CONTAINER-QUINN TESTING LABS
170 Shepard Avenue  Wheeling, IL 60090
Phone: 847-537-9470
E-Mail: spowell@container-quinn.com

3RD PARTY CERTIFIED TESTING LABORATORY
PERFORMANCE ORIENTED PACKAGE TESTING
CERTIFICATION

Performed by:
Container-Quinn Testing Labs
170 Shepard Avenue
Wheeling, IL 60090

Testing Performed for:
InfeKta Packaging International
Attn.: Randy Huster
866-847-4413

Mailing: 26722 W. Dolores Court
Ingleside, IL 60041

Warehouse: 1600 North Milwaukee Avenue, Unit 601
Lake Villa, IL 60046

Re-Certification Testing of a
UN 4G Fiberboard Box
containing primary and secondary packaging for the shipment of Infectious Substances

4G/ Class 6.2 / **
USA / InfektaPak, Lake Villa, IL

** Is to be replaced by the year of box manufacture

Certification Expires: 5/28/20

This package is certified for shipment by air

Stephen C. Powell – Vice-President

Container-Quinn Testing Labs Page 1
Section 1
Packaging Description:

Fiberboard Box:
Manufacturer: Wisconsin Packaging Corp., Fort Atkinson, WI
Box Information: 200# (36-26B-36) / D/C Tuckflap style / “B” flute / glued joint / Tuck Top & Bottom – Reverse Tuck
Part Number: InfeKta-Pak 3
Outer Dimensions: 4 1/8” x 4 1/8” x 11 7/8”
Inner Dimensions: 4” x 4” x 11 3/8”
Manufacturer's Joint: Glued with a 1.25” inside tapered flap
Tare Weight: Box: 0.2 lbs.

Fiberboard Liner:
Manufacturer: Wisconsin Packaging Corp., Fort Atkinson, WI
Box Information: 32# ECT (42-26B-42) / D/C style / “B” flute
Part Number: InfeKta-Pak 3 insert
Dimensions: 3 7/8” x 3 7/8” x 6 1/2”
Tare Weight: Box: 0.08 lbs.

Basis Weights of Box and Partitions:

<table>
<thead>
<tr>
<th>Item</th>
<th>Facing or Corrugation</th>
<th>Location</th>
<th>Basis Weight (Lbs / MSF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer Box:</td>
<td>Facing</td>
<td>Outer</td>
<td>36.8</td>
</tr>
<tr>
<td></td>
<td>Facing</td>
<td>Center</td>
<td>34.4</td>
</tr>
<tr>
<td></td>
<td>Corrugation</td>
<td>B-Flute</td>
<td>26.6</td>
</tr>
<tr>
<td>Liner:</td>
<td>Facing</td>
<td>Outer</td>
<td>42.4</td>
</tr>
<tr>
<td></td>
<td>Facing</td>
<td>Center</td>
<td>42.4</td>
</tr>
<tr>
<td></td>
<td>Corrugation</td>
<td>B-Flute</td>
<td>26.6</td>
</tr>
</tbody>
</table>

Combined Board Caliper:

<table>
<thead>
<tr>
<th>Item</th>
<th>Caliper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outer Box:</td>
<td>0.1135”</td>
</tr>
</tbody>
</table>
Inner Packaging:

Inner Canister (secondary packaging):
- Manufacturer: Chicago Paper Tube & Can Co., Chicago, IL
- Mfg Method: Formed and glued
- Part Number: Screw Cap Container
- Material: Fiberboard & Tin
- Dimensions: 3 1/8” ID x 11 ¼”
- Tare Weight: 198.58 gm
- Bottle Information: Fiberboard tube with tin bottom, tin screw neck and metal (tin) screw cap closures

Canister Closure:
- Manufacturer: Chicago Paper Tube & Can Co., Chicago, IL
- Description: Metal Screw cap closure
- Mfg Method: Press formed
- Material: Tin
- Tare Weight: 18.54 gm

Inner Bag (Primary Container):
- Manufacturer: Liquipak (Aquasol Corporation, North Tonawanda, NY)
- Description: plastic bag with heat sealed edges, absorbent inner laminate and fold-over adhesively secured opening flap
- Tare Weight: 30.68 gm

OPTIONAL:
- Manufacturer: VonSeal Liquid Tight Bag
- Description: Unlined plastic bag with heat sealed edges (Inner absorbent required) and fold-over adhesively secured opening flap

Closing Methods:
- Fiberboard Shipper: Tuck flap top and bottom feature with locking tabs

Additional Test Information:
- Overall Weight of the Package: 2.9 lbs. (1.3 kg)
- Overall Tare Weight of Package: 0.8 lbs.
- Test Contents: misc. product vials with antifreeze
- Authorized package gross weight: 2.9 lbs. (1.3 kg)
Section 2
Testing
Test Descriptions and Results

Package Preparation – For All Testing
The packages were filled and inserted as shown in picture.

Drop Test - Dry

Test Method: 49 CFR 178.609
Number of Packages Tested – 5
Drop Height – 9.0 meters (29.5’’) (Calculation for the drop height is provided in Appendix B)

Conditioning
The packages were conditioned to -18+/−3º C and Ambient RH, in accordance with 49 CFR 178.609(f)(d). The packages were conditioned for 72 hours to ensure the package and contents were at the proper temperature prior to testing. Drop testing was conducted approximately 5 minutes after removing the test package from the conditioning chamber.

Results

<table>
<thead>
<tr>
<th>Box Number</th>
<th>Package Weight</th>
<th>Orientation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.9 lbs.</td>
<td>Bottom, Mfg. Corner; 3-4-6 Corner</td>
<td>Pass - corner crushed approx. 1/4&quot;</td>
</tr>
<tr>
<td>2</td>
<td>2.9 lbs.</td>
<td>Flat on short side, Panel 6</td>
<td>Pass - no damage</td>
</tr>
<tr>
<td>3</td>
<td>2.9 lbs.</td>
<td>Flat on long side, Panel 4</td>
<td>Pass - no damage</td>
</tr>
<tr>
<td>4</td>
<td>2.9 lbs.</td>
<td>Flat on top, Panel 1</td>
<td>Pass - no damage</td>
</tr>
<tr>
<td>5</td>
<td>2.9 lbs.</td>
<td>Flat on bottom, Panel 3</td>
<td>Pass - no damage</td>
</tr>
</tbody>
</table>

no release of the inner packages from the outer package, no leakage of the filling substance. Packages laid on their sides for a period of 20 minutes to reach equilibrium

Pass/Fail Criteria -
A package is considered to successfully pass the drop tests if for each sample tested: There is no damage to the outer packaging likely to adversely affect safety during transport, there is no leakage of the filling substance from the inner packaging and any discharge from a closure is slight and ceases immediately after impact.
Section 2
Testing
Test Descriptions and Results

Package Preparation – For All Testing
The packages were filled and inserted as shown in picture.

Drop Test - Wet

Test Method: 49 CFR 178.609
Number of Packages Tested – 5
Drop Height – 9.0 meters (29.5') (Calculation for the drop height is provided in Appendix B)

Conditioning
The packages were conditioned to 23+/−3º C and 50+/−5% RH, in accordance with 49 CFR 178.609(f)(d). The packages were conditioned in a water spray for 65 minutes to ensure the package was subjected to simulated exposure to rainfall, approximately 2" per hour, prior to testing. Drop testing was conducted approximately 5 minutes after removing the test package from the conditioning chamber.

Results

<table>
<thead>
<tr>
<th>Box Number</th>
<th>Package Weight</th>
<th>Orientation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>2.9 lbs.</td>
<td>Bottom, Mfg. Corner; 3-4-6 Corner</td>
<td>Pass - corner crushed approx. 1/4&quot;</td>
</tr>
<tr>
<td>7</td>
<td>2.9 lbs.</td>
<td>Flat on short side, Panel 6</td>
<td>Pass - no damage</td>
</tr>
<tr>
<td>8</td>
<td>2.9 lbs.</td>
<td>Flat on long side, Panel 4</td>
<td>Pass - no damage</td>
</tr>
<tr>
<td>9</td>
<td>2.9 lbs.</td>
<td>Flat on top, Panel 1</td>
<td>Pass - no damage</td>
</tr>
<tr>
<td>10</td>
<td>2.9 lbs.</td>
<td>Flat on bottom, Panel 3</td>
<td>Pass - no damage</td>
</tr>
</tbody>
</table>

no release of the inner packages from the outer package, no leakage of the filling substance. Packages laid on their sides for a period of 20 minutes to reach equilibrium.

Pass/Fail Criteria -
A package is considered to successfully pass the drop tests if for each sample tested: There is no damage to the outer packaging likely to adversely affect safety during transport, there is no leakage of the filling substance from the inner packaging and any discharge from a closure is slight and ceases immediately after impact.
Stacking Test

Test Method: 49 CFR 178.606
Free standing: X
Guided Load: __
Packages Tested – 3 (used same samples as for vibration)
Test Duration: 24 hours

The packages were conditioned in accordance with 49 CFR 178.602(d) to 23+/−3°C and 50+/−5% RH for 24 hours.

Stacking Test Weight – 30 lbs. (rounded up from 25.9 lbs.)
See Appendix B for Calculation
The stacking test load was applied to the top of the packages by loading each package with 30 lbs and the weight was maintained for 24 hours.

Results:

11  Passed  No damage to the packaging, normal and expected packaging fatigue and crush
12  Passed  No damage to the packaging, normal and expected packaging fatigue and crush
13  Passed  No damage to the packaging, normal and expected packaging fatigue and crush

Pass/Fail Criteria -
No test sample may leak. There must be no leakage of the filling substance from the inner receptacle, or Inner packaging. No test sample may show any deterioration which could adversely affect transportation safety or any distortion likely to reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.

Vibration Standard

Packages Tested – 3 on same table
Duration: 1 Hour
Frequency: 4.0 Hz (239 cpm)

Results

11  Passed  No damage to the packaging, normal and expected packaging fatigue and crush
12  Passed  No damage to the packaging, normal and expected packaging fatigue and crush
13  Passed  No damage to the packaging, normal and expected packaging fatigue and crush

Pass/Fail Criteria -
A packaging passes the vibration test if there is no rupture or leakage from any of the packages. No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.
Internal (Hydrostatic) Pressure Test

Test Method: 49 CFR 178.605
Bags Tested – 3
Test Duration: 30 minutes
Test Pressure: 95 kPa (14.5 psi)
Fill Level: Overflow Capacity
Filling Substance: Water
Equipment: Regulated Water Source
Pressure Monitoring Gauge

Results:

1  Passed  No damage or deterioration to unit, no leakage noted
2  Passed  No damage or deterioration to unit, no leakage noted
3  Passed  No damage or deterioration to unit, no leakage noted

Pass/Fail Criteria -
No test sample may leak from bottle or closure. No test sample may show any deterioration which could adversely affect transportation safety or reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.

Cobb Test


Samples were taken from the boxes and subjected to a water absorption test in accordance with ISO International Standard 535.

Samples tested - 5

Results:

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Water absorption</th>
<th>Pass/Fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample 1</td>
<td>125 g/m2</td>
<td>Pass</td>
</tr>
<tr>
<td>Sample 2</td>
<td>125 g/m2</td>
<td>Pass</td>
</tr>
<tr>
<td>Sample 3</td>
<td>130 g/m2</td>
<td>Pass</td>
</tr>
<tr>
<td>Sample 4</td>
<td>125 g/m2</td>
<td>Pass</td>
</tr>
<tr>
<td>Sample 5</td>
<td>130 g/m2</td>
<td>Pass</td>
</tr>
</tbody>
</table>

Average: 127 g/m2 Pass

Pass/Fail Criteria:
An increase in mass of greater than 155 g/m2 over the 30 minute duration of the test represents an unacceptable level of water resistance.
Puncture Test

Test Method: 49 CFR 178.609  
Number of Packages Tested – 2  
Drop Height – 1.0 meters (39.375’)

Conditioning  
The packages were conditioned in accordance with 49 CFR 178.602(d) to 23+/-3°C and 50+/-5% RH for 48 hours to ensure the package and contents were at the proper temperature prior to testing.  
Puncture testing was conducted approximately 5 minutes after removing the test package from the conditioning chamber.

Results

<table>
<thead>
<tr>
<th>Box Number</th>
<th>Package Weight</th>
<th>Orientation</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.9 lbs.</td>
<td>Flat on short side</td>
<td>Pass - no damage</td>
</tr>
</tbody>
</table>
| 2          | 2.9 lbs.       | Flat on long side | Pass - no damage  
no release of the inner packages from the outer package, no leakage of the filling substance from the vials noted |

Pass/Fail Criteria -  
A package is considered to successfully pass the puncture tests if for each sample tested: There is no leakage of the filling substance from the inner
APPENDIX B - Calculations

1. Weight of test package
   Total Gross Weight of Sample  2.9 lbs. (1.3 kg)

2. Drop Test Height
   Packaging Group of Certification II
   Drop Height For Class 6.2 Infectious Substances  9 meters

3. Stack Test Weight
   \[ \text{Load} = \left(118.11 - h\right) / h \times w \]
   Where:  
   \[ 118.11 = \text{Height of stack test (3 meters)} \]
   \[ h = \text{height of package as tested and sealed} \]
   \[ w = \text{weight of tested package (lbs.)} \]

   Package Height = 11.875"
   Weight of Package = 2.9

   \[ \left(118.11 - 11.875\right) / 11.875 = 8.9 \]
   \[ 8.9 \times 2.9 = 25.9 \]
   Test Weight = 30 lbs.

Appendix C
Test Equipment and Instrumentation

<table>
<thead>
<tr>
<th>Instrument / Equipment</th>
<th>Manufacturer</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split Table Drop Tester</td>
<td>LAB</td>
<td></td>
</tr>
<tr>
<td>Hydrolic Vibration Tester</td>
<td>Lansmont</td>
<td>1500S</td>
</tr>
<tr>
<td>Weight Scale, large</td>
<td>Uline</td>
<td>Uline 600</td>
</tr>
<tr>
<td>Weight Scale, small</td>
<td>GSE</td>
<td></td>
</tr>
</tbody>
</table>
CONTAINER-QUINN TESTING LABS
170 Shepard Avenue  Wheeling, IL  60090
Phone: 847-537-9470
E-Mail: spowell@container-quinn.com

RE-CERTIFICATION TESTING
TESTING CERTIFICATION

Testing Performed for:
InfeKta Packaging International
Attn.: Randy Huster
1600 North Milwaukee Avenue
Unit 601
Lake Villa, IL 60046
866-847-4413

CONTAINER-QUINN TESTING LABS certifies that this package, referenced in Report Number 12992.4, has passed the standards of the DEPARTMENT OF TRANSPORTATION'S TITLE 49CFR; Performance Oriented Packaging Standards, Section 178. This package is also certified under IMDG, IATA/ICAO Regulations and the UN Recommendations on the Transport of Dangerous Goods as well as ISTA 1A Test Procedure. It is the responsibility of the end user to determine authorization for use under these regulations. The use of other packaging methods or components, other than those documented in this report may render this certification invalid.

UN MARKING (per CFR49, 178.503):

![Unmarking](image)

4G / CLASS 6.2 / **
USA / InfektaPak, Lake Villa, IL

PACKAGING IDENTIFICATION CODE:
4G Fiberboard Box

PERFORMANCE STANDARD:
CLASS 6.2

PERIODIC RETEST DATE:
5/28/2020

AUTHORIZED GROSS MASS:
1.3 Kg (2.9 lbs.)

YEAR OF MANUFACTURE:
** Insert Month & Year the package is manufactured

STATE AUTHORIZING THE MARK:
USA

CERTIFICATION MARKING:
** ** Per PHMSA directive, to be replaced by manufacturer's name and address or manufacturer's authorized M-number

DESIGNATION:
“S” - Denotes Inner Packaging

ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRATY THAT THE PACKAGING TESTED IS MERCHANTABLE OR FIT FOR A PARTICULAR PURPOSE, ARE DISCLAIMED. IN NO EVENT SHALL CONTAINER-QUINN TESTING LABS LIABILITY EXCEED THE TOTAL AMOUNT PAID BY CLIENT FOR SERVICES RENDERED. IN THE EVENT OF FUTURE CHANGES TO THE ABOVE REFERENCED TEST STANDARD, IT IS THE RESPONSIBILITY OF THE CLIENT OR CLIENTS REPRESENTATIVE TO DETERMINE WHETHER ADDITIONAL TESTING OR UPDATING OF PAST TESTING IS NECESSARY TO VERIFY THAT THE PACKAGING TESTED REMAINS IN COMPLIANCE WITH THOSE STANDARDS.
1. Place primary specimens into pouch.
2. Remove liner for adhesive closure.
3. Using two hands, starting at center, move outwards while pressing down firmly until outer edges of the bag have been sealed. Pinch corners for final seal.
4. Place folded documents inside clear back pouch.
5. Place Sealed Bag into Shipping Box.
6. Ship per Regulated Instructions.