PETG vs. Acrylic
Selection Criteria & Performance
IMPORTANT CRITERIA

Cleaning and Disinfecting
Resistance to Breakage
Flammability
Sustainability
**CLEANING AND DISINFECTING**

- Acrylic tends to craze and become cloudy with many EPA-approved cleaners
- PETG has strong chemical resistance and holds up well over time to all EPA approved cleaners

<table>
<thead>
<tr>
<th></th>
<th>Ethyl Alcohol</th>
<th>Isopropyl Alcohol</th>
<th>Hydrogen Peroxide</th>
<th>Bleach</th>
<th>Ammonium</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PETG</strong></td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS</td>
<td>PASS (Short usage)</td>
</tr>
<tr>
<td></td>
<td>Up to 96%</td>
<td></td>
<td>Up to 28%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acrylic</strong></td>
<td>FAIL</td>
<td>FAIL</td>
<td>FAIL</td>
<td>PASS</td>
<td>FAIL</td>
</tr>
<tr>
<td></td>
<td>Up to 40%</td>
<td>Up to 30%</td>
<td>Up to 3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Percentages listed are allowable concentration of chemical for safe cleaning
CRAZING ON ACRYLIC PANELS

- Crazing on acrylic panels from various cleaning products - these microfractures weaken the material and increase the likelihood of breaking/splintering

Source: innovativeacrylics.com; acrylico.com
RESISTANCE TO BREAKAGE

- PETG is significantly more resilient and has much greater impact strength than acrylic.
- Acrylic has a tendency to splinter when broken, causing a potential safety hazard.
FLAMMABILITY

- Acrylic is classified as a flammable material
  - UL94 HB rating, lowest rating
  - It will continue burning until consumed

- PETG has V-2 flame rating
  - Burning stops within 60 seconds of flame removal
SUSTAINABILITY AND RECYCLABILITY

- Carbon Emissions – PETG has half the lifecycle Carbon Footprint of acrylic
  - PETG – 3.56 kg CO$_2$e per kg material
  - Acrylic – 7.13 kg CO$_2$e per kg material

- PETG is a No. 1 PET resin, which is the same as a water bottle – the most-recycled plastic globally

- Acrylic is a No. 7 “Other” resin
  - Not typically collected and difficult to find recyclers willing to accept