

Viking Packing Specialist
5505 Bird Creek Ave. • Tulsa, OK 74015
and/or 1828 North 105th 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:

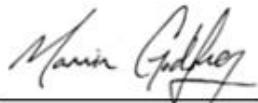
Determine performance of package design according to PASS/FAIL criteria set forth by the United States Code of Federal Regulations Title 49 sections 178.603, 178.606 and 178.608 to Packing Group II standards.

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

Viking Packing Specialist

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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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TEST RESULTS**

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



**Denotes two-digit year of manufacture

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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TEST RESULTS**

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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	Gallon Round Metal Paint Type Can
Capacity	3.78 liters
Spec.	Gravity 1.2
Closure	Friction Fit Lid
Qty.	2
Net Wt.	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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	Quart Round Metal Paint Type Can
Capacity	0.946 liters
Spec.	Gravity 1.5
Closure	Friction Fit Lid
Qty.	6
Net Wt.	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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	1 liter Round Plastic Bottle
Capacity	1 liter
Spec.	Gravity 1.5
Closure	Screw-Top with Tape
Qty.	6
Net Wt.	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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	1 liter F-Style Metal Can
Capacity	1 liter
Spec.	Gravity 1.2
Closure	Screw-Top with Tape
Qty.	7
Net Wt.	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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	F-Style Plastic Bottle
Capacity	1 liter
Spec.	Gravity 1.25
Closure	Screw-Top with Tape
Qty.	7
Net Wt.	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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

Style Actuator
Capacity 13.8" L x 3.58" D
Qty. 2
Net Wt. 5 kg each

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

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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

Style Battery
Capacity 9" x 9" x 9"
Qty. 1
Net Wt. 10 kg

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

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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	Aerosol Can
Capacity	8" L x 2.75" D
Qty.	12
Net Wt.	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.

Style	Boston Round Glass Bottle
Capacity	0.5 liters
Spec. Gravity	1.8
Closure	Screw-Top with Tape
Qty.	8
Net Wt.	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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

Style Squib
Capacity 0.9 kg (Net Hazmat Unknown)
Qty. 12
Net Wt. 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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

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

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

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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

Style	Air Bag Inflators
Capacity	13.75" L x 1.5" D
Qty.	6
Net Wt.	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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	Cone-Top, Round Metal Utility Can
Capacity	0.946 liters
Spec.	Gravity 1.5
Closure	Screw-Top with Tape
Qty.	8
Net Wt.	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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

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

Style	Round Metal Paint Type Can
Capacity	3.785 Liters
Spec. Gravity	1.2
Closure	Friction Fit Lid
Qty.	1
Net Wt.	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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

Style Defibrillator
Size 8" x 5" x 9"
Qty. 2
Net Wt. 2 kg each

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

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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

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

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

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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

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

Style Round Metal Paint Type Can
Capacity 3.785 Liters
Spec. Gravity 1.85
Closure Friction Fit Lid
Qty. 1
Net Wt. 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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

Style	Cylinders
Capacity	12" x 1" x 1"
Qty.	17
Net Wt.	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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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

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

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

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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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.

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

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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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.

Style	Amber Round Wide Mouth Packer Glass Bottle
Capacity	1 Liter
Closure	Screw Top Lid with tape
Spec Gravity	1.4
Qty.	6
Net Wt.	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.

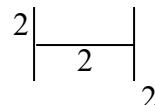
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UNITED NATIONS PERFORMANCE ORIENTED PACKAGING TEST RESULTS

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**

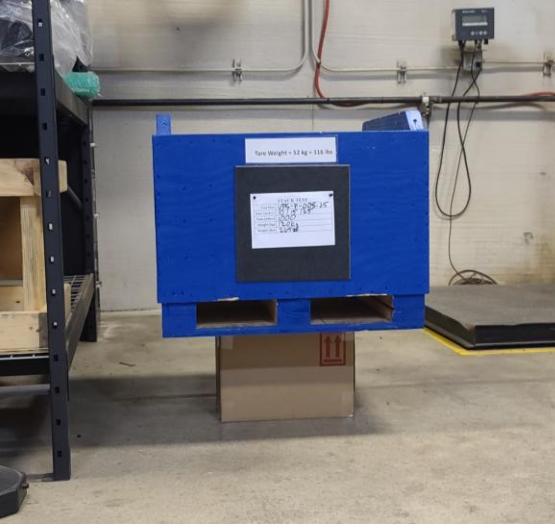
Testing Photos

Bottom Drop	Top Drop
	
Wall Drop	End Drop
	
Corner Drop	
	

Viking Packing Specialist
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**UNITED NATIONS PERFORMANCE ORIENTED PACKAGING
TEST RESULTS**

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

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