

SilFORT™ UVHC7000

SilFORT* UVHC7000

Description

SilFORT UVHC7000 is a UV-curable, silica-modified coating designed to give optimum protection to multiple plastic substrates preferably for interior usage. Products coated with UVHC7000 include all applications where superior mar resistance combined with chemical resistance is demanded. In addition to the excellent abrasion-resistance, UVHC7000 offers specific anti-soil properties. UVHC7000 is supplied as a single-component lacquer in a mild glycol-ether solvent. This makes it suitable for chemical-sensitive substrates such as Lexan®[†] or Makrolon® Polycarbonate types, PMMA, ABS, SAN etc.

Key Features and Benefits

- Highly transparent
- Suitable for the protection of high quality optical parts
- Provides easy-to-clean properties
- Adhesion to multiple plastic substrates
- High chemical resistance
- High cure response
- Single solvent formulation
- Easy to recycle
- Spray, dip, roller and flow coatable

Typical Physical Properties

Test	Unit	Result
Physical Form	—	Liquid

Appearance	—	Amber
Solids Content	%	32.0 ±2.3
Dynamic Viscosity	mPa•s	5.0 ±0.7
Abrasion Resistance ⁽¹⁾	Δ haze in %	4.8 ±0.9
Water Soak Adhesion ⁽²⁾	—	4-5
Contact Angle (water) ⁽³⁾	°	>80
Density	g/cm ⁻³	0.985 ±0.022

(1) ASTM D1044/1003, CS10F wheels, 4th generation

(2) 10d at 65°C water immersion followed by tape pull test according to EN ISO 2409 on various PMMA, PC, PA, PPE/PA, PBT/ASA, ASA, SAN, ABS, E/MMA, PC/ABS-grades, substrate dependent

(3) Sessile drop method, measured on cured coating

Potential Applications

UVHC7000 can be applied by flow, spray, roller or dip coating. The coating is supplied at 32% non-volatile content. The coating may be thinned with 1-methoxy-2-propanol (Dowanol PM) or 2-propanol (isopropyl alcohol). The Relative Humidity (RH) should be in-between 20% and 55%, the ambient temperature ideally should be 20-30°C (68-86°F).

For all coating processes a two-stage filter consisting of a 2-5µm pre-filter (nominal) and a second filter of 0.5-1.0µm (absolute) is ideal. Independent of the application method, a flash-off period of 1-3 minutes is needed for evaporation of the solvents (spray application attracts a shorter flash-off time than flow, dip or roller-coating).

After the flash-off period, the coated substrate must be preconditioned at 60-80°C (140-176°F) part surface temperature for 5-7 minutes (air convection) or at 35-90°C (113-176°F) for 0.5-3 minutes (infrared lamps) to ensure total removal of solvents prior to curing, promote flow-out and help eliminate any orangepeel. The preheat time and temperature may differ between the various polymeric substrates and is dependent on the polymer glass transition and/or melting temperature. The coated part should be cured by UV radiation at 1800-3000 mJ/cm² and minimum 0.3 W/cm² peak intensity (UV-A, measured with EIT® Power Puck®). The recommended coating thickness is 5-15µm. For maximum scratch resistance a cure dosage of 3000 mJ/cm² and a coating thickness of >7µm should be targeted.,

Due to the light-sensitivity of UVHC7000 it is recommended to avoid the use of UV-transparent pipe-work to avoid gelling. Lights should be UV-shielded. All equipment and pipe-work should be of stainless steel polyethylene/polypropylene or polytetrafluoroethylene and conform to usage with acrylate monomers. The UV-lamps should be at least 80W/cm, Hg medium pressure (mandatory), not doped. It is suggested that the lamp supplier be contacted to ascertain the best configuration to cure a given article. Generally, as with most UV Curing systems, the focal length tolerance of a lamp reflector plays a major role in the efficiency of curing on shaped and even flat products.

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.

Packaging

UVHC7000 is available in 25 kg pails and 180 kg drums.

†Lexan is a trademark of Sabic Innovative Plastics B.V.
Makrolon is a trademark of Bayer Material Science

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