

# 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-004EX  
**Requested by:** Viking Packing Specialist  
**Performed by:** Viking Packing Specialist  
**Manufactured by:** Viking Packing Specialist  
**Date:** 11/29/2023  
**Retest Date:** 11/28/2025

### 1. Product Tested:

Packaging Nomenclature: Combination Packaging  
Outer Package: 4G Corrugated Box (see Appendix A)  
Dimensions: 9" x 9" x 12" (I.D.)  
Inner Package: See appendix B for approved inners  
Maximum gross wt. (kg): 13 kg  
Viking Part No.: VPS-K-004EX

### 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.

### 3. Tests Performed:

TEST	SPEC	INTENSITY	RESULTS
Drop	49 CFR 178.603	1.8 m	PASS
Stacking	49 CFR 178.606	117 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

## TEST METHODS & RESULTS

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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

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 the bottom manufacturer's joint corner	PASS

### 2. STACKING TEST- 49 CFR 178.606

Three (3) filled containers were closed as for shipment and subjected to a static compression load of 117 kg, equivalent to a 3-meter-high stack of identical packages, continuously for 24 hours.

Containers	Actual Load	Result
#1	117 kg	PASS
#2	117 kg	PASS
#3	117 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

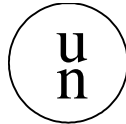
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4. Packaging tested, certified, and provided by Viking Packing Specialist bear the marking:



4G/X13/S/\*\*

USA/M4563

\*\*Denotes two-digit year of manufacture

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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.

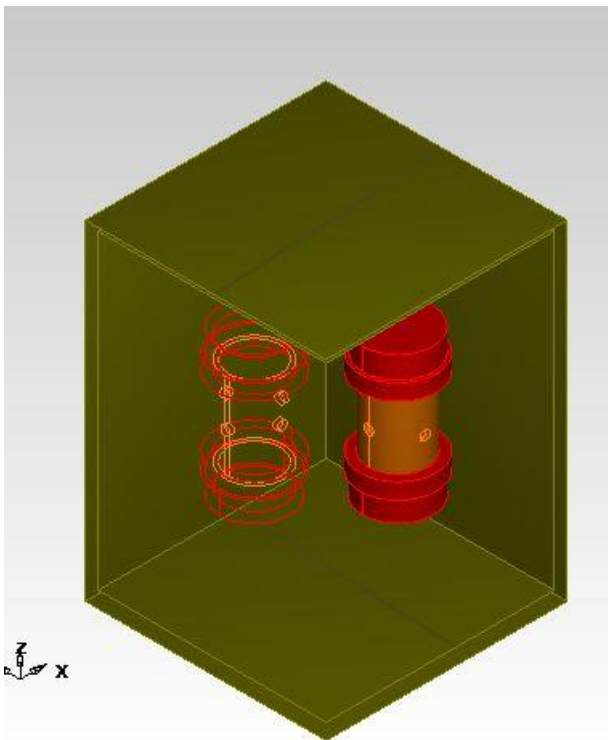
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### Appendix A – Outer Package Detail

Designated Packaging Code:	4G
Dimensions:	9" x 9" x 12" 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):	13 kg
Maximum net wt. (kg)	12.5 kg
Closure:	3" hot-melt tape. Mfg.: Shurtape. Mfg. P/N: HP-200.



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## Appendix B – Inner Package Detail

### NOTES

1. Inner packages of equal or smaller size than those listed may be used in this combination package without further testing if:
  - They are of similar design to those originally tested.
  - The material of construction is equivalent to or stronger than the material originally tested.
  - The closures are of similar design and are no larger than those used for testing.
  - Additional cushioning material is used, and the inner packages are secure.
  - Inner packages are oriented in the same way as tested.
  - The gross package weight does not exceed that of the tested package.
2. Fewer inner packages than listed may be used in this combination package without further testing if:
  - Additional cushioning is used to fill void space.
  - Movement of inner packages is prevented.

**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 two (2) galvanized pipe nipple assemblies, each containing two (2) simulation (squib) cartridges, individually placed inside a static shielding bag. Bags of lead were used to achieve test weight.

<b>Style</b>	Fire bottle cartridge
<b>Capacity</b>	1.086g NEQ
<b>Closure</b>	N/A
<b>Qty.</b>	4
<b>Net Wt.</b>	1.086 NEQg each

**Supplemental:** Each cartridge is individually placed inside a 2.9 mil metal-in static shielding bag.

**Intermediate Packaging:** Receptacles, Schedule 40 galvanized pipe nipple with four vent holes, not less than 5/16” diameter each and with threaded end caps, each containing no more than two (2) inner packagings.

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

### **Manufacturer's Packing Specification Reference Number – VPS-K-004EX-C**

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 minor bottom flaps of outer package to meet in the center. Fold major bottom flaps to meet in the center and close by placing two strips of tape across the seam, extending up the vertical sides at least two inches.
3. Place a sufficient amount of cushioning material into outer package floor (1-2 inches).
4. Place cartridge(s), into intermediate package(s) (pipe) – not more than two inner packages per intermediate.
  - a. Articles must be individually enclosed within a heat sealed foil, anti-static bag.
  - b. Close intermediate package (pipe) by screwing end caps onto threaded pipe nipple. Close to hand-tight.
5. Place intermediate packages into outer package (up to two per).
  - a. If one intermediate, place in center of outer.
  - b. If two intermediates, place in opposing corners, with even space between intermediate packagings and outer package surfaces.
6. Fill all void space with bubble wrap.
7. Close outer package top as specified for bottom in step 2.
8. Ensure gross package weight does not exceed that marked on the package and in this report.

NOTE: Packaging must be closed per State Approval.

### **Materials list (in – out):**

1. Inner package/article – fire extinguisher cartridge, squibs
2. Supplemental package – anti-static bag. Heat sealed foil. (one cartridge per)
3. Intermediate package – schedule 40 galvanized steel pipe nipple with vent holes and threaded end caps (up to two cartridges per).
4. Supplemental packaging – bubble wrap loose fill.
5. Outer package – 4G, PN: VPS-F-004 (up to two intermediate packages (four cartridges total) per).
6. Closure – tape, PN- HP-200

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### Testing Photos

Bottom Drop	Top Drop
 A photograph of a cardboard box on a grey drop surface. The box is oriented vertically. A white label on the front face reads "Drop Test #1 Bottom". A red shipping label is visible on the side of the box.	 A photograph of a cardboard box on a grey drop surface. The box is oriented horizontally. A white label on the top face reads "Drop Test #2 Top". A red shipping label with the text "VPS-F-004 EX" is visible on the front face.
End Drop	Wall Drop
 A photograph of a cardboard box on a grey drop surface. The box is oriented horizontally. A white label on the front face reads "Drop Test #4 End". A red shipping label is visible on the right side.	 A photograph of a cardboard box on a grey drop surface. The box is oriented horizontally. A white label on the front face reads "Drop Test #3 Wall". A red shipping label is visible on the top face.
MFG Corner Drop	
 A photograph of a cardboard box on a grey drop surface. The box is oriented horizontally. A white label on the front face reads "Drop Test #5 MFG Corner". A red shipping label is visible on the top face.	



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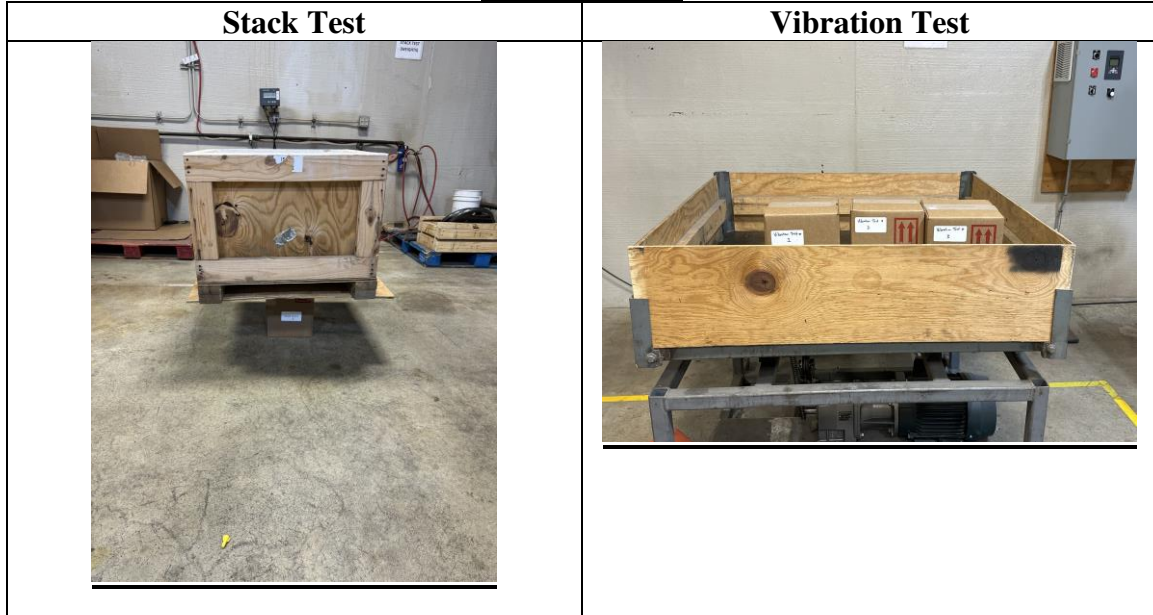
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### Testing Photos



Stacking Height = **SH**

Height of Package = **PH**

Number of Packages = ***n***

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

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

117 kg =  $[(120''/12'') = 10 - 1] \times 13$