Table Top Products & Glassware Protective Packaging Guidelines

<table>
<thead>
<tr>
<th>A</th>
<th>Cleo Ibe</th>
<th>Sean Ho</th>
<th>Spring 08</th>
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<tbody>
<tr>
<td>Revision</td>
<td>Originated By</td>
<td>Approved By</td>
<td>Effective Date / Season</td>
</tr>
</tbody>
</table>

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1. Scope
This document covers the specific standard requirements of table top packaging. It will outline various packaging techniques, recommendations and various packaging materials successfully used with table top items.

2. Application
These specifications outlined in this document are targeted toward the protective packaging of glassware/tabletop items. Please note the various sizes, intricacies, and weight of the items should be taken into consideration. If there are specific questions for packaging table top items that are not outlined in this document, please contact CPWM packaging at packaging@cpwm.com.

3. Standard Packaging Recommendations

3.1 Glassware/Stemware

3.1.1 Internal Movement
Be sure items are secure within the package and are properly braced with kraft paper, corrugated, or foam to prevent horizontal and/or vertical movement.

3.1.2 Surface Protection
If needed, for fragile items wrap with a layer of foam sheeting or bubble wrap to avoid abrasion.

3.1.3 Partitions
Each unit should be separated by corrugated partitions. An air cell can be created by the partitions on all 4 sides of the case. This will provide additional protection from impact.

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Figure 1: Air cells
3.1.4 **Orientation**
Depending on the size and shape of the glass, consider alternating each glass upright to upside down. Glasses directly in front, behind or adjacent to should be in the opposite orientation.

![Figure 2: Glass orientation](image)

3.1.5 **Cut Pads**
A piece of fitted single-wall corrugated or EPS (approximately ¼” or 6mm) should be placed on the top and bottom of the shipping case to protect the product from box cutter blades or opening tools.

### 3.2 Mugs

3.2.1 **Internal Movement**
Be sure items are secure within the package and are properly braced with kraft paper, corrugated, or foam to prevent horizontal and/or vertical movement. Brace mug handles with kraft paper dunnage on all sides. If mug is tapered, be sure to securely fill the void below the handle.

3.2.2 **Surface Protection**
If needed, for fragile items wrap with a layer of foam sheeting or bubble wrap.

3.2.3 **Partitions**
Each unit should be separated by corrugated partitions. An air cell should be created by the partitions on all 4 sides of the case. (see Picture 1)
3.2.4 **Orientation**
Depending on the size and shape of your mug, consider positioning mug handles so they do not point towards any outside corner of the box or situated toward each other.

![Figure 3: Mug handle orientation](image)

3.2.5 **Cut Pads**
A piece of fitted single-wall corrugated or EPS (approximately ¼” or 6mm) should be placed on the top and bottom of the shipping case to protect the product from box cutter blades or opening tools.

3.3 **Plates**

3.3.1 **Internal Movement**
Be sure items are secure within the package and are properly braced with kraft paper, corrugated, or foam to prevent horizontal and/or vertical movement.

3.3.2 **Surface Protection**
If needed, for fragile items wrap with a layer of foam sheeting or bubble wrap.

3.3.3 **Separation**
A piece of foam sheeting or corrugated should be placed between each plate to prevent direct contact between the two items. The cushioning material should be large enough to cover the surface of the plate to prevent any contact from the layered plates.
3.3.4 **Orientation**
Plates should be stacked on top of each other, with corrugated or foam placed in between each plate to prevent direct contact.

3.3.5 **Cut Pads**
A piece of fitted single-wall corrugated or EPS (approximately ¼” or 6mm thick) should be placed on the top and bottom of the shipping case to protect the product from box cutter blades or opening tools.

3.4. **Bowls**

3.4.1 **Internal Movement**
Be sure items are secure within the package and are properly braced with kraft paper, corrugated, or foam to prevent horizontal and/or vertical movement.

3.4.2 **Surface Protection**
If needed for fragile items, wrap with a layer of foam sheeting or bubble wrap.

3.4.3 **Separation**
A piece of foam sheeting or corrugated strips should be placed between each bowl to prevent direct contact between the two items. The cushioning material should be wide and long enough to prevent any contact of the nested bowls.
3.4.4 Orientation
Bowls should be stacked on top of each other, with a piece of corrugated or foam in between each plate to prevent contact.

3.4.5 Cut Pads
A piece of fitted single-wall corrugated or EPS (approximately ¼” or 6mm) should be placed on the top and bottom of the shipping case to protect the product from box cutter blades or opening tools.

4. Shipping cartons

4.1 Conveyable carton size and weight requirements

<table>
<thead>
<tr>
<th>Dimensions and Weight</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largest Dimension</td>
<td>6” (15.24 cm)</td>
<td>28” (71.12 cm)</td>
</tr>
<tr>
<td>Second Largest Dimension</td>
<td>6” (15.24 cm)</td>
<td>24” (60.96 cm)</td>
</tr>
<tr>
<td>Third Largest Dimension</td>
<td>3” (7.62 cm)</td>
<td>20” (50.80 cm)</td>
</tr>
<tr>
<td>Gross Weight</td>
<td>2 lbs. (.91 kg)</td>
<td>50 lbs. (22.68 kg)</td>
</tr>
</tbody>
</table>

Contact us if your carton’s gross weight exceeds this limit or if your carton size exceeds the maximum dimensions.
4.2 Wall thickness and Mullen burst strength

<table>
<thead>
<tr>
<th>Products</th>
<th>Corrugated Board Type</th>
<th>Minimum Mullen Burst</th>
<th>Minimum Edge Crush</th>
<th>Minimum Caliper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Lines /Hardline (inner cartons)</td>
<td>Single-wall (B/C Flute)</td>
<td>150 lb/in² (1034 kPa)</td>
<td>32 lb/in (5.6 kN/m)</td>
<td>0.255 in. (6.48 mm)</td>
</tr>
<tr>
<td>Hard Lines (master carton) gross weight &lt; 40 lbs</td>
<td>Double-wall (B/C Flute)</td>
<td>150 lb/in² (1034 kPa)</td>
<td>32 lb/in (5.6 kN/m)</td>
<td>0.260 in. (6.60 mm)</td>
</tr>
<tr>
<td>Hard Lines (master carton) gross weight &gt; 40 lbs</td>
<td>Double-wall (B/C Flute)</td>
<td>200 lb/in² (1379 kPa)</td>
<td>40 lb/in (7.0 kN/m)</td>
<td>0.260 in. (6.60 mm)</td>
</tr>
<tr>
<td>Conveyable and Retail Quantity Inner Cartons</td>
<td>Single-wall (B,C, &amp; E-Flute)</td>
<td>150 lb/in² (1034 kPa)</td>
<td>32 lb/in (5.6 kN/m)</td>
<td>B: .115 in. (2.92 mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C: .148 in. (3.76 mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E: .070 in. (1.78 mm)</td>
</tr>
<tr>
<td>All Furniture cartons gross weight up to 50 lbs and Mirrors</td>
<td>Double-wall (B/C Flute)</td>
<td>175 lb/in² (1207 kPa)</td>
<td>40 lb/in (7.0 kN/m)</td>
<td>0.260 in. (6.60 mm)</td>
</tr>
<tr>
<td>All Furniture cartons gross weight from 50 lbs to 100 lbs</td>
<td>Double-wall (B/C Flute)</td>
<td>200 lb/in² (1379 kPa)</td>
<td>42 lb/in (7.3 kN/m)</td>
<td>0.260 in. (6.60 mm)</td>
</tr>
<tr>
<td>All Furniture gross weight from &gt; 100 to 150 lbs</td>
<td>Double-wall (B/C Flute)</td>
<td>250 lb/in² (1724 kPa)</td>
<td>44 lb/in (7.7 kN/m)</td>
<td>0.260 in. (6.60 mm)</td>
</tr>
<tr>
<td>All Furniture gross weight &gt; 150 lbs</td>
<td>Double-wall (B/C Flute)</td>
<td>275 lb/in² (1896 kPa)</td>
<td>48 lb/in (8.41 kN/m)</td>
<td>0.260 in. (6.60 mm)</td>
</tr>
</tbody>
</table>

5. Transit Testing
CPWM buyers will determine if a product requires transit testing. If transit testing is waived, it is highly encouraged to perform and in-house drop test to determine effectiveness of the protective packaging.

5.1 Free Fall Drop Test – (required for in-house drop testing)
This portion of the test consists of a series of ten free-fall drops from a height that varies with the carton gross weight as outlined in the following table:
5.2 Test surface
When performing the in-house free fall drop test, select an even, smooth, and rigid surface such as a concrete floor. No uneven, carpeted, wooden or dirt floor surfaces are allowed.

5.3 Drop Testing Technique
When performing the drop, especially on critical corners and edges, the orientation of the carton must be such that the entire weight of the carton is concentrated onto one point – the critical corner or edge being tested. Refer to Figure 6 for the diagram illustrating this procedure.

### Table: Carton/Package Gross Weight and Drop Height

<table>
<thead>
<tr>
<th>Carton/Package Gross Weight</th>
<th>Drop Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English (lbs)</td>
</tr>
<tr>
<td>1 – 20</td>
<td>1 – 9</td>
</tr>
<tr>
<td>21 – 40</td>
<td>9.5 – 18.2</td>
</tr>
<tr>
<td>41 – 100</td>
<td>18.63 – 45.5</td>
</tr>
<tr>
<td>101 – 150</td>
<td>46 – 68.2</td>
</tr>
</tbody>
</table>

![Correct orientation of Edge and Critical Corner](image1)

![Incorrect orientation of Edge and Critical Corner](image2)

**Figure 6 Drop Testing Technique**

**Drop Sequence**

Orientations of the impacts are as follows and must be performed in the following order, as illustrated in Figure 7:

1. Most fragile corner (manufacturer’s corner)
2. Shortest edge radiating from that corner
3. Medium edge radiating from that corner
4. Longest edge radiating from that corner
5. Flat on one of the smallest faces
6. Flat on the opposite small face
7. Flat on one of the medium faces
8. Flat on the opposite medium face
9. Flat on one of the largest faces
10. Flat on the opposite largest face

![Figure 7 Drop Sequence](image3)
5.4 Drop Heights
The table below indicates depending on the weight of the shipping carton, the height at which it should be dropped for in-house tests and BV tests.

<table>
<thead>
<tr>
<th>Carton/Package Gross Weight</th>
<th>Drop Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>English (lbs)</td>
</tr>
<tr>
<td>1 – 20</td>
<td>1 – 9</td>
</tr>
<tr>
<td>21 – 40</td>
<td>9.5 – 18.2</td>
</tr>
<tr>
<td>41 – 100</td>
<td>18.63 – 45.5</td>
</tr>
<tr>
<td>101 – 150</td>
<td>46 – 68.2</td>
</tr>
</tbody>
</table>

- Carefully inspect for damage after the in-house drop test is completed.
- If your item requires transit testing, after successful in-house testing, send a fresh (untested, to avoid inherent stress from previous drops), production sample in production packaging to the BV test lab. Samples should be overpacked and labeled “OVERPACKED FOR TESTING”. Failing to send a fresh sample to BV may result in loss of time and additional cost due to a potential test failure. The ISTA test performed will be dependent on your carton physical characteristics as follows:

<table>
<thead>
<tr>
<th>IF YOUR PACKAGE IS</th>
<th>AND</th>
<th>SELECT</th>
<th>CPWM Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 sided carton (like a cube)</td>
<td>Less than 150 lbs (68 Kg)</td>
<td>ISTA -1C</td>
<td>CP-9029-US</td>
</tr>
<tr>
<td>6 sided carton (like a cube)</td>
<td>More than 150 lbs (68 Kg)</td>
<td>ISTA -1D</td>
<td>CP-9029-US</td>
</tr>
<tr>
<td>Flat carton (e.g. mirror)</td>
<td>Less than 150 lbs (68 Kg)</td>
<td>ISTA - 2D</td>
<td>CP-9057-US</td>
</tr>
<tr>
<td>Elongated carton (e.g. side Rail)</td>
<td>Less than 150 lbs (68 Kg)</td>
<td>ISTA - 2E</td>
<td>CP-9058-US</td>
</tr>
<tr>
<td>Furniture attached on a custom pallet</td>
<td></td>
<td>Palletize</td>
<td>CP-9052-US</td>
</tr>
</tbody>
</table>

Any questions regarding these guidelines should be sent to Packaging@cpwm.com