

SilFORT™ PHC587

Description

SilFORT* PHC587 premium-performance hard coat is a clear, non-yellowing silicone coating that can offer optimal protection against deterioration from weather, including ultraviolet rays, heat, cold, rain, snow and ice comparable to Momentive Performance Materials SilFORT AS4000. It also resists damage from sand and dirt. Additionally, SilFORT PHC587 silicone hard coat can provide improved productivity through primerless adhesion coupled with generally faster curing at 130°C. There is no need for a primer coat with typical polycarbonate materials.

SilFORT PHC587 coated polycarbonate complies with the ECE Automotive Regulations for European forward lighting applications, and the requirements of the DOT FMVSS #108 and is in the AMECA list of Acceptable Plastics for Optical Lenses and Reflectors Used on Motor Vehicles.

Key Features and Benefits

- Ultraviolet resistance
- Thermal resistance
- Abrasion and mar resistance
- Good clarity
- Solvent/chemical resistance
- Primerless adhesion to polycarbonate
- Single coating process step

Typical Physical Properties

Property	SilFORT PHC587 Hard Coat Values
Solids Content, % by weight	20 ± 1
Solvent	Methanol, 1-butanol, 2-propanol
Flash Point Pensky Martens, Closed Cup	19.4°C (67°F)
Density, lbs/gal (g/cc)	7.6 ± 0.1 (0.911)

pH	7.5 ± 0.3
Viscosity cstk @ 25°C	4 - 8
VOC, g/l	729
SiIFORT PHC587 Hard Coat on polycarbonate (thickness, 6 - 8 µm)	
Taber Abrasion ⁽¹⁾	< 10 d% Haze
Water Immersion ⁽²⁾	> 250 Hrs.

(1) Taber Abrader with 500g load CS10F wheels at 500 cycles. Haze % measured per ASTM D1003. Higher haze indicates greater abrasion. Humidity during coating and Taber wheel variability will affect final values.

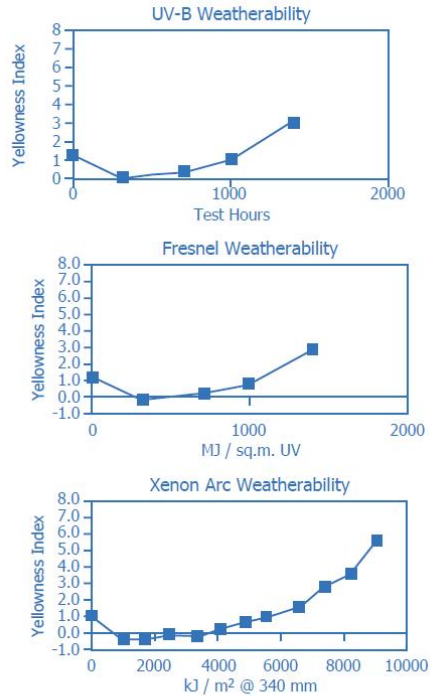
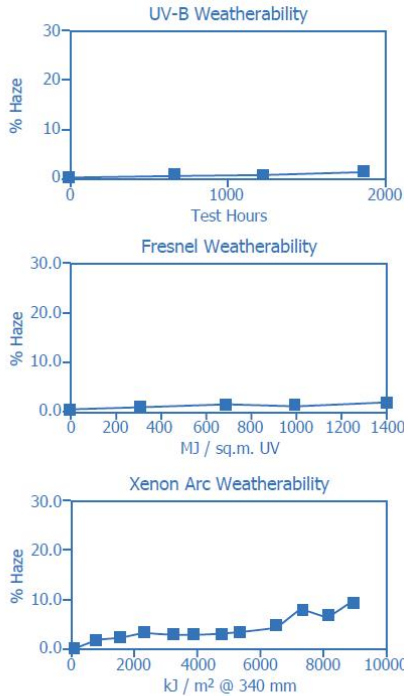
(2) Temperature = 65°C

Chemical / Solvent Resistance

10W30 Motor Oil	Power steering fluid
Ethylene Glycol	Antifreeze 0.1N sulfuric acid
Heavy Duty Brake Fluid	(Glycol) 0.1N sodium hydroxide
Windshield Washer Fluid	Auto polishing paste
Diesel Fuel	Battery acid

Weathering / Resistance

Accelerated Weathering Data	See charts. ⁽³⁾
UV-B Weatherability	
Fresnel Weatherability	
Xenon Arc Weatherability	



(3) UV-B weatherability test cycle is 8 hours with F540 lamps on at 70°C and 4 hours off with condensing humidity at 50°C. Fresnel weatherability is in Arizona U.S.A. with night time spray. Xenon Arc weatherability is per SAE J 1960.
 Note: Test results. Actual results may vary.

Patent Status

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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 www.momentive.com 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.

Processing Recommendations

General Requirements:

Coating area should be clean, dust-free (Class 10,000 or better), well-ventilated and with the relative humidity controlled to 40 ±10%. If necessary, parts should be washed or wiped clean with 2-propanol, a mild detergent solution and clean water rinse, or ultrasonic bath followed by a filtered-air blowoff and a final ionized-air blow-off.

Cleanliness is critical for the production of good parts. Coating solution should be filtered continuously or just prior to use to approximately 0.5 to 1.0 µm, using a 3 to 5 µm prefilter. Electric or indirect gas-fired ovens with good temperature distribution and air exchange are recommended.

SiIFORT PHC 587 Silicone Hard Coat:

The hard coat can be applied to parts by dip, spray, or flow coating methods. For spray applications and large-part flow coating, the solids of the coating can be reduced with an appropriate solvent (e.g. 2-propanol, 1-butanol). Coating should be applied to result in a cured film thickness of 6 - 8 µm or thicker, depending on application. The coating should be allowed to dry at room temperature until tack free approximately 10 to 20 minutes. After the part reaches a temperature of 130°C (266°F) SiIFORT PHC587 silicone hard coat typically cures to an abrasion resistant hardcoat in 30 to 60 minutes.

Limitations

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

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