

## SilFORT\* PHC587C

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#### Description

SilFORT PHC587C, is a clear, non-yellowing siloxane resin hard coat, which provides improved protection against coating- and/or substrate-deterioration from weather and ultraviolet rays. It is particularly improved in its resistance to long term cracking as a function of UV exposure. SilFORT PHC587C as an acidic coating, provides excellent productivity with its primerless adhesion to Polycarbonate, coupled with a curing at 130°C. SilFORT PHC587C complies to the ECE regulation for European forward lighting applications and is AMECA listed on most common PC grades.

#### Key Features and Benefits

- Improved microcrack resistance
- 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 PHC587C Hard Coat Values
Solids Content, % by weight	24.2 - 26.8
Solvent	Methanol, 1-butanol, 2-propanol
Flash Point Penske Martens, Closed Cup	19.4°C
Density, g/cm <sup>3</sup>	0.875 - 0.995
pH	4.6 - 6.7
Viscosity cstks @ 25°C	3 - 12
VOC, g/l	710

SilFORT PHC587C Hard Coat on polycarbonate (thickness: 6 - 12µm)

Taber Abrasion <sup>1</sup>	≤ 10D% Haze
Water Immersion <sup>2</sup>	≥ 250 Hrs.

<sup>1</sup> Taber Abraser® with 500g load CS10F Gen IV 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.

<sup>2</sup> 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	Paste Auto Polish
Heavy Duty Detergent	Petrol or leaded gasoline
Diesel Fuel	Battery Acid

**Containers**

- 25 kg steel pail
- 180 kg steel drum

**Patent Status**

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**Product Safety, Handling and Storage**

**CAUTION**

Compatibility of Momentive Performance Materials hard coat and polycarbonate resins is dependent on a number of factors including operational stresses, chemical exposure, temperature levels, impact and exposure to ultraviolet light.

While it is up to the end user to determine what application specific testing is appropriate, it is suggested that all polycarbonate resin applications be tested for at least thirty (30) days for compatibility and crazing with this hard coat use. There is no dependable substitute for careful testing of prototypes of production parts in typical operating environments.

**Refrigeration is required.**

The warranty period is 3 months from date of shipment from Momentive Performance Materials if stored in the original unopened container at 4 - 10°C.

**Preparation From Cold Storage**

Allow SilFORT PHC587C to return to room temperature in original container. When the coating reaches 15°C, gently mix the coating to re-constitute any material that may have separated. Solution should appear homogeneous at room temperature.

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## **Processing Recommendations**

### **General Requirements**

Coating area should be clean, dust-free ( $\leq$  class 10,000 acc. to US fed std. 209e or  $\leq$  class 7 acc. to ISO14644-1), well-ventilated, temperature controlled between 20 to 30°C, with a relative humidity controlled to  $40 \pm 15\%$ . If necessary, parts should be washed or wiped clean with 2-propanol, a mild detergent solution and clean water rinse, or an ultrasonic bath followed by a filtered-air blow-off 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 through a 0.5 to 1.0 $\mu\text{m}$  absolute gel filter, using a 3 to 5 $\mu\text{m}$  pre-filter. For flow coating applications, gel retaining fine filters are recommended. For thermal cure, electric or indirect gas-fired ovens with good temperature distribution and air exchange are required.

### **SilFORT PHC587C 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, SilFORT PHC587C can be reduced with an appropriate solvent (e.g. 1-butanol, 2-propanol). Coating should be applied to result in a cured film thickness of 6 - 12 $\mu\text{m}$  or thicker, depending on application. The coating should be allowed to dry at room temperature until tack free for approximately 10 to 20 minutes (depending on application method). After the part reaches a temperature of 130°C, SilFORT PHC587C cures to an abrasion resistant hard coat in  $\geq 30$  minutes.

Particularly for flow coating applications, for best performance, it is favorable to maintain an acetic acid level of 4% to ideally maximum of 7% in the re-circulating solution.

**Limitations**

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**Contact Information**

For product prices, availability, or order placement, contact our customer service at [Momentive.com/CustomerService/](http://Momentive.com/CustomerService/)

For literature and technical assistance, visit our website at: [www.momentive.com](http://www.momentive.com)

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