Technical Data Sheet

SilFORT FHC620 Formable Clear Coat with SilFORT SHP470FT2050 Primer

Description

SilFORT FHC620 formable clear coat is a thermally cured siloxane clear coating for use on various types and grades of polycarbonate (PC). When applied over SilFORT SHP470FT2050 primer (sold separately), it helps provide good abrasion and chemical resistance, as well as protection from natural weathering, to PC. SilFORT FHC620 formable clear coat can be applied and pre-cured on 2D PC sheeting and then final cured during the thermoforming of the sheeting into 3D PC parts, which enables more flexibility and efficiency in the production of such 3D parts while still providing the desired protection.

Key Features and Typical Benefits

- Excellent 3D formability
- Excellent clarity
- Excellent abrasion and mar resistance
- Excellent solvent/chemical resistance
- Excellent adhesion to many grades of PC
- Easy to clean surface

Typical Physical Properties SilFORT SHP470FT2050 primer

Property	Unit	Typical Value
Solids Content	%	9

Viscosity (at 25 °C)	cSt	85
Density (at 25 °C)	g/cm^3	0.95
Shelf Life(1)	Months	48

(1) From date of manufacturing, in original unopened container at < 43 °C.

SilFORT FHC620 formable clear coat

Property	Unit	Typical Value
Solids Content	%	22
pH	-	5.8
Viscosity (at 25 °C)	cSt	5.5
Density (at 25 °C)	g/cm^3	0.985
Shelf Life(2)	Months	6

(2) From date of manufacturing, in original unopened container at <10 °C.
Typical properties are average data and are not to be used as or to develop specifications.

Potential Applications

The combination of its formability and protective benefits makes SilFORT FHC620 formable clear coat an excellent candidate to consider for the coating of 3D thermoformed PC parts such as those produced for the automotive industry.

General Considerations for Use

To promote adhesion of the clear coat to PC, the PC should first be primed with SilFORT SHP470FT2050 primer. The coating process consists of a pre-cure phase for the formable clear coat on 2D PC sheets, followed by a final-cure step during the forming operation of the PC-sheet into the desired 3D objects.

Typical Coating Application (Pre-Cure Phase, sheet unformed)

	SilFORT SHP470FT2050 primer	**SilFORT FHC620 formable clear coat**
Application Methods	Flow, spray, dip, roller coating	Flow, spray, dip, roller coating
Reducing Solvents	1-Methoxy-2-propanol (CAS# 107-98-2) Diacetonalcohol (CAS# 123-42-2) (1)	1-Methoxy-2-propanol (CAS# 107-98-2) 2-Propanol (CAS# 67-63-0)(1)
Relative Humidity (application and ambient flash off)	Max. 50%	35 -55%
Room Temperature Flash Off	20 – 50 °C for 10 – 20 minutes(3)	23 – 27 °C for 10 – 20 min (2)
Thermal Pre-Cure	No (only tack-free)	60 °C for 60 min (3)
Thermoforming Temperatures	Typically between 150 and 180 °C during forming, depending upon customer specific requirements.	
Recommended Coating Thickness(4)	0.3 – 1.5 µm	3 – 8 µm

(1) Other compatible solvents may be considered.
(2) Tack-free time is depending on application method, sheet length and thickness.
(3) Total oven time in preheated convection oven. Typical sheet thickness of 6 mm.
(4) Refractive Index SilFORT SHP470FT2050 n = 1.53; SilFORT FHC620 n = 1.43.

Thermoforming of 3D PC Parts Resulting in Final Thermal Cure of Coating

Typical thermoforming temperatures are between 150 and 180 °C during forming, depending upon 3D object specific requirements. The necessary temperatures, time and other conditions of thermoforming are dependent upon a series of factors including part dimensions, wall thickness, convection oven or IR-heater setup. One example of typical thermoforming conditions is 30 minutes at 175 °C for a PC sheet with thickness of 3 – 6 mm.

Packaging

Currently available:
25 kg Steel Pail with PE Liner.

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 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.

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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