

# 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<sup>(1)</sup> 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.).*

*<sup>(1)</sup> 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 <sup>1</sup> / <sub>4</sub> " x 9 <sup>1</sup> / <sub>4</sub> " x 12 <sup>1</sup> / <sub>2</sub> " )
Dimension (ID) LxWxH	35.2 x 22.5 x 30.5 cm (13 <sup>7</sup> / <sub>8</sub> " x 8 <sup>7</sup> / <sub>8</sub> " x 12") Actual
Mass (wt)	575g = 1.27 lbs = 0.58 kgs
Stacking height	12 <sup>1</sup> / <sub>2</sub> "
Method of joining panels	Glued MFJ
Mfr's joint - Flap size	1 <sup>1</sup> / <sub>4</sub> "
Mfr's joint - Location	2,5 vert edge (ASTM scheme)
Top flap inner gap/meet	4 <sup>5</sup> / <sub>8</sub> "
Top flap outer overlap/meet	0
Bottom flap inner gap/meet	4 <sup>5</sup> / <sub>8</sub> "
Bottom flap outer overlap/meet	0
Handles:	N/A
Closure method/material <b>Scheme A:</b>	Top and Bottom: 2" clear poly self-adhesive tape extended 3" beyond the long center seam of the box.
Closure method/material <b>Scheme B:</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 <sup>1</sup> / <sub>2</sub> " x 4 <sup>1</sup> / <sub>2</sub> " x 4 <sup>1</sup> / <sub>2</sub> "
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.