## Properties of Plastics

### Disposal and the environment

- The plastics used for our products are environmentally neutral during disposal.
- The plastics can be stored on waste disposal sites without any problems as they do not give off any harmful substances to air, ground or water.
- The plastics PS, PP, PC and PE are valuable energy carriers to maintain incinerator temperature.

### General mechanical properties

<table>
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<tr>
<th>Material</th>
<th>Optical features</th>
<th>Ignition temperature</th>
<th>Flammability</th>
<th>Humidity absorption</th>
<th>General chemical resistance</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polystyrene (PS)</td>
<td>Transparent, bright surface (400-800 nm)</td>
<td>75 - 80°C</td>
<td>Inflammable</td>
<td>&lt; 0.1%</td>
<td>Resistant to salt solutions, non-oxidizing acids as well as alkalis and alcohol.</td>
<td>Incineration does not yield any harmful substances.</td>
</tr>
<tr>
<td>Polypropylene (PP)</td>
<td>Translucent, bright surface</td>
<td>60 - 75°C</td>
<td>Inflammable</td>
<td>&lt; 0.1%</td>
<td>Resistant to aqueous solutions of inorganic salts, acids, organic solvents up to 60°C. Alcohol, esters and ketones do not &quot;attack&quot; PP.</td>
<td>Incineration does not yield any harmful substances.</td>
</tr>
<tr>
<td>Polycarbonate (PC)</td>
<td>Transparent, 86% light transmission (400-800 nm)</td>
<td>120 - 140°C</td>
<td>Inflammable</td>
<td>0.1 - 0.3%</td>
<td>Resistant to aqueous solutions of inorganic salts, acids, organic solvents up to 60°C. Alcohol, esters and ketones do not &quot;attack&quot; PP.</td>
<td>Incineration does not yield any harmful substances.</td>
</tr>
<tr>
<td>Polyethylene (PE)</td>
<td>Translucent to opaque, wax-like surface</td>
<td>300 - 360°C</td>
<td>Inflammable</td>
<td>&gt; 0.1%</td>
<td>Resistant to aqueous solutions of inorganic salts, acids, organic solvents up to 60°C. Alcohol, esters and ketones do not &quot;attack&quot; PP.</td>
<td>Incineration does not yield any harmful substances.</td>
</tr>
</tbody>
</table>

### Suitability depending on the plastic material and the nature of load applied.

- Suitable for limited applications.
- Not suitable.
- Suitable for limited applications.
- Not suitable.

### Compatibility

- HD-PE: 60 - 70°C
- LD-PE: 60 - 70°C

### Optical features

- HD-PE: 115 - 125°C
- LD-PE: 100 - 110°C
- PC: 125 - 140°C
- PS: 125 - 140°C

### Ignition temperature

- HD-PE: 70 - 80°C
- LD-PE: 60 - 70°C
- PC: 90 - 120°C
- PS: 90 - 120°C

### Humidity absorption

- HD-PE: 0.05
- LD-PE: 0.82

### General mechanical properties

- Max. usage temperature: 60 - 70°C
- Short-term max. usage temperature: 75 - 80°C

- Products made from PC can be autoclaved up to 121°C without significantly impairing their mechanical properties. Users are to test for themselves if autoclaving may have any effect on other characteristic product features so as to influence the individual application concerned.

- Products made from PP can be autoclaved up to 121°C without significantly impairing their mechanical properties. Users are to test for themselves if autoclaving may have any effect on other characteristic product features so as to influence the individual application concerned.

### Disposal and the environment

- Incineration does not yield any harmful substances.
- Controlled incineration does not yield any harmful substances.

- PE is highly resistant to chemicals. The chemical resistance of HD-PE is generally higher than that of LD-PE. Aqueous solutions, leaching solutions, alcohol, oil as well as water and salt solutions do not "attack" PE. Concentrated, oxidizing acids such as nitric acid and halogens have a decomposing effect.

* Suitability depending on the plastic material and the nature of load applied.

* Caution: Plastics start to become brittle at temperatures below zero. The suitability of products intended for use in these temperature ranges should be tested prior to application. These notes serve as a guideline only and do not constitute any confirmation of warranted quality.