GL FILM
A Clear Advantage

This is a transparent barrier film with the world's highest level barrier performance and a wide array of variations. This film has many outstanding properties due to the use of Toppan's original transparent vapor deposition and coating technologies.

GL FILM is used for over 15,000 products in more than 45 countries and regions.

GL FILM STRUCTURE

GL FILM consists of a 1 transparent base layer (PET, OPA, etc.), an 2 inorganic vapor deposition layer (alumina, silica, etc.), and a patented 3 barrier coat layer. This multi-layer structure combining a proprietary coat layer and high quality vapor deposition layer facilitates lamination and ensures stable barrier performance.

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GL FILM Lineup

<table>
<thead>
<tr>
<th>Type</th>
<th>Grade</th>
<th>Vapor Deposition Base Film</th>
<th>OTR Metric / Imperial</th>
<th>WVTR Metric / Imperial</th>
<th>CONTENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>AX-7</td>
<td>AIOX PET 48ga</td>
<td>0.5/0.032</td>
<td>1.0/0.065</td>
<td>Dry Content</td>
</tr>
<tr>
<td>Hot-Filling</td>
<td>GX-P-F</td>
<td>AIOX PET 48ga</td>
<td>0.1/0.006</td>
<td>0.05/0.003</td>
<td>Medical &amp; Electronics</td>
</tr>
<tr>
<td>Retort Autoclave</td>
<td>GL-AEC-F</td>
<td>AIOX PET 48ga</td>
<td>0.3/0.019</td>
<td>0.7/0.045</td>
<td>Hot Fill Liquid Content</td>
</tr>
<tr>
<td>GL-AR-DF</td>
<td>GL-ARH</td>
<td>AIOX PET 48ga</td>
<td>0.3/0.019</td>
<td>1.3/0.084</td>
<td>Standard to High Retort</td>
</tr>
<tr>
<td>GL-RD</td>
<td>GL-EY-A</td>
<td>SiOX PET 48ga</td>
<td>0.2/0.013</td>
<td>0.3/0.019</td>
<td>Enhanced post-retort</td>
</tr>
<tr>
<td>Hot-filling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hot-Filling Pressure</td>
</tr>
</tbody>
</table>

Measurement conditions:
OTR (86°F, 70%RH): cc/100in²/day
WVTR (104°F, 70%RH): g/100in²/day

GL FILM Features

- Exceptional Barrier Performance
- Environmentally Sustainable
- Highly Transparent
- Superior Flex Crack Resistant
- Versatile Lineup
- Printable Film

GL FILM Comparison of Barrier Performance

- OTR (30°C, 70%RH): cc/m²/day
- WVTR (40°C, 90%RH): g/m²/day

Humidity Dependence
Demonstrates stable barrier performance that is not affected by humidity and the surrounding environment.

Flex Resistance (OTR)
Barrier Properties are maintained even after repeated bending.

Temperature Dependence
Demonstrates stable barrier performance that is not affected by temperature and the surrounding environment.