

## **SiLFORT™ SHC1200**

### **SiLFORT\* SHC1200**

#### **Description**

SiLFORT SHC1200 Hard Coat

SHC1200 hard coat has been found to yield a clear mar-resistant film when applied to a suitably prepared plastic substrate. It can be applied by flow, dip or spray coating.

#### **SiLFORT SHP401 Primer**

SHP401 air-dried primer is used as an adhesion promoter for SHC1200 hard coat on polycarbonate resin. It can be applied by flow, dip or spray coating.

#### **Key Features and Benefits**

- Fast cure
- Abrasion resistance
- Scratch resistance
- Good clarity
- Solvent/chemical resistance

#### **SHP401 Primer**

- No thermal cure required
- Improves coating adhesion
- Improves water resistance

- Improves ultraviolet resistance

### **SHP401 Primer/SHC1200 Hard Coat on polycarbonate (2 - 4 micron Topcoat Thickness)**

#### **Cured Film Properties**

Film Thickness, slow dip coat, 10-18 cm/min withdrawal, 18-20% solids at 22C	2 – 4 micron
Taber Abrasion, 500 cycles 500G on primed polycarbonate (CS10F wheel)	< 6.0 % Haze measured per ASTM D1003. *
Index of Refraction	1.4

\*Humidity during coating and testing will affect final values.

#### **Typical Physical Properties**

<b>Property</b>	<b>SHC1200 Hard Coat</b>	<b>SHP401 Primer</b>
Solids Content, %	20 ± 1	2.1 ± 0.2
Solvent	Methanol, Isobutanol, Isopropanol	1-Methoxy-2-propanol, Diacetone Alcohol
Flash Point, PMCC	19.4C	36.1C
Density, g/cm <sup>3</sup>	0.911	0.959
p <sup>H</sup>	7.3 ± 0.2	-
Viscosity, cstc @ 25°C	20 ± 3	4 - 7
Dry Film Thickness, micron	2.75 - 4.5	0.5
VOC, g/l	710	937

#### **Patent Status**

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#### **Product Safety, Handling and Storage**

##### **CAUTION**

Compatibility of Momentive Performance Materials hard coat and polycarbonate resin 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 before use. There is no dependable substitute for careful testing of prototypes of production parts in typical operating environments.

### **SHC1200 Hard Coat**

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 or below -15 °C (<5 °F).

### **SHP401 Primer**

Store and ship at ambient temperature approximately 2-43°C.

When stored in original sealed containers, SHP401 primer will have a warranty period of 6 months. Exposure to low temperatures may cause some solid precipitation. If this occurs, the precipitate may be redissolved by submerging the vented container in a water bath. Mix until homogeneous.

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](http://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, well-ventilated and with the relative humidity controlled to 40% +/-10% as required to achieve acceptable coated appearance and performance. If necessary, parts should be washed or wiped clean with isopropyl alcohol, 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. Both primer and hard coating solutions should be filtered continuously or just prior to use to approximately 0.5 to 1.0 micron, using a 3 to 5 micron pre-filter. Electric or indirect gas-fired ovens with good convection and air exchange are recommended.

### **SHC1200 Hard Coat**

The hard coat can be applied to primed parts by dip, flow, or spray coating in a well ventilated area. Use caution. Methyl alcohol, Isopropyl alcohol, Diacetone alcohol and Isobutyl alcohol contained in SHC1200 hard coat are hazardous. Read HANDLING & SAFETY. Do not proceed until this information is read and understood. Relative humidity in the coating area should not exceed 50% to avoid solvent blushing. The equipment used to apply SHC1200 silicone resin is of the same type used for the primer. Additionally, the dip tank must be refrigerated so that the hard coat resin can be maintained at about 4C. Maintain constant circulation and < 1 micron filtration. SHC1200 hard coat should air dry for about 20 minutes followed by thermal cure. After reaching part temperature, the coating cures at 130C in 30 minutes. For acrylic substrates cure at 90C for 1 - 2 hours.

### **SHP401 Primer**

The primer can be applied by dip, spray or flow coating to polycarbonate parts that have an initial stress level under 1000 psi. If a higher stress level is found to exist, the tool and molding conditions should be adjusted to reduce residual stress on parts. Alternatively, parts can be annealed to reduce stress, (for example, 30 minutes at 130C for each 2.5 cm of part thickness.) If necessary, primer solids content may be reduced by adding 1-Methoxy-2-Propanol/Diacetone alcohol (85/15) or pure 1-Methoxy-2-Propanol. The primer should be applied to obtain a dry film thickness of approx. 0.5 micron. After application, the primer should air dry until tack free (approximately 10

minutes). Recirculate the primer through a 1micron or finer filter.

### Availability

SHC1200 hard coat and SHP401 can be ordered from Momentive Performance Materials.

### 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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