

U. S. DEPARTMENT OF TRANSPORTATION

Performance Oriented Package Test Report

File # U-4220-07 Date: 08/10/07

SECTION I CERTIFICATION

Tested by:

gh Package & Product Testing
& Consulting of Arizona, Inc.
335 W. Melinda Lane
Phoenix, AZ 85027
623.869.8008

Tested for:

PurePak Technology Corp.
324 South Bracken Lane, Suite 3
Chandler, AZ 85224
Attn: Mike Dodd
480.926.0022

Design Qualification Testing
4G Combination Package (Two Closure Schemes)
Inner Packagings: Six 2.5 Liter Bottles
Testing Date(s): 06/18/07 – 08/10/07



4G/Y28.8/S/**
USA/+BV1158

***year of manufacture*

Certified for Shipments via Air⁽¹⁾ and Surface Modes

Use of packaging methods or package components other than those documented in this report may invalidate this certification. The shipper is required to insure this packaging design is used in accordance with all requirements of the national & international regulations governing the intended mode(s) of transport (49CFR, ICAO/IATA, IMO/IMDG, et.al.).

⁽¹⁾ Reference: 49CFR (§172.101, §173.24(i) & §173.27(f)) & ICAO/IATA may limit the quantities allowed in inner/outer packagings and/or prohibit shipments via aircraft.

A handwritten signature in cursive script that reads "Frank Reyes".

Mr. Frank Reyes (Certifying Official)
gh Package & Product Testing
and Consulting of Arizona, Inc.

SECTION II DESCRIPTION

This 4G Combination Package design was tested at the PG II performance levels for surface and air shipments of compatible hazardous materials with a specific gravity of 1.9 or less. Use of this packaging design for a commodity other than that for which it was tested will be at the discretion of the shipper. Design consists of two packaging schemes. Both schemes utilize the same inner and outer packagings (6 bottles in a fiberboard box). Scheme A: Bottoms and tops of the outer packaging are taped. Scheme B: Bottoms are glued and tops are taped. The following tables describe the components of the package design.

Exterior Container Schemes A & B – UN 4G (See section V for applicable drawings)

| | |
|---|---|
| Box style | Corrugated White RSC |
| Manufacturer | Cactus Container, Phoenix, AZ |
| Drawing Nr | 6x2.5L BOTTLE RESHIPPER CARTON |
| Number of walls – flute type | Doublewall C/B Flutes |
| BMC: ECT/Mullen | 275# Mullen |
| Dimension (OD) LxWxH | 36.2 x 23.5 x 31.8 cm (14 ¹ / ₄ " x 9 ¹ / ₄ " x 12 ¹ / ₂ ") |
| Dimension (ID) LxWxH | 35.2 x 22.5 x 30.5 cm (13 ⁷ / ₈ " x 8 ⁷ / ₈ " x 12") Actual |
| Mass (wt) | 575g = 1.27 lbs = 0.58 kgs |
| Stacking height | 12 ¹ / ₂ " |
| Method of joining panels | Glued MFJ |
| Mfr's joint - Flap size | 1 ¹ / ₄ " |
| Mfr's joint - Location | 2,5 vert edge (ASTM scheme) |
| Top flap inner gap/meet | 4 ⁵ / ₈ " |
| Top flap outer overlap/meet | 0 |
| Bottom flap inner gap/meet | 4 ⁵ / ₈ " |
| Bottom flap outer overlap/meet | 0 |
| Handles: | N/A |
| Closure method/material Scheme A: | Top and Bottom: 2" clear poly self-adhesive tape extended 3" beyond the long center seam of the box. |
| Closure method/material Scheme B: | Top: 2" clear poly self-adhesive tape (Scotch 3850 Series) extended 3" beyond the long center seam of the box. Bottom: Use hot melt glue – Eight 3" strips on each inner panel. |

Material Analysis - Box

Standards: • T.A.P.P.I. Method T- 410; " Grammage of Paper and Paperboard".
 • T.A.P.P.I. Method T- 411; " Thickness of Paper and Paperboard".

| Box | Basis Weight (lbs/MSF) | Combined Board Caliper | Actual Mullen |
|---------------|------------------------|------------------------|---------------|
| Inside Facing | 41.67 | 0.2670" | 285# |
| Middle Facing | 27.78 | | |
| Outer Facing | 41.67 | | |
| Flute: C | 23.59 | | |
| Flute: B | 24.42 | | |

Inner Packaging 6 required for each Scheme(See section V for applicable drawings)

| | |
|--------------------------------------|--|
| Type, Grade, & style | 2.5 L Square Bottle |
| Manufacturer | PurePak Technology Corp, Chandler, AZ |
| Material | PPQ Resin, Natural |
| Specification or Part Nbr | 2.5 Liter Dodd Bottle |
| Method of Construction | Blow Molded |
| Bottom Thickness – Min/Max/Avg | 0.0420"/0.1050"/0.0735" |
| Sides Thickness – Min/Max/Avg | 0.0560"/0.1170"/0.0865" |
| Neck Finish size | 45mm |
| Thread style | Buttress |
| Thread pitch | 6 tpi |
| T's & E's | T: 1.7640" E: 1.6350" |
| Neck Opening | 1.1595" |
| Dimensions | 11 ¹ / ₂ " x 4 ¹ / ₂ " x 4 ¹ / ₂ " |
| Capacity (Nominal) (98% of Overflow) | 2.377 L |
| Capacity (Maximum/Overflow) | 2.425 L (0.64)gal x 6 = 3.84gal |
| Mass (total weight) | 211g x 6 = 1266g = 2.79 lbs = 1.27 kgs |
| Handle(s) mat'l type, nbr & position | Molded in Pinch Handle |
| Closure Equipment | Cap with Liner |
| Closure Methods. | Hand Torque to 35 inch lbs. on a torque meter for testing purposes only. |

Inner Closure 6 required for each Scheme (See section V for applicable drawing)

| | |
|--------------------------------|--|
| Type, Grade, & style | Tamper Evident – 45 mm -Red ribbed threaded cap |
| Manufacturer | PurePak Technology Corp, Chandler, AZ |
| Specification or Part Nbr | Menshen |
| Material | Polypropylene |
| Dimensions including the skirt | 1.1830" x 2.0080" dia |
| Thickness – Min/ Max/Average | 0.0055"/0.152"/0.103" |
| Thread style | Buttress |
| Thread pitch | 6 tpi |
| T's & E's | T 1.8025" E 1.6915" |
| Mass (total weight) | 12g x 6 = 72g = 0.16 lbs = 0.07 kgs |
| Liner type | Friction Applied |
| Liner Material | 0.0085" thick TFE-Teflon |
| Method of Closure | Hand Torque to 35 inch lbs. on a torque meter for testing purposes only. |

SECTION III: TESTING

TEST DESCRIPTIONS AND RESULTS

Laboratory Conditions: Ambient.

The samples were filled to a minimum of 98% full and prepared as for shipment prior to testing. The following gh Package & Product Testing and Consulting of AZ, Inc. personnel were present during testing:

- Frank Reyes
- Joshua M. Paul, Laboratory Technician

The following tables describe testing/conditions/results

Test Specimen Characteristics (Schemes A & B)

| | |
|----------------------------|----------------------------|
| Specific Gravity: | 1.9 |
| State: | liquid |
| Dummy Load | Glycol/sand slurry mixture |
| Gross Weight Schemes A & B | 63.51 lbs (28.80 kgs) |

Drop Test – (Schemes A & B)

Test Method: 49 CFR 178.603

Number of Packages Tested – 10 (5 for each scheme)

The samples were conditioned in accordance with 49 CFR 178.603(c). The temperature was reduced to 0°F prior to tests. The contents consisted of Glycol/sand slurry mixture.

Drop Height – 1.2 meters (See Section IV for calculations.)

Results

| Box | Package Weight | Orientation | Result |
|-----|-----------------------|--------------------|--------------------------|
| 1A | 63.51 lbs (28.80 kgs) | Flat on Top | Pass – No damage |
| 2A | 63.51 lbs (28.80 kgs) | Flat on Short Side | Pass – No damage |
| 3A | 63.51 lbs (28.80 kgs) | Flat on Bottom | Pass – No damage |
| 4A | 63.51 lbs (28.80 kgs) | Flat on Long Side | Pass – No damage |
| 5A | 63.51 lbs (28.80 kgs) | Bottom Corner | Pass – Corner deflection |
| 1B | 63.51 lbs (28.80 kgs) | Flat on Top | Pass – No damage |
| 2B | 63.51 lbs (28.80 kgs) | Flat on Short Side | Pass – No damage |
| 3B | 63.51 lbs (28.80 kgs) | Flat on Bottom | Pass – No damage |
| 4B | 63.51 lbs (28.80 kgs) | Flat on Long Side | Pass – No damage |
| 5B | 63.51 lbs (28.80 kgs) | Bottom Corner | Pass – Corner deflection |

Pass/Fail Criteria -

A package is considered to successfully pass the drop tests if for each sample tested: There is no damage to the outer packaging likely to adversely affect safety during transport, there is no leakage of the filling substance from the inner packaging and any discharge from a closure is slight and ceases immediately after impact.

Stacking Test (Schemes A & B)

Test Method: 49 CFR 178.606

Number of Packages Tested – 6 (3 for each scheme)

Lab weights were applied to the tops of the packages using platens (load spreaders) as specified by 178.606(c). (24-hour – free standing)

See Section IV for calculations (weight difference between the two schemes insignificant)

Results:

| Box | Required Load | Applied Load | Results |
|------------|-------------------------|----------------------|----------------|
| 1A | 546.66 lbs (247.97 kgs) | 600 lbs (272.11 kgs) | Passed |
| 2A | 546.66 lbs (247.97 kgs) | 600 lbs (272.11 kgs) | Passed |
| 3A | 546.66 lbs (247.97 kgs) | 600 lbs (272.11 kgs) | Passed |
| 1B | 546.66 lbs (247.97 kgs) | 600 lbs (272.11 kgs) | Passed |
| 2B | 546.66 lbs (247.97 kgs) | 600 lbs (272.11 kgs) | Passed |
| 3B | 546.66 lbs (247.97 kgs) | 600 lbs (272.11 kgs) | Passed |

Note: Stacking stability was not assessed since a guided load test was not performed.

Pass/Fail Criteria

No test sample may leak. There must be no leakage of the filling substance from the inner receptacle, or inner packaging. No test sample may show any deterioration that could adversely affect transportation safety or any distortion likely to reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation. The containers must maintain the load without significant deflection.

Vibration Standard (Schemes A & B)

Test Method: 49 CFR 178.608

Packages Tested – 6 (3 for each scheme).

The packages were placed on a rotary vibration table for one hour with an input of 1.1g @ 4Hertz. Package/vibration table separation was obtained at 246.7 CPM (RPM)

Results

| | |
|------------|-----------|
| Package 1A | No damage |
| Package 2A | No damage |
| Package 3A | No damage |
| Package 1B | No damage |
| Package 2B | No damage |
| Package 3B | No damage |

Pass/Fail Criteria -

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

Water Resistance:

Test Method): ISO Standard 535 as required by 49CFR 178.514 (b)(1)

Samples Tested: 5. The specimens were conditioned in accordance to 50% RH +/- 2% at 73°F for 24 hours prior to material analysis and Cobb testing.

Results

| Sample | #1 | #2 | #3 | #4 | #5 | Average | Passed |
|------------------|-----|-----|-----|-----|-----|---------|--------|
| g/m ² | 110 | 120 | 110 | 115 | 110 | 113 | Y |

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 absorption.

Pressure Test

Test Method: 49 CFR 173.27(c)

Note: Customer Requested: 300 kPa

Packages Tested – 3 (identical bottles used in both schemes)

The containers were subjected to hydraulic pressure for 30 minutes.

See section IV for calculations.

Results:

| Sample | Required Pressure | Applied Load Customer Requested | Results |
|--------|---------------------|------------------------------------|---------|
| 1 | 100 kPa (15 p.s.i.) | 300 kPa (45 p.s.i.) | Passed |
| 2 | 100 kPa (15 p.s.i.) | 300 kPa (45 p.s.i.) | Passed |
| 3 | 100 kPa (15 p.s.i.) | 300 kPa (45 p.s.i.) | Passed |

Pass/Fail Criteria:

No test sample may leak while undergoing the test.

SECTION IV

CALCULATIONS

Package Gross Weight

| Schemes A& B | | |
|--------------------------|--------------|--------------|
| Components | lbs | kgs |
| Box | 1.27 | 0.58 |
| Inner Receptacles | 2.79 | 1.27 |
| Inner Closures | 0.16 | 0.07 |
| Total Tare Weight | 4.22 | 1.91 |
| Lading Weight | 59.29 | 26.89 |
| Gross Weight | 63.51 | 28.80 |
| Marked Weight | 28.8 | |

Formula based on a maximum weight of 2.425 L Overflow Capacity

Lading Weight = max vol x .98 x 8.3 x SG

$$= 3.84 \times .98 \times 8.3 \times 1.9 = 59.29 \text{ lbs (26.89 kgs)}$$

$$3.84 \text{ gal} \times .98 = 3.76 \text{ gal.} \times 8.3 = 31.2 \text{ lbs.} \times 1.9 = 59.29 \text{ lbs. (26.89 kg.)}$$

Drop Test Height (Schemes A & B)

Dummy Load: Ethylene Glycol-Sand Slurry

Specific Gravity of Certification 1.9

Packing Group of Certification II

Drop Test Height 48" (3.9 ft.) (1.2m)

Stack Test (Schemes A & B) (

| STACK TEST FORMULA | | | |
|--|---------------|------------|--------------------------|
| LOAD = (N - 1) x [W + (S x V x 8.3 x .98)] | | | |
| REPORT # | U-4220-07 | | |
| H (in) = | 12.50 | | |
| W (lbs) = | 4.22 | | |
| S (sg) = | 1.90 | | |
| V (gal) = | 3.840 | | |
| REQD LOAD: | 546.66 | LBS | 247.97 KGS |
| APPLIED: | 600.00 | LBS | 272.11 KGS |
| <p>H = HEIGHT OF OUTER CONTAINER IN INCHES N - 1 = 120" DIVIDED BY BOX HEIGHT MINUS ONE BOX W = TARE WEIGHT OF PACKAGE IN LBS S = SPECIFIC GRAVITY (SG) OF LADING V = TOTAL VOLUME OF ALL INNER CONTAINER(S) IN GALLONS 8.3 = WEIGHT OF ONE GALLON OF WATER .98 = 98% OF THE TOTAL VOLUME</p> | | | |

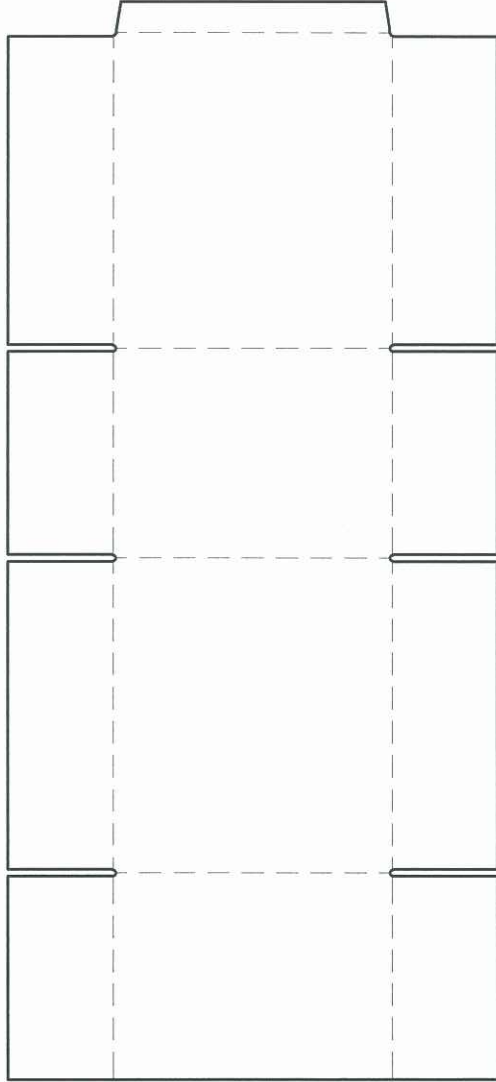
SECTION V DRAWINGS

The following drawings and sketches apply to this report:

Exterior Container

Inner Receptacles

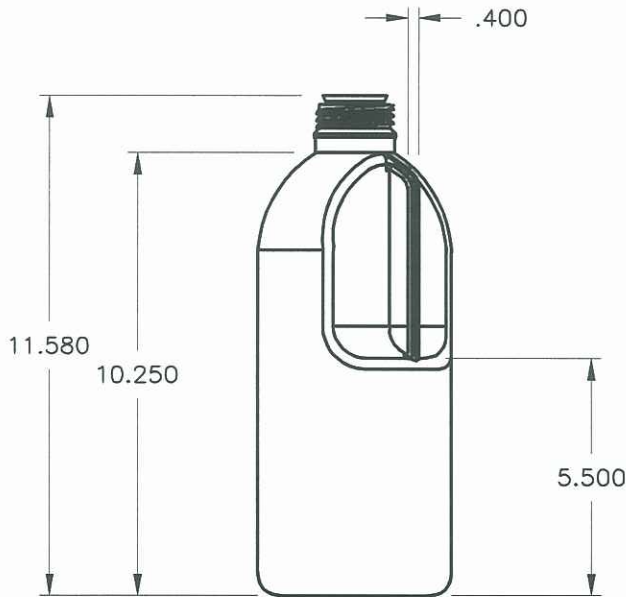
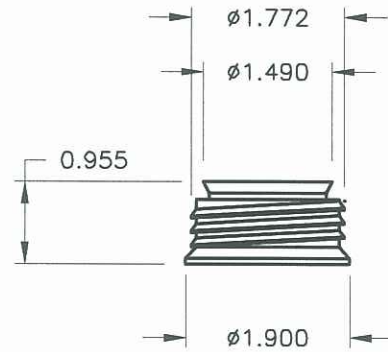
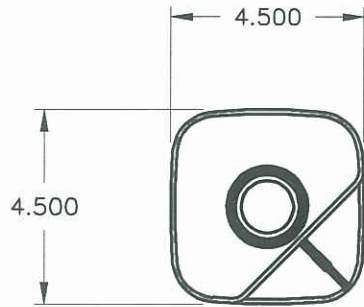
Inner Receptacle Closures



13 5/8 W X 9 D X 11 3/4 H
INSIDE DIMENSIONS

| | | | |
|---|------|---|----------|
| PurePak Technology Corporation 324 South Bracken Lane, Suite 3, Chandler, AZ 85224 | | DESCRIPTION: 6 X 2.5L BOTTLE RESHIPPER CARTON | |
| ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED: DECIMALS: X.XX ±.010 ANGLES: X.X ±.500° X.XXX ±.005 X.XXXX ±.002 | | APPRD. _____ SCALE: 1:8 DRAWN BY: MSR SHEET 1 OF 1 DATE: 7/7/07 | |
| REV | DATE | DESCRIPTION | APPROVAL |
| THIS DRAWING AND THE INFORMATION CONTAINED THERE IN IS THE SOLE PROPERTY OF PUREPAK TECH. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF PUREPAK TECH. IS PROHIBITED. | | | |

| REV | DATE | DESCRIPTION |
|-----|------|-------------|
|-----|------|-------------|



NOTES:

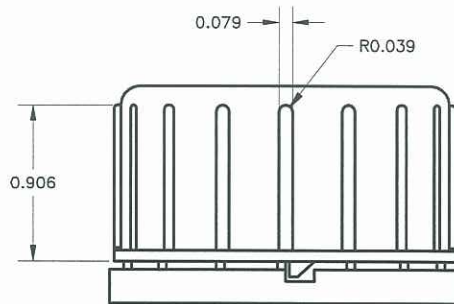
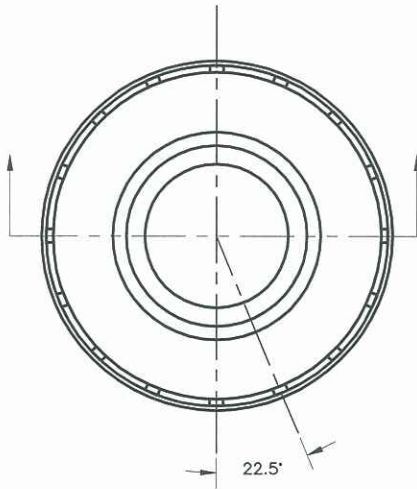
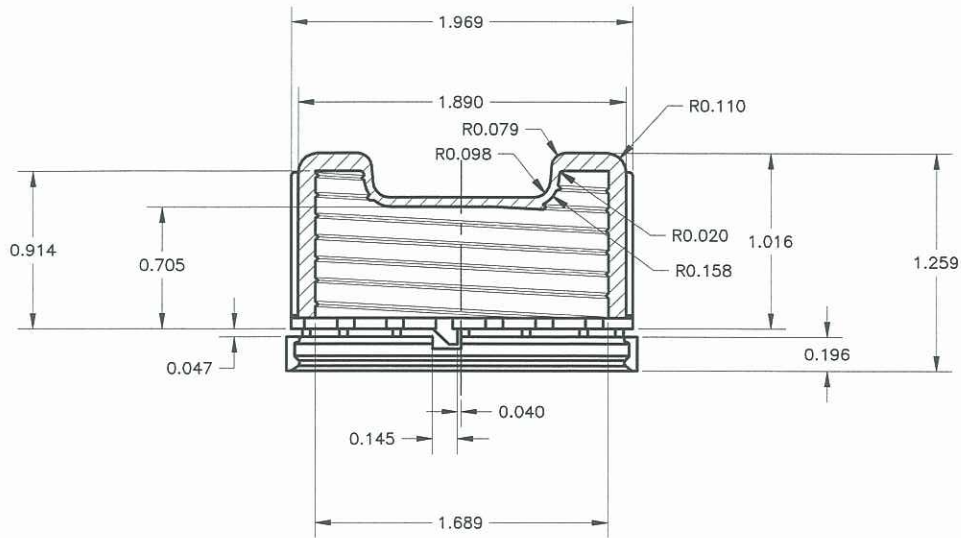
1. CONTAINER WEIGHT: 208 GRAMS
2. MATERIAL: PPQ RESIN, NATURAL
3. OVERFLOW CAPACITY: 2.5 L
4. NECK FINISH: 45mm

| | | | | | |
|--|--------------|---|------------|---|---------------|
| THIS DRAWING AND THE INFORMATION CONTAINED THERE IN IS THE SOLE PROPERTY OF PUREPAK TECH. ANY REPRODUCTION IN PART OR WHOLE WITHOUT THE WRITTEN PERMISSION OF PUREPAK TECH. IS PROHIBITED. | REVISION | PurePak Technology Corporation 324 South Bracken Lane, Suite 3, Chandler, AZ 85224 | | | |
| | REV. _____ | | | ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED: DECIMALS: X.XX ±.010 ANGLES: X.X ±.500° X.XXX ±.005 X.XXXX ±.002 | |
| | DATE: _____ | DESCRIPTION: | | | |
| | APPRD. _____ | 2.5 L DODD BOTTLE | | | |
| SHEET 1 OF 1 | | APPRD. _____ | SCALE: 1:4 | DRAWN BY: MSR | DATE: 7/24/07 |

REV

DATE

DESCRIPTION



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REVISION

REV. _____

DATE: _____

APPRD. _____

PurePak Technology Corporation

324 South Bracken Lane, Suite 3, Chandler, AZ 85224

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED:

DECIMALS: X.XX ±.010
X.XXX ±.005
X.XXXX ±.002

ANGLES: X.X ±.500'

DESCRIPTION:

MENSHEN 45mm CLOSURE,
TAMPER EVIDENT

APPRD.

SHEET 1 OF 1

SCALE: 1:4

DRAWN BY: MSR

DATE: 7/24/07

APPENDIX A – TEST EQUIPMENT AND INSTRUMENTATION

Compression Machine: 120,000 lb: Tinius Olsen s/n 89611; recorder: DC-12-SIC s/n M9410202 Cal: 05/07. or Dead Load Weights.

Vibration Table 250 lb. (Oscillatory): Gaynes Engineering V250s/n G17680-3. System Cal: 05/07.

Vibration Table 4,000 lb. (Oscillatory): LAB– 4000-SVML s/n 813024. System Cal: 05/07

Vibration Table 4,000 lb. (Random): Zonic/Dactron: – 306875 s/n: 794435 System Cal: 05/07.

Large Item Drop Test: ASTM Electric Quick release: LAB model 30ER. S/n: G-20940-3

Scale: Pelouze model 4040. Cal: 05/07

Dual Leaf Drop Tester - 125 lb.: Gaynes m/n: 104 s/n 4585. Cal: None required.

Drop Tester - 200 lb.: Mrad Swing Arm pneumatic. None required.

Impact Shock Tester: 1,000 lb. MTS Dual Programmable. Model: 846-361. s/n: 922-55 use with Test Partner System for data acquisition.

Environmental Chamber #1: Cold Temperature. Master-Built Products. s/n MBA10346-5. Controller: Johnson Controls. Model #: A19ABC-24. s/n: LR948 Cal: 4-19-04. Monitoring: Cooper thermo-hygrometer. Model: TM99A. s/n: QC-4 Cal: 05/07

Environmental Chamber #2: Heat and Humidity: Crown Fixtures Inc. Custom made model 80. Temperature Controller: Honeywell. Model #: s/n Cal: 4/19/04 Monitoring: Extech Thermo-Hygrometer. Model #: 44701. s/n: 23214 Cal: 05/07

Environmental Chamber #3: Freezer–General Electric Chest style. Omega Thermocouple readout.. Cal: 05/07.

Environmental Chamber #4: Rain spray chamber – Per ASTM D951 specification with choke valves to control spray amount per hour. Custom made and designed. model: gh-001. s/n ghtestaz-001. Self-calibrating with rain gauge.

COBB Tester: (TMI with distilled water); Timer: Radio Shack m/n: 63-897 Cal: 05/07

HPT Tester: WIKA (gauge) Press. +/- 60 PSI m/n: 9699117 Cal: 05/07

Tester Incline Impact (made): custom Advanced Machinery. s/n: gh001;

Velocimeter-m/n: VS2200 s/n 082787-1 Cal: 05/07.

Caliper (Digital): Mitutoyo Corp. Model: CD-6”B. s/n: 0010699 Cal: 05/07

Mullen Tester: B.F. Perkin & Sons Burst Strength Tester s/n: 15138 Wika Gauge Cal: 05/07

Scale (bench): AND brand electronic. Model: HL-2000 Cal: 05/07

Scale (bench): Ohaus triple beam balance. Cal: 05/07

Recorder: Shock Lansmont m/n: Test Partner II s/n: version 2.27;

Amplifier: PCB m/n: 482A17 s/n 393 Cal: 05/07;

Accelerometer: PCB m/n: 356A22 s/n 16278 Cal: 11-19-06.

Tensile/Compression/ECT Machine: Chatillon ET-1100. s/n: 03292 Cal: 05/07

Torque Tester (Spring): Secure Pak 0-50 in./lbs s/n 50-3635MRA Cal: 05/07

Vacuum Chamber: Fast Vac. Model DV-85. Reptech (gauge) Pressure/ vacuum +/- 30 PSI Cal: 05/07

Updated 4-18-05 by SRR. Please notify Manager if item is to be added or removed from above list.

APPENDIX B – Understanding and Disclaimer Notice

This notice advises package manufacturers and package users regarding the use of United Nations Approved Certification Packs.

A “pack” as used herein, means the specific package or container submitted to gh Package & Product Testing and Consulting of Arizona, Inc. for testing and UN certification that the package or container meets the requirements of the Code of Federal Regulations, Title 49, §100 through §180. A pack, therefore, has specific components, including the package in which the containers are arranged for shipping, the containers, the contents of the containers, and all internal packaging elements designed to prevent the containers from moving and/or damage. Each component has unique specifications and characteristics, including, but not limited to, the material, shape, and weight of the package and containers and the internal packaging elements, and the material, specific gravity/density, shape, etc. of the contents of each container.

Herein, the use of singular means plural and the use of plural means singular.

Each pack type (complete individual specification pack) when successfully tested pursuant to the appropriate regulations (Code of Federal Regulations, Title 49, IATA/ICAO, IMDG) is assigned a certification number specifically for the submitted pack. This number represents the report that references the tested pack’s specifications and the characteristics of the hazardous material (i.e. specific gravity, particle size) to be placed in the package. gh Testing disclaims any and all responsibility for any substitutions and/or changes in the package or each component thereof, and for any and all variations of use of the package and its contents made by any user/client/customer/other party from the package and its components and contents as tested by gh Testing. The regulations require that design type qualification testing be performed on “identical” and “virtually identical” packs. gh Testing shall not be responsible for any use of variations not tested by gh Testing.

The original tests are based on submitted pack/specifications of submitted packs. It is the shipper’s responsibility to ensure that the packs have the same liner board combinations as the pack that was tested and that each pack shipped is capable of meeting the Cobb Test, Drop Test, Hydraulic Pressure Test, Leakproof Test, Stack Test and all other required criteria set forth in the regulations once the pack certification is being used. All inner packs must be the same as those specifications submitted and tested.

Only the materials originally certified are approved for use. If the shipper changes manufacturers, it must ensure that the pack is virtually identical to the pack previously tested. If changes or substitutions become necessary, it is at the discretion of the shipper if a variation applies – gh Testing does not endorse the use of untested variations.

Material Safety Data Sheets (MSDS), submitted pack descriptions, specifications and drawings will be retained by gh Testing. Alterations to the pack invalidate the certification.

It is the shipper’s responsibility to ensure that any combination packs it ships are recertified every two years. Composite and Single packages must be recertified every year.

The responsibility of the container markings, compatibility testing between the hazard and packaging, shipping documentation, packing and closing of the packaging are that of the shipper.

Permitted and prohibited uses of the UN Marking assigned by gh Package & Product Testing and Consulting, Inc.

APPENDIX B – Understanding and Disclaimer Notice

The Certification Number(s) issued by gh Package/Product Testing & Consulting, Inc. ("gh Testing") shall be used only by gh Testing's customer on hazardous packages certified by gh Testing and shall remain applicable only so long as the certification remains current, through the re-certification at gh Testing, and has not expired, or only so long as gh Testing's customer prepares and uses packages prepared for shipment in virtually and substantially identical packages to those tested and listed by gh Testing in this test report and certification.

Any use of Certification Number(s) issued by gh Testing in this report by its customer which is inconsistent with such permitted use (such as, and including where any part of the package is changed according to CFR 49, subtitle B, Chapter 1, Subchapter C, Parts 171-180) or by persons or entities who are not gh Testing's customer for whom this report and certification were made, whether in a recertification or otherwise, is strictly prohibited, and gh Testing, for itself, its successors, officers, shareholders, directors, and all others acting on its behalf, hereby disclaims any and all liability for claims, causes of action, damages and demands of whatsoever nature arising directly or indirectly out of or in any way based upon any such prohibited use. The certification Number(s) issued by gh Testing in this report shall expire and terminate immediately whereas and if a prohibited use occurs.

All reasonable efforts will have been exercised to provide accurate data from resultant tests or consultation. Test methods utilized and followed in conducting various tests involve standards established by ASTM, TAPPI, DOT, IATA/ICAO, Federal Spec., Mil-Spec., ISTA, as well as private company test standards and procedures. gh Testing assumes no responsibility for nor does it guarantee or warrant any specifically expressed or implied performance and only assumes responsibility for the test data presented by it as derived from specifications, drawings, and information submitted to it for testing. Responsibilities involving alterations and/or changes to the packages and/or product beyond item(s) originally tested are those solely of the user/supplier/client, of which, gh testing assumes no responsibility.

gh Testing will hold submitted material for a period of one (1) week after testing is completed (unless otherwise instructed by the client). After this time, gh Testing may dispose of the material or equipment to its discretion or a storage charge at a rate of \$3.25 per square foot per month will be charged.

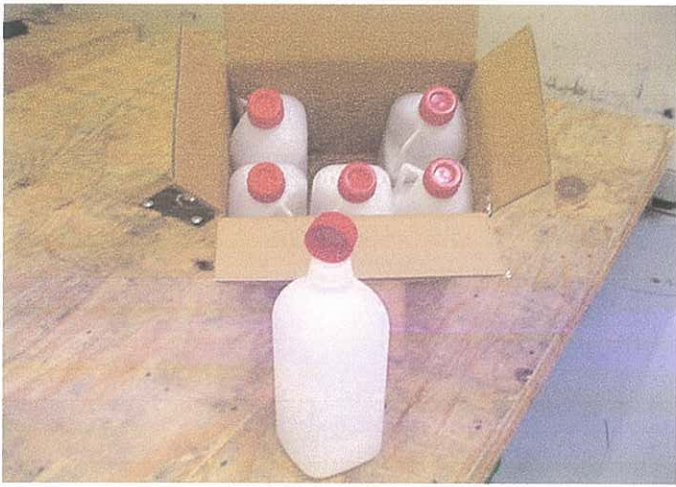
gh Testing shall not be liable for any incomplete, inaccurate, misrepresented, or inadequate specifications, drawings, details, or other information pertinent to the proper testing and description of the pack or contents. Should lack of such information supplied to gh Testing

give cause to penalty, gh Testing may seek financial reimbursement for any fines, legal fees, and lost billing and the undersigned shall indemnify gh Testing for all such fines and costs.

The completed testing above was in compliance with the customer requested test(s) and requirements. All reference and data logging materials used in the above testing are traceable to NIST. The testing performed above was performed at gh Package & Product Testing and Consulting of Arizona, Inc., in Phoenix Arizona. This test report cannot be reproduced, except in full, without written permission from gh Package & Product Testing and Consulting of Arizona, Inc. If the measurement uncertainty calculations are listed in the report, the measurement uncertainties represent an expanded uncertainties expressed at approximately 95% confidence level using a coverage factor of K=2.

Test Criteria and Understanding

All reasonable efforts have been exercised to provide accurate data from resultant tests or consultation. Test methods utilized and followed in conducting various tests involve standards established by A.S.T.M., T.A.P.P.I., D.O.T., Federal Spec. and Mil-Spec., I.S.T.A. as well as private company test standards and procedures. gh Testing assumes no responsibility or guarantees/warranties regarding (specifically stated or implied) performance and only assumes responsibility for the test data presented by it. Responsibilities involving alterations and/or changes to the packages and/or product beyond item(s) originally tested are those of the user/supplier/client, of which, gh testing assumes no responsibility.



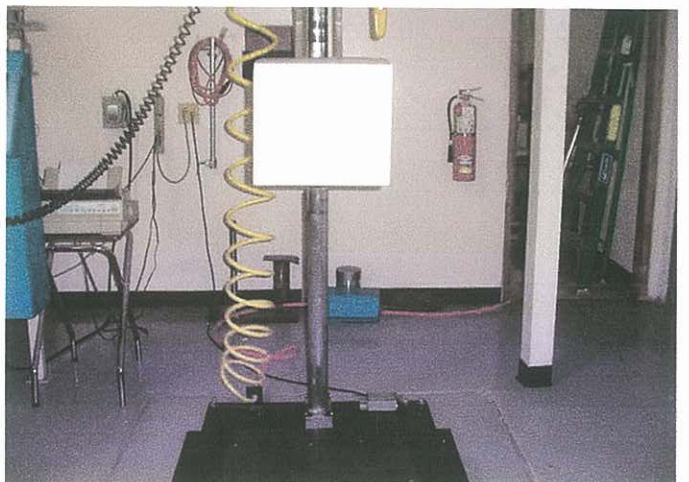
Tested Package Configuration



Vibration Test



Stack Test



Drop Test



Hydrostatic Test



Water Absorption (Cobb Method)