SilFORT* UVHC5000

Description
SilFORT UVHC5000 is a clear, solvent based, UV-curing coating for use on polycarbonate parts to help protect against abrasion, chemical damage and degradation caused by ultraviolet radiation and weathering. It is an excellent candidate to consider for use on headlamp lenses for forward lighting, exterior/interior trim and exterior/interior polycarbonate sheets. It complies with the ECE automotive forward lighting regulations and is AMECA listed for five years exposure in Florida and Arizona.

Key Features and Typical Benefits

- 5 year weatherability listing
- Improved resistance to microcracking
- Transparent
- Easy-to-clean properties
- High chemical resistance
- ECE and AMECA compliant
- Overspray can be recovered and re-used
- Application by spray, dip, roller and flow
- Adhesion to most plastics

Typical Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>Typical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Form</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>Solids Content</td>
<td>% by weight</td>
<td>approx. 45</td>
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<tr>
<td>Kinematic Viscosity (at 25 °C)</td>
<td>cSt</td>
<td>approx. 10</td>
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</tbody>
</table>
Density (at 25 °C)  |  g/cm³ | approx. 1.01
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Shelf Life(1)  |  Months | 15

(1) From date of manufacturing, in original unopened container.

Typical properties are average data and are not to be used as or to develop specifications.

**Potential Applications**

- Automotive Forward Headlight Lenses
- High Performance Sheets and Films

**General Considerations for Use**

<table>
<thead>
<tr>
<th>Application Method</th>
<th>Spray, flow, dip, roller coating, ink jetting</th>
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</table>
| Reducing Solvents  | 1-methoxy-2-propanol (CAS#107-98-2)  
2-Butanol (CAS#78-92-2)  
2-Propanol (CAS#67-63-0)(2) |
| Relative Humidity (application and ambient flash off) | Max. 65% |
| Room Temperature Flash Off | 20 - 30 °C for 1 - 3 minutes |
| Pre-heating | 1.5 to 6 minutes to reach 65 - 95 °C parts surface temperature (3)(4) |
| Intermediate Cool Down | Optional |
| UV Cure | 3 – 12 J/cm² UV-A (EIT Inc. Power Puck II Device) (5),(6) |
| Recommended Hardcoat Thickness(7) | 8 - 16 μm |
| Recommended Thickness of Interpenetrating Layer | > 1 μm(8) |

(2) Other compatible solvents may be considered.
(3) Longer pre-heating times may be required when using convection heating instead of IR-heating.
(4) Modified, high heat resistant PC grades may require higher pre-heat temperatures.
(5) Use of un-doped, medium pressure mercury arc lamps or microwave powered Hg lamps with > 80 W/cm² power is recommended. Typical UV-irradiance is 0.2 to 0.6 W/cm². 0.25 W/cm² or higher may be required to achieve desired adhesion results after harsh humidity cycles.
(6) For applications that mainly require chemical resistance against solvents such as ketones, SilFORT UVHC5000 clear coat may be cured at a lower UV-dosage (1.5 J/cm²).
(7) Refractive Index \( n = 1.5 \).
(8) Higher thickness up to 6 μm may further improve adhesion after harsh humidity cycles.

For best results in applying clear coat, filter the coating solution by combining a 5 μm pre-filter, followed by a 1 μm absolute gel-filter.

To help ensure adequate UV-cure, work with the UV-lamp supplier to select suitable UV-reflectors for the parts to be treated.

Do not expose product to any source of visible white light prior to UV-cure. To avoid exposure when white light is present, do not use semi-transparent pipework.

Packaging
Currently available in:
- 25 kg Steel Pail with PE liner
- 180 kg Steel Drum with PE liner
- 25 kg (Pail)
- 181.6 kg Drum

Patent Status
Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

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