SilFORT™ UVHC5000K1 Clear Coat

Product Description

SilFORT UVHC5000K1 clear coat is a clear, solvent-based, UV-curing coating 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 exterior/interior polycarbonate sheets. It complies with the ECE automotive forward lighting regulations① and is AMECA listed for five years exposure in Florida and Arizona.

Key Features and Typical Benefits

- 5-year weatherability listing
- Enhanced resistance to microcracking
- Excellent adhesion to various plastics
- Transparency
- High chemical resistance
- Mild solvent mix (alcohols)
- ECE compliant and AMECA listed
- Recoverability and re-use of overspray
- Application by spray, flow, dip and roller

Potential Applications

- Automotive forward headlight lenses
- High performance sheets and films

Typical Physical Properties

Property	Unit	Typical Value
Physical form	-	Liquid
Appearance	-	Yellow
Solids content	% by weight	approx. 50
Kinematic viscosity (@ 25°C)	cSt	approx. 14.9
Density (@ 25°C)	g/cm^3	approx. 1.00
Shelf life②	Months	15

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

① Based on the requirements as of April 2022

② From date of manufacture, in original unopened container

General Considerations for Use

Application method	Spray, flow, dip, roller coating
Reducing solvents	1-Methoxy-2-propanol (CAS#107-98-2) 2-Butanol (CAS#78-92-2) 2-Propanol (CAS#67-63-0)[3]
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 part surface Temperature[4][5]
Intermediate cool down	Optional
Typical UV-cure	3 – 6 J/cm² UV-A (EIT Inc. Power Puck II Device)[6][7]
Recommended hardcoat thickness[8]	7 – 16 µm[9]
Recommended thickness of interpenetrating layer	> 1 µm[10]

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 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 pail
- 180 kg drum

[3] Other compatible solvents may be considered

[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] For applications that mainly require chemical resistance against solvents such as ketones, the product may be cured at a lower UV-dosage (1.5 J/cm²)

[7] 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

[8] Refractive Index n = 1.5

[9] Layers of < 7 µm may achieve required abrasion & chemical resistance, as well as weathering protection, depending on substrate type and application conditions. In cases, higher film thickness (up to 20 µm) was applied, typically no detrimental effects on coating performance of headlamp lenses were reported

[10] Higher thickness of 2 µm up to 6 µm may further improve adhesion after harsh humidity cycles

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.

Product Safety, Handling and Storage

Customers should review the latest Safety Data Sheet (SDS) and label for product safety information, safe handling instructions, personal protective equipment, if necessary, emergency service contact information, and any special storage conditions required for safety. Momentive Performance Materials (MPM) maintains an around-the-clock emergency service for its products. SDS are available at » » » ı~ £~ n¡ŧV"nŋ£~ or, upon request, from any MPM representative. For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular application(s).

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