

SiIFORT™ UVHC3000K Clear Coat

Product Description

SiIFORT UVHC3000K clear coat is a clear, solvent-based, UV-curing coating typically used 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 PC-, SAN- or PMMA-sheets. It complies with the ECE automotive forward lighting regulations¹ and is AMECA listed for three years exposure in Florida and Arizona.

Key Features and Typical Benefits

- Excellent optical clarity
- Excellent chemical resistance
- Easy-to-clean properties
- Excellent abrasion and mar resistance
- Good weathering performance

Potential Applications

- Automotive forward headlight lenses
- Automotive interior components
- High performance sheets and films

Typical Physical Properties

| Property | Unit | Typical Value |
|---------------|------|---------------|
| Physical Form | – | Liquid |

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|--------------------------------|-------------------|------------------------|
| Appearance | – | Clear, slightly yellow |
| Solids Content | % by weight | approx. 45 |
| Kinematic Viscosity (at 25 °C) | cSt | approx. 9 |
| Density (at 25 °C) | g/cm ³ | approx. 1.02 |
| Shelf Life ² | Months | 15 |

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

General Considerations for Use

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| Application Method | Spray, flow, dip, roller coating, digital inkjet printing |
| Reducing Solvents | <ul style="list-style-type: none"> • 1- Methoxy-2-Propanol (CAS#107-98-2) 2-Butanol (CAS#78-92-2) • 2- Propanol (CAS#67-63-0)³ |
| Relative Humidity (Application & Ambient Flash Off) | Max. 65% |

1 Based on the requirements as of December 2021

2 From date of manufacture in original, unopened container

3 Other compatible solvents may be considered

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|---|--|
| Room Temperature Flash Off | 20 – 30 °C for 1 – 3 minutes |
| Pre-heating | 1.5 to 6 minutes to reach 65 – 95 °C part surface temperature ^{4 5} |
| Intermediate Cool Down | Optional |
| Typical UV-Cure | 3 – 6 J/cm ² UV-A (EIT Inc. Power Puck II Device) ^{6 7} |
| Recommended Hardcoat Thickness | 8 – 16 µm |
| Recommended Thickness of Interpenetrating Layer | >1 µm ⁸ |

4 Longer pre-heating times may be required when using convection heating instead of IR-heating

5 Modified, high heat resistant PC grades may require higher pre-heat temperatures

6 Use of un-doped, medium pressure mercury arc lamps or microwave powered Hg

lamps with > 80 W/cm power is recommended. Typical UV-irradiance is 0.2 to 0.6 W/cm²

7 For applications that mainly require chemical resistance against solvents such as ketones, SilFORT UVHC3000K clear coat may be cured at a lower UV-dosage (1.5 J/cm²)

8 Higher thickness of 2 µm 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 UV-reflectors that are appropriate for the parts to be treated.

Do not expose the product to any source of visible white light prior to UV-cure. To help 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

Contact Information

Email

commercial.services@momentive.com

Telephone

| Americas | Latin America | EMEAI- Europe, Middle East, Africa & India | ASIA PACIFIC |
|-----------------|----------------------|---|---------------------|
| +1 800 295 2392 | Brazil | Europe | China |
| Toll free* | +55 11 4534 9650 | +390510924300 | 800 820 0202 |
| +704 805 6946 | Direct Number | Direct number | Toll free |
| Direct Number | | | +86 21 3860 4892 |
| | | | Direct number |

| | | | |
|-------------------------|--|--|--|
| *All American countries | Mexico +52 55 2169 7670 Direct Number | India, Middle East & Africa + 91 44 71212207 Direct number* | Japan +81 3 5544 3111 Direct number |
| | | *All Middle Eastern countries, Africa, India, | Korea +82 2 6201 4600 |

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