PLEXIGLAS® Optical hard coated matt (HCM)

**Product**
PLEXIGLAS® Optical hard coated matt (HCM) is the matt variant of our extruded hard-coated PMMA sheet. In addition to resistance to a number of chemicals, the material offers a soft feel and anti-reflective properties, thanks to its matt surface finish. These properties make the material particularly suitable for backprinting of images and colors.

**Properties**
In addition to the known and proven properties of PLEXIGLAS® such as

- outstanding light transmission
- easy processability
- high surface hardness
- low weight, only half that of glass
- high impact resistance, 11 times that of glass

PLEXIGLAS® Optical HCM has the following special features:

- silk-matt surface with excellent resistance to abrasion and chemicals
- anti-glare effect due to the matt surface
- almost complete opacity to UV

**Applications**
Thanks to these properties, PLEXIGLAS® Optical HCM is particularly suitable for

- furniture making, for example as front-panel material
- shopfitting and trade-show booth construction
- large-area wall paneling
- picture glazing

**Processing**
PLEXIGLAS® Optical HCM is processed as easily as standard PLEXIGLAS®.

The following guides to processing of PLEXIGLAS® are available:

- Processing of PLEXIGLAS® (no. 311-1)
- Joining of PLEXIGLAS® (no. 311-3)
- Surface treatment of PLEXIGLAS® (no. 311-4)
- Fabricating tips for PLEXIGLAS® solid sheets (no. 311-5)

Special requirements for processing of hard coated PLEXIGLAS® variants are described in Technical Information PLEXIGLAS® Optical HC (no. 232-24).
## Technical Data

### Physical properties (clear, 3 mm thickness) | PLEXIGLAS® Optical hard coated matt (HCM) | Uncoated acrylic sheet | Unit | Test standard
--- | --- | --- | --- | ---
**Mechanical properties**
Tensile strength | 675 | 72 | MPa | DIN EN ISO 527
Modulus of elasticity | 3450 | 3300 | MPa | DIN EN ISO 527
Charpy impact strength | 10 | 15 | kj/m² | DIN EN ISO 527

### Optical properties
Light transmission | 92 | 92 | % | DIN 5036
Yellowing | < 0.5 | < 0.5 | % | DIN 5036
Average roughness value Ra | 0.57 | - | µm | DIN EN ISO 4287 / DIN EN ISO 4288
Gloss level (20°/ 60° / 85°) | (6.9 / 22.9 / 54.4) | - | ° | DIN EN ISO 2813

### Thermal properties
Vicat softening point | 106 | 103 | °C | ISO 306, Method B50
Building material class | B2 | B2 | - | DIN 4102
Toxicity | Requirements satisfied | Requirements satisfied | - | AITM 2.0005
Smoke density | Requirements satisfied | Requirements satisfied | - | AITM 2.0007 / FAR 25.853

### Abrasion resistance of coating
Abrasion resistance by the abrasive wheel method (100 cycles, 4.9 N, CS-10F) | < 3 | 20 - 30 | % Haze | ISO 9352
Pencil hardness | 5H | 2H | - | DIN EN 13523-4
Micro-scratch resistance | Class 1 | - | - | IHD-W-466
Adhesion | GT 0 | - | - | DIN EN ISO 2409

Other typical values are listed in Technical Information PLEXIGLAS® GS/XT (211-1).
Typical Properties - Chemical resistance

<table>
<thead>
<tr>
<th>Material</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceton²</td>
<td>&lt; 15 min</td>
</tr>
<tr>
<td>Gasoline²</td>
<td>&lt; 15 min</td>
</tr>
<tr>
<td>Disinfectant</td>
<td>&gt; 24 h</td>
</tr>
<tr>
<td>Ethanol (96 %)²</td>
<td>&lt; 1 h</td>
</tr>
<tr>
<td>Ethyl acetate and butyl acetate (1:1)²</td>
<td>&lt; 15 min</td>
</tr>
<tr>
<td>Isopropanol</td>
<td>&gt; 24 h</td>
</tr>
<tr>
<td>Methanol</td>
<td>&gt; 24 h</td>
</tr>
<tr>
<td>Sodium carbonate (10 %)</td>
<td>&gt; 24 h</td>
</tr>
<tr>
<td>Sodium chloride (15 %)</td>
<td>&gt; 24 h</td>
</tr>
<tr>
<td>Sodium hydroxide (30 %)²</td>
<td>&lt; 1 h</td>
</tr>
<tr>
<td>Hydrochloric acid (32 %)²</td>
<td>&lt; 1 h</td>
</tr>
<tr>
<td>Sulfuric acid (30 %)</td>
<td>&gt; 24 h</td>
</tr>
<tr>
<td>Toluene²</td>
<td>&lt; 15 min</td>
</tr>
<tr>
<td>Citric acid (10 %)</td>
<td>&gt; 24 h</td>
</tr>
</tbody>
</table>

¹ Chemical resistance is tested as in DIN EN 12720. The intervals between visual inspection of the sheet surfaces are 15 minutes, 1 hour, and 24 hours. The surface shows no change even after the specified time. The test surface is indistinguishable from the area around it.

² The surface of the samples showed a visible change within the specified time after contact with the undiluted medium. The material is more glossy.

Delivery Forms

PLEXIGLAS® Optical HCM is available ex stock as sheets of 3050 x 2050 mm in thicknesses of 2 mm and 3 mm.

Further details are available in the PLEXIGLAS® Sales Handbook.

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