 0.030" 4.154" \pm 0.030" 9.498" \pm 0.020" 10.32" \pm 0.030" 1.760" \pm .005" 1.722" \pm .001" / $-$.002 6	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing
Markings (QC Audit): 1-3/4* Manufacturer: B-Way Corp Description: Quantity: Material: Thickness: Coating/Lining: Side Seam: Tare Weight: Capacity: • Rated: • Overflow: Overall Dimensions: • Width • Depth • Shoulder Height Finish Dimensions: • T • Inside Diameter • Pitch • Height	Cut This Out Cut This Out DELTA F-STYLE Doration, Atlanta, GA 1 Gallon Metal Can 4 Nozzle and Welded S 2 Electrolytic Tin Plate Top: 0.010" None Welded 362 Grams 1 Gallon 1.07 Gallons 6.640" ± 0.030" 4.154" ± 0.030" 9.498" ± 0.020" 10.32" ± 0.030" 1.760" ± .005" 1.722" + .001" /002 6 0.615" ± .015"	METAL CAN 03 x 610 x 907 with ide Seam Side: 0.010"	h 1-3/4" Alpha Btm: 0.010"	Drawing



SHIPPER (HM0113810K)			
Manufacturer: Design Packaging, Lithonia	, GA		
Description:	Regular Slotted Container		
Material/Flute (Inner to Outer):	48 ECT Double Wall Natural Kraft Co	prrugated Fiberboard, B/C-Flute	
Basis Weight (Outer to Inner) Lbs./MSF:			
Specification	35/23/35/23/35		
Measured	35.4/ 21.3/ 34.4/ 21.3/ 37.5		
Combined Wt. of Facings:	107.3		
Tare Weight:	486 Grams		
	Dimensions		
	Specification Dimensions (Inside)	Measured Dimensions (Outside)	
Length	13-7/8"	14-1/4"	
Width	8-7/16"	9"	
Height	10-3/8"	11-3/4"	
Board Caliper (Nominal):	0.253"		
Manufacturer's Joint:	Inside Glued, 1-1/4" Lap		
Markings (QC Audit):	None		



SECTION III: TEST PROCEDURES AND RESULTS

DROP TESTS

TEST	INFORMATION	CRITERIA FOR PASSING THE TEST
TEST CONTENTS:	Water	• For packaging containing liquid, each
SAMPLE PREPARATION	Refer to Section II	• There can be no damage to the outer
CONDITIONING:	73°F / 50% RH Chamber #215	packaging likely to adversely affect safety during transport and there is no
DROP HEIGHT:	1.5 Meters (60.0") (Refer to Section IV)	leakage of the filling substance from the inner packaging.Any discharge from a closure is slight
TEST EQUIPMENT:	L.A.B. Accu Drop 160	and ceases immediately after impact with no further leakage. (§178.603)

		(§1/8.603)
DI	ROP ORIENTATIONS & TEST RESU	JLTS
Sample #1: Flat on Bottom	Sample #2: Flat on Top	Sample #3: Flat on Long Side
PASS: No leakage or damage.	PASS: No leakage or damage.	PASS: No leakage. Slight deformation to can.
Sample #4: Flat on Short Side	Sample #5: Bottom Corner (Manufacturer's Joint)	*Sample #1: Top Corner (Manufacturer's Joint)
PASS: No leakage. Slight	PASS: No leakage. Slight	PASS: No leakage. Slight
	defermention at immediate and an	defermention of immediate company

*Sample used for Flat on Bottom Drop is also used for the Top Corner Drop



STACKING & STACKING STABILITY TESTS

TEST I	NFORMATION	CRITERIA FOR PASSING THE TEST
TEST CONTENTS:	Water	• There must be no leakage of the filling substance from the inner receptacle, or
SAMPLE PREPARATION:	Refer to Section II	inner packaging.
CONDITIONING:	73°F / 50% RH Chamber #215	• There can be no deterioration that could adversely affect transport safety or any
TEST LOAD APPLIED:	746.2 Kg (1,645.0 Lbs.)	distortion liable to reduce the package's
	(Refer to Section IV)	strength, cause instability in stacks of nackages, or cause damage to inner
TEST DURATION:	24 Hours	packagings that is likely to reduce
TEST EQUIPMENT:	Dead Load Weights/Guided Load Fixture	safety in transport. (§178.606)

STACK TEST SET-UP & RESULTS				
	Sample #	Maximum Deflection After 24 Hours	Results	
	6	1/8"	PASS	
	7	1/8"	PASS	
	8	1/8"	PASS	

STACKING STABILITY TEST SET-UP	CRITERIA FOR PASSING THE TEST
PASS	 In guided load tests, stacking stability must be assessed after test completion. Two filled packagings of the same type must be placed on the test sample. The stacked packages must maintain their position for one hour. (§178.606)



PRESSURE DIFFERENTIAL TEST

TEST INFORMATION		CRITERIA FOR PASSING THE TEST
TEST CONTENTS:	Water	
FILL CAPACITY:	Maximum Capacity	
CLOSURE APPLICATION:	Refer to Section II	
CONDITIONING:	Ambient	• Packaging for which retention of liquid is a basic function must be capable of
TEST PRESSURE:	95 kPa	withstanding the pressure requirements without leakage.
TEST DURATION:	5 Minutes	(§173.27)
AREA OF PRESSURIZATION:	Through the Bottom	
TEST EQUIPMENT:	Regulated Water Source	
	DCT Digital Pressure Gauge	

HYDROSTATIC PRESSURE TEST SET-UP & RESULTS								
	Sample #	1-3/4" Alpha	1-3/4" Delta	Comments/Observation				
P Man	1-2	PASS	PASS					
	3-4	PASS	PASS	All samples maintained the 95 kPa test pressure for 5 minutes without leakage.				
	5-6	PASS	PASS					



REPETITIVE SHOCK VIBRATION TEST

TEST IN	FORMATION	CRITERIA FOR PASSING THE TEST		
TEST CONTENTS:	Water	Immediately following the period of		
SAMPLE PREPARATION:	Refer to Section II	from the platform, turned on its side and		
CONDITIONING:	73°F / 50% RH Chamber #215	• A packaging passes the vibration test if		
TABLE DISPLACEMENT:	1"	there is no rupture or leakage from any of the packages.		
TEST FREQUENCY:	4.3 Hz	• No test sample should show any		
TEST DURATION:	1 Hour	deterioration which could adversely affect transportation safety or any distortion		
TEST EQUIPMENT:	Vertical motion using	liable to reduce packaging strength.		
	L.A.B. 6000 Transportation Simulator	(81/8.008)		

VIBRATION TEST SET-UP & RESULTS								
	Sample #	Results	Comments/Observation					
	9	PASS						
	10	PASS	No leakage or damage.					
ELAB	11	PASS						



COBB WATER ABSORPTION TEST

TE	ST INFORMATION	CRITERIA FOR PASSING THE TEST
SAMPLE SIZE:	(5) 5" x 5" Squares	
CONDITIONING:	73°F / 50% RH Chamber #215	• An increase in mass greater than 155
WATER APPLIED:	100 mL / Sample	g/m ² over the 30 minute duration represents an unacceptable level of
TEST DURATION:	30 Minutes / Sample	water resistance. (\$178 516)
TEST EQUIPMENT: Precisa 100A-300M Analytical Balance		(31/00/0)
	Gurley Cobb Water Absorption Apparatus	

COBB WATER ABSORPTION TEST RESULTS						
Sample #	Water Absorbed (g/m ²)					
1	141.4 g/m ²					
2	145.8 g/m ²					
3	133.3 g/m ²					
4	132.1 g/m ²					
5	126.8 g/m ²					
AVERAGE:	135.9 g/m ²					
RESULT	PASS					



REGULATORY AND INDUSTRY STANDARD REFERENCES

REGULATORY REFERENCES							
TEST	49 CFR 2009 Edition	UN@ 16th Edition	IMDG③ 2008 Edition	ICAO④ 09-10 Edition	IATAS 51st Edition		
Drop:	178.603	6.1.5.3	6.1.5.3	6; 4.3	6.3.3		
Stacking:	178.606	6.1.5.6	6.1.5.6	6; 4.6	6.3.6		
Pressure:	173.27(c)	4.1.1.4.1		4; 1.1.6	5.0.2.9		
Vibration:	178.608			4; 1.1.1	5.0.2.7		
Cobb:	178.516	6.1.4.12.1	6.1.4.12.1	6; 3.1.11.1	6.2.12.2		

① United States Department of Transportation Code of Federal Regulations (CFR) Title 49, Transportation, Parts 100-199

⁽²⁾ The United Nations Recommendations on the Transport of Dangerous Goods — Model Regulations. (UN – Orange Book) ③ International Maritime Dangerous Goods Code (IMDG)

(4) Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO)

⁽⁵⁾ International Air Transport Association (IATA) Dangerous Goods Regulations

	INDUSTRY STANDARD REFERENCES						
Drop:	ASTM© D5276:	Standard Test Method for Drop Test of Loaded Containers by Free Fall					
	ISO@ 2248:	Packaging – Complete, Filled Transport Packages – Vertical Impact Test By Dropping					
Stacking: ASTM [©] D4577:		Standard Test Method for Compression Resistance of a Container Under Constant Load					
	ISO@ 2234:	Packaging – Complete, Filled Transport Packages – Stacking Tests using Static Load					
Vibration:	ASTM© D999:	Standard Test Method for Vibration Testing of Shipping Containers					
	ISO 2247:	Packaging – Complete, Filled transport Packages – Vibration Test at Fixed Low Frequency					
Cobb:	ISO@ 535:	Paper and Board - Determination of Water Absorption - Cobb Method					

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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

1.5

25.8

+

1,977

		INFOR	MATION US	ED FOR CA	LCULATIO	NS	
Capacity:	1 Ga	allon Alpha F	-Style Can				
Overflow Cap	acity (OF	C):	_				
Water	-			4,073	Grams		
Number of In	ner Packag	gings (# IP):		2			
Capacity:	1 Ga	allon Delta F	Style Can				
Overflow Cap	acity (OF	C):					
Water				4,043	Grams		
Number of Inr	ner Packa	gings (# IP):		2			
Overall Packa	ge Tare W	eight (PTW)):	1,977	Grams		
Packing Grou	р			II			
Product Specif	fic Gravity	y (PSG):		1.5			
Packing Grou	p Multipli	cation Factor	r (MF):	1.00			
Overall Heigh	t of one Pa	ackage (OH):		11.75	Inches		
Stack Test-# of	f Samples	Tested Simu	ltaneously:	3			
			98% OI	F OVERFLO	W		
		(Overflow	Capacity (OF	C) x 98%) x #	of Inner Pkg	(#IP)	
(OFC	X	98%)	х	#IP =			
4,073	х	98%	Х	2	7,983	Grams	1 Gallon Alpha F-Style Ca
4.043	Х	98%	х	2	7,924	Grams	1 Gallon Delta F-Style Car

15,907 Grams of Water

PACKAGE TEST WEIGHTS
Overall Pkg Tare Weight (PTW) + 98% Overflow Capacity (OFC)

PTW	+	98% OFC					
1,977	+	15,907		Water			
Water:		17.8	Kg	39.2	Lbs.		

	AUTH	HORIZED P A	ACKAGE (GROSS MASS CALCULATION (APGM)	
	Overa	ll Pkg Tare W	eight (PTW)	+ (Product SG (PSG) x 98% Overflow (OFC))	
PTW	+	(PSG	Х	98% OFC)	

х

Kg

15,907

56.8

Lbs.



DROP HEIGHT CALCULATION (FOR SPECIFIC GRAVITIES EXCEEDING 1.2)								
Calculation For Product Specific Gravities Exceeding 1.2								
Product Specific Gravity (PSG) x Packing Group Multiplication Factor (MF)								
PSG	x	MF		Pac	king Group: <u>II</u>			
1.5	х	1.00		Required Drop Height	Actual Drop Height			
		1.50	Meter	59.1 Inches	60 Inches			

STACKING TEST MINIMUM LOAD CALCULATIONS											
Number of Packages in a 3m High Stack (118 / Overall Pkg Height (OH) -1)											
118 / Overall Height of one Pkg (OH) - 1											
(118	. /	OH)	-1	=	# 3m HS						
118	/	11.75	-1	=	9.0						
Stacking Test Load Calculation (Individual Package)											
Authorized Pkg Gross Mass (APGM) x # of Pkg in a 3m High Stack (# 3m HS)											
APG	M x	# 3m HS	-								
25.8	Х	9.0									
		232.2	2 Kg	511.	9 Lbs.						

Stacking Test Load Calculation										
Samples x Authorized Pkg Gross Mass (APGM) x # of Pkg in a 3m High Stack (# 3m HS)										
	Samples	Х	(APGM	Х	# 3m HS)					
	3	x	25.8	х	9.0					
			696.6 Kg		1,535.7 Lbs.					