

# Viking Packing Specialist

5505 Bird Creek Ave. • Tulsa, OK 74015  
And/or 1828 North 105<sup>th</sup> East Avenue • Tulsa, OK 74116  
Phone: (800) 788-8525 • Fax: (918) 252-5518

## UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

**Test Document No.:** VPS-K-006-24  
**Requested by:** Viking Packing Specialist  
**Performed by:** Viking Packing Specialist  
**Manufactured by:** Viking Packing Specialist  
**Date:** 2/15/2024  
**Retest Date:** 2/13/2026

### 1. Product Tested:

Packaging Nomenclature: Combination Packaging  
Outer Package: 4G Corrugated Box (see Appendix A)  
Dimensions: 11" x 11" x 14" (I.D.)  
Inner Package: See appendix B for approved inners  
Maximum gross wt. (kg): 10 kg  
Viking Part No.: VPS-K-006

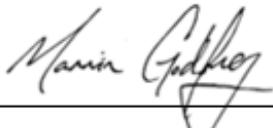
### 2. Object of Test:


Determine performance of package design according to PASS/FAIL criteria set forth by the United States Code of Federal Regulations Title 49 sections 178.603, 178.606 and 178.608 to Packing Group I standards. This package was also tested in accordance with 178.601 (Variation 2).

### 3. Tests Performed:

TEST	SPEC	INTENSITY	RESULTS
Drop	49 CFR 178.603	1.8 m	PASS
Stacking	49 CFR 178.606	160 kg	PASS
Vibration	49 CFR 178.608	1 Hour	PASS

Viking Packing Specialist certifies that samples of the package described in this report were tested as described above and met all testing requirements. This package is also certified under IMDG, ICAO, IATA and the UN Recommendations on the Transport of Dangerous Goods. It is the responsibility of the end user to determine authorization of use under these regulations. The use of other packaging methods or components other than those documented in this report may render this certification invalid

Certified By:   
DG Testing Manager  
Marvin Godfrey

Approved By:   
President  
David Weilert

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### TEST METHODS & RESULTS

The packages were conditioned at 23° C ( $\pm 2^\circ$  C) and 50% ( $\pm 2\%$ ) RH for 24 hours immediately prior to testing, per 49 CFR 178.602(d)(1).

#### 1. DROP TEST- 49 CFR 178.603 (178.601 (2))

Five (5) filled packages, closed as for shipment, were subjected to a free fall drop from 1.8 meters (5.9 feet) as required.

Containers	Point of Impact	Result
#1	Flat onto the bottom panel	PASS
#2	Flat onto the top panel	PASS
#3	Flat onto the long side panel	PASS
#4	Flat onto the short side panel	PASS
#5	Onto a corner	PASS

#### 2. STACKING TEST- 49 CFR 178.606 (178.601 (2))

Three (3) filled containers were closed as for shipment and subjected to a static compression load of 160 kg, equivalent to a 3-meter-high stack of identical packages, continuously for 24 hours.

Containers	Actual Load	Result
#1	160 kg	PASS
#2	160 kg	PASS
#3	160 kg	PASS

#### 3. VIBRATION STANDARD- 49 CFR 178.608

Three (3) filled samples, closed as for shipment, were placed on a vibration platform having 25.4 mm peak-to-peak displacement and vibrated in normal shipping orientation for one (1) hour such that a 1.6 mm thick piece of material could be passed between the bottom of the samples and the platform. Immediately thereafter, the packages were removed from the platform, turned over and examined for leakage.

Containers	Vibration	Result
#1	1 HOUR	PASS
#2	1 HOUR	PASS
#3	1 HOUR	PASS

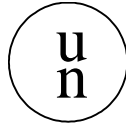
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**4. Packaging tested, certified, and provided by Viking Packing Specialist bear the marking:**



4GV/X10/S/\*\*

USA/M4563

\*\*Denotes two-digit year of manufacture

**\*\*\*THIS BOX IS DUAL SPEC MARKED, SEE VPS-F-006 FOR OTHER MARK\*\*\***

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**See appendices for additional information regarding this report. Information is included as follows.**

- Appendix A – Specific outer package detail.
- Appendix B – Inner and supplementary packaging/configurations tested in this outer package.
- Appendix C – Packing/Closure Instructions.
- Appendix D – Testing Photographs.

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## Appendix A – Outer Package Detail

Designated Packaging Code:	4G
Dimensions:	11" x 11" x 14" I.D.
Board Combination:	42 lb. liner 23 lb. medium (double wall)
Seam:	Stitched
Bursting Strength:	275 lb double wall
Marked max. gross wt. (kg):	10 kg
Maximum net wt. (kg)	9.465 kg
Closure:	3" hot-melt tape. Mfg.: Shurtape. Mfg. P/N: HP-200.

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## Appendix B – Inner Package Detail

**Variation 2.** Articles or inner packagings of any type, for solids or liquids, may be assembled and transported without testing in an outer packaging under the following conditions:

- (i) The outer packaging must have been successfully tested in accordance with § 178.603 with fragile (e.g. glass) inner packagings containing liquids at the Packing Group I drop height;
- (ii) The total combined gross mass of inner packagings may not exceed one-half the gross mass of inner packagings used for the drop test;
- (iii) The thickness of cushioning material between inner packagings and between inner packagings and the outside of the packaging may not be reduced below the corresponding thickness in the originally tested packaging; and when a single inner packaging was used in the original test, the thickness of cushioning between inner packagings may not be less than the thickness of cushioning between the outside of the packaging and the inner packaging in the original test. When either fewer or smaller inner packagings are used (as compared to the inner packagings used in the drop test), sufficient additional cushioning material must be used to take up void spaces.
- (iv) The outer packaging must have successfully passed the stacking test set forth in § 178.606 of this subpart when empty, i.e., without either inner packagings or cushioning materials. The total mass of identical packages must be based on the combined mass of inner packagings used for the drop test;
- (v) Inner packagings containing liquids must be completely surrounded with a sufficient quantity of absorbent material to absorb the entire liquid contents of the inner packagings;
- (vi) When the outer packaging is intended to contain inner packagings for liquids and is not leakproof or is intended to contain inner packagings for solids and is not siftproof, a means of containing any liquid or solid contents in the event of leakage must be provided in the form of a leakproof liner, plastic bag, or other equally efficient means of containment. For packagings containing liquids, the absorbent material required in [paragraph \(g\)\(2\)\(v\)](#) of this section must be placed inside as the means of containing liquid contents; and
- (vii) Packagings must be marked in accordance with [§ 178.503 of this part](#) as having been tested to Packing Group I performance for combination packagings. The marked maximum gross mass may not exceed the sum of the mass of the outer packaging plus one half the mass of the filled inner packagings of the tested combination packaging. In addition, the marking required by [§ 178.503\(a\)\(2\) of this part](#) must include the letter “V”.

**See the following for inner packages and supplementary packages tested in this outer package.**

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## **Appendix B – Inner Package Detail (continued)**

The package tested is a combination package with outer packages as listed in this report. The package was tested with the inner packages listed below.

<b>Style</b>	Glass Bottles
<b>Capacity</b>	500 ml
<b>Closure</b>	Screw top lid with tape
<b>Spec. Gravity</b>	1.3
<b>Qty.</b>	2
<b>Net Wt.</b>	4.5 kg/ea.

**Supplemental** Inner packages are placed inside a 5-quart round metal paint-type can with a friction fit lid, and a ring lock safety closure. All void space within the can must be filled with absorbent material. The can is placed inside a 2-mil minimum thickness polybag. The bagged can is placed into a corrugated divider. Bubble wrap or other suitable cushioning material may be substituted when refrigeration is not required.

**NOTE: Additional absorbent material may be required for air transport**

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## **Appendix B – Inner Package Detail (continued)**

The package tested is a combination package with outer packages as listed in this report. The package was tested with the inner packages listed below.

<b>Style</b>	Glass Bottles
<b>Capacity</b>	250 ml
<b>Closure</b>	Screw top lid with tape
<b>Spec. Gravity</b>	1.3
<b>Qty.</b>	4
<b>Net Wt.</b>	2 kg/ea.

**Supplemental** Inner packages are placed inside a 5-quart round metal paint-type can with a friction fit lid, and a ring lock safety closure. All void space within the can must be filled with absorbent material. The can is placed inside a 2-mil minimum thickness polybag. The bagged can is placed into a corrugated divider. Bubble wrap or other suitable cushioning material may be substituted when refrigeration is not required.

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## Appendix B – Inner Package Detail (continued)

The package tested is a combination package with outer packages as listed in this report. The package was tested with the inner packages listed below.

<b>Style</b>	Glass Bottles
<b>Capacity</b>	125 ml
<b>Closure</b>	Screw top lid with tape
<b>Spec. Gravity</b>	1.3
<b>Qty.</b>	8
<b>Net Wt.</b>	1 kg/ea.

**Supplemental** Inner packages are placed inside a 5-quart round metal paint-type can with a friction fit lid, and a ring lock safety closure. All void space within the can must be filled with absorbent material. The can is placed inside a 2-mil minimum thickness polybag. The bagged can is placed into a corrugated divider. Bubble wrap or other suitable cushioning material may be substituted when refrigeration is not required.

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## **Appendix C – Packing/Closure Instructions**

1. Inspect container, and all components for damage. If container is found to be free from damage proceed to step 2. If container is damaged; procure a different container and inspect.
2. Fold bottom flaps of container to meet in the center. Place two strips of tape across the seam where the flaps meet. Place two strips of tape across seam created between the vertical and horizontal sides of the container.
3. Set up and place corrugated sleeve within container.
4. Place each inner packages into 5 quart can and fill all void space with suitable cushioning/absorbent material.
5. Close can with friction fit lid and ring lock safety closure.
6. Place 5 quart can into polybag and absorbent sheet(s) and close bag with hand tied knot.
7. Place bagged can into corrugated sleeve and fold inner flaps of sleeve inward to secure can.
8. Fold top flaps to center of container and double tape all seams as specified in step 2.
9. Ensure gross package weight does not exceed that marked on the package and in this report.

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### Testing Photos

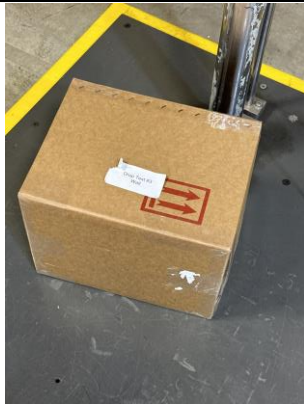
**Bottom Drop**



**Top Drop**



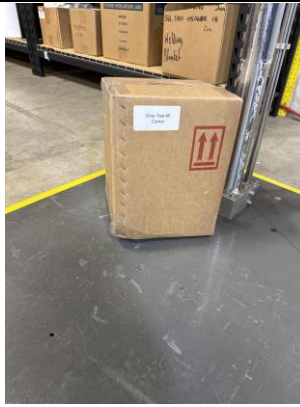
**End Drop**



**Wall Drop**



**Corner Drop**



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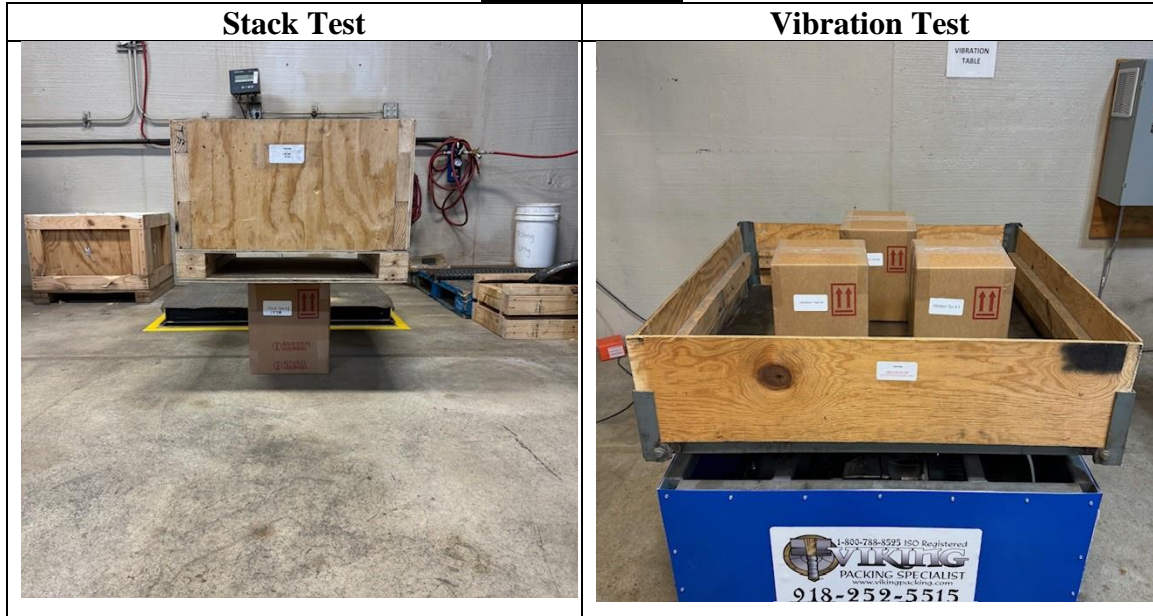
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### Testing Photos



**Stack Test**

**Vibration Test**

Stacking Height = **SH**

Height of Package = **PH**

Number of Packages = ***n***

Max. Gross weight of package = **MGW** (kg)

Stacking Load =  $[(SH/PH) = n - 1] \times MGW$

160 kg =  $[(120/14) \approx 9 - 1] \times 20$  kg

Variation 2\*