

# 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) 739-4327

## UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

**Test Document No.:** VPS-F-008-25  
**Requested by:** Viking Packing Specialist  
**Performed by:** Viking Packing Specialist  
**Manufactured by:** Viking Packing Specialist  
**Date:** 9/23/2025  
**Retest Date:** 9/22/2027

### 1. Product Tested:

Packaging Nomenclature: Combination Packaging  
Outer Package: 4G Corrugated Box (see Appendix A)  
Dimensions: 15.5" x 10.25" x 11.5" (O.D.)  
15" x 9.75" x 10.5" (I.D.)  
Inner Package: See Appendix B for approved inners  
Maximum gross wt. (kg): 12 kg  
Viking Part No.: VPS-F-008

### 2. Object of Test:

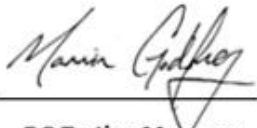
Determine performance of package design according to PASS/FAIL criteria set forth by the United States Code of Federal Regulations Title 49 sections 178.603, 178.606 and 178.608 to Packing Group II standards.

### 3. Tests Performed:

TEST	SPEC	INTENSITY	RESULTS
Drop	49 CFR 178.603	1.2 m	PASS
Stacking	49 CFR 178.606	120 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**

#### **1. DROP TEST- 49 CFR 178.603**

Five (5) filled packages, closed as for shipment, were subjected to a free fall drop from 1.2 m (3.9 ft.) 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 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 120 kg, equivalent to a 3-meter-high stack of identical packages, continuously for 24 hours.

Containers	Actual Load	Result
#1	120 kg	PASS
#2	120 kg	PASS
#3	120 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

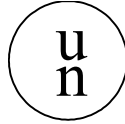
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**4. Packaging tested, certified, and provided by Viking Packing Specialist bear the marking:**



4G/Y12/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:	15.5" x 10.25" x 11.5" O.D. 15" x 9.75" x 10.5" I.D.
Marked max. gross wt. (kg):	12 kg
Maximum net wt. (kg):	11.39 kg
TARE wt. (kg):	0.61 kg
Closure:	3" hot-melt tape. Mfg: Shurtape. Mfg. P/N: HP-200.
Alternative Closure:	2" cellulose tape. Mfg: Cantech. Mfg. P/N: 206-00 or equivalent

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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**

The package tested is a combination package with outer packages as listed in this report. The package was tested with two (2) one gallon metal cans. Water and lead were used to simulate product and to achieve test weight.

<b>Style</b>	Gallon Round Metal Paint Type Can
<b>Capacity</b>	3.78 liters
<b>Spec.</b>	Gravity 1.2
<b>Closure</b>	Friction Fit Lid
<b>Qty.</b>	2
<b>Net Wt.</b>	4.89 kg each

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, taped closed. Each can was placed into a 3 mm polybag, absorbent sheets, closed by positive means. Bubble wrap was used to fill all void space, and cushion inner packages.

When shipping via aircraft, these cans must be sealed with a Ringlock Safety Seal.

**Spec. sheets on file and available upon request.**

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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 six (6) one quart metal cans. Water and lead were used to simulate product and to achieve test weight.

<b>Style</b>	Quart Round Metal Paint Type Can
<b>Capacity</b>	0.946 liters
<b>Spec.</b>	Gravity 1.5
<b>Closure</b>	Friction Fit Lid
<b>Qty.</b>	6
<b>Net Wt.</b>	1.56 kg each

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, taped closed. Each can was placed into a 3 mm polybag, absorbent sheets, closed by positive means. Bubble wrap was used to fill all void space, and cushion inner packages.

When shipping via aircraft, these cans must be sealed with a Ringlock Safety Seal.

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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 six (6) one liter round plastic bottles. Water and lead were used to simulate product and achieve test weight.

<b>Style</b>	1 liter Round Plastic Bottle
<b>Capacity</b>	1 liter
<b>Spec.</b>	Gravity 1.5
<b>Closure</b>	Screw-Top with Tape
<b>Qty.</b>	6
<b>Net Wt.</b>	1.56 kg each

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, taped closed. Each bottle was placed into a 3 mm polybag, absorbent sheets, closed by positive means. Bubble wrap was used to fill all void space, and cushion inner packages.

Packages were conditioned to -18°C (0 °F) prior to testing per 49CFR 178.603(c).

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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 seven (7) one-liter metal F-Style cans (Jerricans). Water and lead was used to simulate product and to achieve test weight.

<b>Style</b>	1 liter F-Style Metal Can
<b>Capacity</b>	1 liter
<b>Spec.</b>	Gravity 1.2
<b>Closure</b>	Screw-Top with Tape
<b>Qty.</b>	7
<b>Net Wt.</b>	1.33 kg each

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, taped closed. Each bottle was placed into a 3 mm polybag, absorbent sheets, closed by positive means. Bubble wrap was used to fill all void space, and cushion inner packages.

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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 seven (7) one-liter plastic F-Style bottles. Water and lead were used to simulate product and to achieve test weight.

<b>Style</b>	F-Style Plastic Bottle
<b>Capacity</b>	1 liter
<b>Spec.</b>	Gravity 1.25
<b>Closure</b>	Screw-Top with Tape
<b>Qty.</b>	7
<b>Net Wt.</b>	1.33 kg each

**Supplemental** The outer package was lined with a 2 mm thick poly liner, taped closed. Each bottle was placed into a 3 mm polybag, absorbent sheets, closed by positive means. Bubble wrap was used to fill all void space and cushion inner packages.

Packages were conditioned to -18°C (0 °F) prior to testing per 49CFR 178.603(c).

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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) mock actuators. Lead shot was used to achieve test weight.

<b>Style</b>	Actuator
<b>Capacity</b>	13.8” L x 3.58” D
<b>Qty.</b>	2
<b>Net Wt.</b>	5 kg each

**Supplemental**      Bubble wrap was used to fill all void space and cushion inner packages.

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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 one (1) wood box used to simulate a battery. Lead shot was used to achieve test weight.

<b>Style</b>	Battery
<b>Capacity</b>	9" x 9"x 9"
<b>Qty.</b>	1
<b>Net Wt.</b>	10 kg

**Supplemental**      Bubble wrap was used to fill all void space and cushion inner 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 twelve (12) simulation aerosol cans. Lead shot used to achieve test weight.

<b>Style</b>	Aerosol Can
<b>Capacity</b>	8" L x 2.75" D
<b>Qty.</b>	12
<b>Net Wt.</b>	0.8 kg each

**Supplemental** The outer package was lined with a 2 mm thick polybag. Twelve compartment, single wall, corrugated insert used to separate inner packages (P/N: VPS-AB-DIV/VPS-CD-DIV). Bubble wrap was used to fill all void space and cushion inner packages.

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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 eight (8) 0.5-liter glass bottle inner packaging(s). Water and lead shot was used to simulate to achieve test weight.

<b>Style</b>	Boston Round Glass Bottle
<b>Capacity</b>	0.5 liters
<b>Spec. Gravity</b>	1.8
<b>Closure</b>	Screw-Top with Tape
<b>Qty.</b>	8
<b>Net Wt.</b>	1.02 kg each

**Supplemental**      The outer package was lined with a 2 mm thick poly bag, taped closed. Each inner package was placed into a 3 mm poly bag, with absorbent sheets, closed by positive means. Bubble wrap was used to fill all void space cushion inner packages.

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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 twelve (12) simulation squib cartridges.

<b>Style</b>	Squib
<b>Capacity</b>	0.9 kg (Net Hazmat Unknown)
<b>Qty.</b>	12
<b>Net Wt.</b>	0.9 kg each

**Supplemental** Each squib is individually placed inside a corrugated box secondary package (4" x 4" x 4") VPS-F-4x4 or Uline S-4040 box. All void space within each secondary package and void space within outer package is filled with cushioning material. Bubbly wrap was used for testing.

This configuration has also been tested with each squib individually placed within an anti-static, sealable bag. This bag is then wrapped in bubble wrap. All void space must be filled with cushioning material.

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

The package tested is a combination package comprising two (2) defibrillators with lithium battery, inserted into a regular slotted fiberboard box outer packaging. Bubble wrap was used to fill void space. Lead shot was used to achieve test weight.

<b>Style</b>	Defibrillator
<b>Capacity</b>	10.5" x 9" x 4.5"
<b>Qty.</b>	2
<b>Net Wt.</b>	2.73 kg each

**Supplemental**      Bubble wrap was used to fill all void space and cushion inner package.

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

The package tested is a combination package comprising five (5) air bag inflators secured inside a regular slotted fiberboard box outer packaging. Lead shot was used to achieve test weight.

<b>Style</b>	Air Bag Inflators
<b>Capacity</b>	13.75" L x 1.5" D
<b>Qty.</b>	6
<b>Net Wt.</b>	1.5 kg each

**Supplemental**      Each inflator is individually wrapped in bubble wrap. Inflators are placed in the outer package horizontally, three per layer.

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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 eight (8) one quart, cone-top, round utility cans. Water and lead was used to simulate product and achieve test weight.

<b>Style</b>	Cone-Top, Round Metal Utility Can
<b>Capacity</b>	0.946 liters
<b>Spec.</b>	Gravity 1.5
<b>Closure</b>	Screw-Top with Tape
<b>Qty.</b>	8
<b>Net Wt.</b>	1.56 kg each

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, taped closed. Each inner package was placed into a 3 mm polybag closed by positive means. Bubble wrap was used to fill all void space and cushion inner packages.

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

The package being tested is a Combination Packaging, comprising four (4) air bag Inflators with inserts. Lead shot was used to achieve test weight.

Style Air Bag Inflators  
Capacity 13.19” L x 1.38”  
Qty. 4  
Net Wt. 0.71 kg each

**Supplemental** Inserts measure 9.625” x 10.375” with four (4) cutouts evenly and centrally spaced to hold inflators. Bubble wrap was used to fill all void space and cushion inner packages.

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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 four (4) one quart metal cans and one (1) one gallon metal can. Water and lead were used to simulate product and achieve test weight.

<b>Style</b>	Round Metal Paint Type Can
<b>Capacity</b>	0.946 Liter
<b>Spec. Gravity</b>	1.2
<b>Closure</b>	Friction Fit Lid
<b>Qty.</b>	4
<b>Net Wt.</b>	1.2 kg each

<b>Style</b>	Round Metal Paint Type Can
<b>Capacity</b>	3.785 Liters
<b>Spec. Gravity</b>	1.2
<b>Closure</b>	Friction Fit Lid
<b>Qty.</b>	1
<b>Net Wt.</b>	4.65 kg

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, with absorbent sheets, taped closed. Each inner package was placed into a 3 mm polybag closed by positive means. Bubble wrap was used to fill all void space and cushion inner packages.

#### **Note**

The gallon can position is centered inside the outer package with the quart cans placed one in each corner of the outer package.

When shipping via aircraft, these cans must be sealed with a Ringlock Safety Seal.

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

The package being tested is a Combination Packaging comprising two (2) defibrillators with lithium battery, inserted into a regular slotted fiberboard box outer packaging. Bubble wrap was used to fill void space. Lead shot was used to achieve test weight.

<b>Style</b>	Defibrillator
<b>Size</b>	8" x 5" x 9"
<b>Qty.</b>	2
<b>Net Wt.</b>	2 kg each

**Supplemental**      Bubble wrap was used to fill all void space and cushion inner packages.

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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.  
Lead shot was used to achieve test weight.

<b>Style</b>	Battery (solid)
<b>Size</b>	14.75" x 9.5" x 10.25"
<b>Qty.</b>	1
<b>Net Wt.</b>	11.5 kg

**Supplemental**      Bubble wrap was used to fill all void space and cushion inner packages.

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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) one quart metal cans and one (1) one gallon metal can. Water and lead were used to simulate product and achieve test weight.

<b>Style</b>	Round Metal Paint Type Can
<b>Capacity</b>	0.946 Liter
<b>Spec. Gravity</b>	1.85
<b>Closure</b>	Friction Fit Lid
<b>Qty.</b>	2
<b>Net Wt.</b>	1.75 kg/ea.

<b>Style</b>	Round Metal Paint Type Can
<b>Capacity</b>	3.785 Liters
<b>Spec. Gravity</b>	1.85
<b>Closure</b>	Friction Fit Lid
<b>Qty.</b>	1
<b>Net Wt.</b>	7.20 kg

**Supplemental**      The outer package was lined with a 2 mm thick poly liner, with absorbent sheets, taped closed. Each inner package was placed into a 3 mm polybag closed by positive means. Bubble wrap was used to fill all void space and cushion inner packages.

#### **Note**

The gallon can position is centered inside the outer package with the quart cans placed one in each corner of the outer package.

When shipping via aircraft, these cans must be sealed with a Ringlock Safety Seal.

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

The package tested is a combination package comprising of seventeen (17) cylinders.  
Lead shot was used to achieve test weight.

<b>Style</b>	Cylinders
<b>Capacity</b>	12" x 1" x 1"
<b>Qty.</b>	17
<b>Net Wt.</b>	0.6 kg each

**Supplemental**      Cylinders are placed in the outer package horizontally seven (7) per layer. Bubble wrap was used to fill all void space and cushion inner packages.

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## Viking Packing Specialist

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and/or 1828 North 105<sup>th</sup> East Avenue • Tulsa, OK 74116  
Phone: (800) 788-8525 • Fax: (918) 739-4327

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<b>UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS</b>
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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 fifty (50) simulated batteries. Lead shot was added to achieve test weight.

<b>Style</b>	Battery (solid)
<b>Capacity</b>	3" x 1" x 1"
<b>Qty.</b>	50
<b>Net Wt.</b>	0.228kg

**Supplemental**      Bubble wrap was used to fill all void space and cushion inner packages.

**Spec. sheets on file and available upon request.**

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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 twenty-four (24) plastic bottles.

<b>Style</b>	High-density polyethylene (HDP) plastic bottle
<b>Closure</b>	Screw cap with internal nozzle/applicator
<b>Size</b>	6.375" x 2.25" x 1.125"
<b>Qty.</b>	24
<b>Net Wt.</b>	0.085 kg each

**Supplemental**      The outer package was lined with a 2mm thickness poly bag liner with absorbent sheets and taped closed. Each inner package was wrapped with adequate absorbent sheets & placed into a 3mm poly bag, closed by positive means. Bubble wrap was used to fill all void space and cushion inner packages.

**Spec. sheets on file and available upon request.**

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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 inner packages listed below.

<b>Style</b>	Amber Round Wide Mouth Packer Glass Bottle
<b>Capacity</b>	1 Liter
<b>Closure</b>	Screw Top Lid with tape
<b>Spec Gravity</b>	1.4
<b>Qty.</b>	6
<b>Net Wt.</b>	1.82 kg/ea.

**Supplemental**      The outer package was lined with a 3mm thickness poly liner and taped closed. Each inner package was placed into a 3mm polybag with adequate absorbent sheets and closed by positive means. Bubble wrap was used to fill all void space and cushion inner packages.

**Spec. sheets on file and available upon request.**

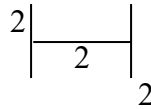
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## UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

### Appendix C – Packing/Closure Instructions – VPS-F-008

1. Inspect the outside, and inside, of container for damage. If the container is undamaged, proceed to step 2. Damaged containers must not be loaded with hazardous materials.
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, creating a “H”. Tape must be extended down vertical sides of box a minimum of 2” on each end.



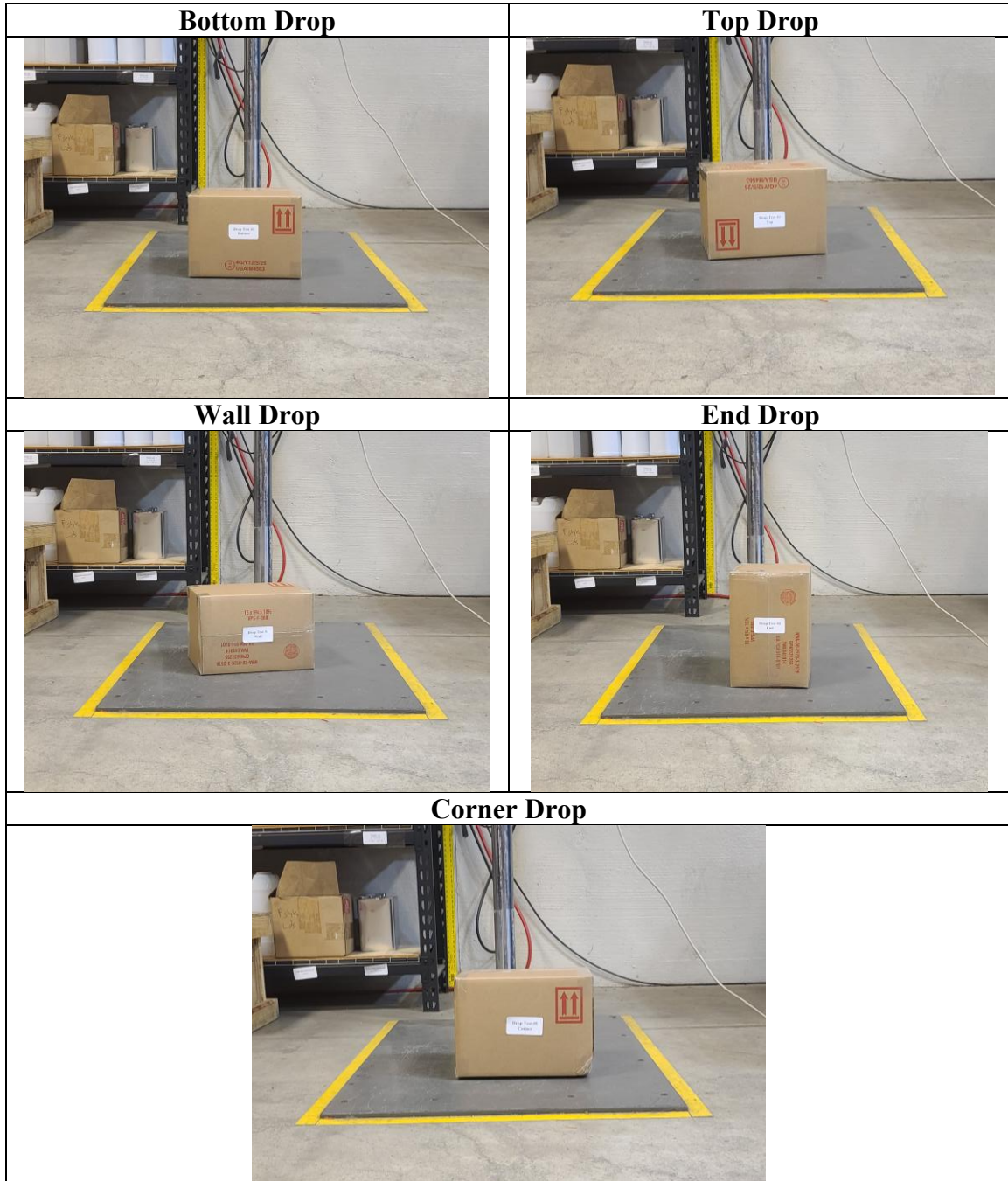
3. Place a poly liner which conforms to this report (when required in appendix B) into the box with the top left open for filling.
4. Place each inner package into a polybag which conforms to this report (when required in appendix B) and close each bag by positive means.
5. Place a sufficient amount of absorbent/cushioning material into the poly liner within the container. (1-2 inches)
6. Place inner packages into container spacing all inner packages as evenly as possible from one another, and upright sides of container.
7. Fill all void space with absorbent/cushioning material.
8. Close poly liner (when applicable) and seal with tape, hand tied knot or a zip tie may be used to seal poly liner.
9. Fold top flaps to center of container and double tape all seams as specified in step 2.
10. Ensure product, and gross package weight does not exceed what is referenced in this report.
11. Ensure that all legal requirements for shipment of this material have been met per 49 CFR.

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## UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

### Testing Photos

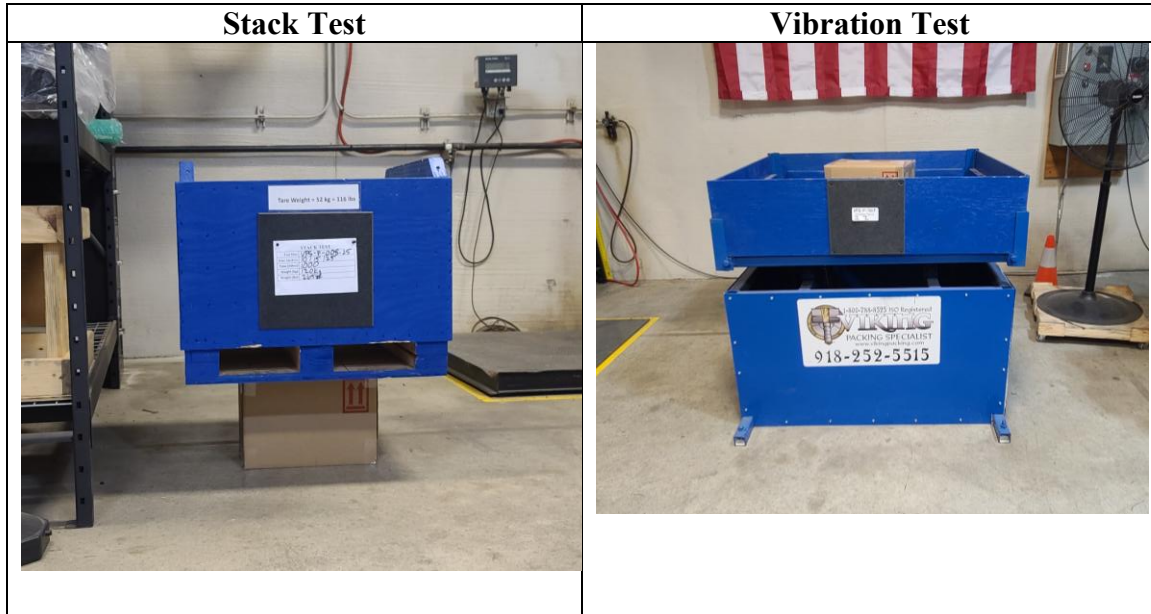


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### Testing Photos



Stacking Height = **SH**

Height of Package = **PH**

Number of Packages = ***n***

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

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

$120 = [120/11.5) = 11-1 ] \times 12$