Technical Data Sheet

SilForce™ UV9600 Release Coating

Description

SilForce* UV9600 release coating is a photocurable epoxy-functional silicone polymer blend suitable for use in tape and label applications requiring premium release against aggressive acrylic and hotmelt adhesives. Properly cured UV9600 provides low, premium release compared with conventional UV curable silicone release agents on the market. SilForce UV9600 can be applied to film substrates, glassines, and certain nuetral or acidic sized paper liners. Any substrate should be carefully screened for compatibility with cationic UV curable silicone release coatings before commencing converting processes.

Key Performance Properties:

- Premium Release
- No or very small initiation spike
- Rapid photocure under ambient atmosphere
- Well suited for coating and cure on thermally sensitive substrates
- Stable aged release from aggressive acrylic PSA's
- Extended bath life if kept in dark at or below ambient temperature

Application and Cure:

SilForce UV9600 can be coated by any standard industrial coating technique suitable for solvent-free silicone release formulation that is capable of silicone deposition of ~ 0.5 - 2.0 g/meter^2 . 3 roll offset gravure, multiroll film splitting, flexo and other processes have been successfully employed to apply UV9600 on a wide range of film and paper substrates. If desired, catalyzed coatings of UV9600 can be applied

from solvent. Solvent vehicles for UV9600 should include an aliphatic and oxygenated solvent, for example a mix of heptane and MEK. We recommend exposure of catalyzed coatings of UV9600 to focused UV radiation immediatly after application to initiate cure. Approximately 100 W/cm lamp power per 100 meter/minute line speed is a good starting point for cure of UV9600 on most substrates. Cationic photocured epoxysilicone release coatings such as UV9600 are most efficiently cured by exposure to deep UV radiation < 300 nm wavelength. Medium pressure mercury vapor UV lamps, either arc- or microwave- fired, such as Fusion Systems H and H+ lamps, are highly recommended.

Formulation:
Film Substrate:
100 parts SilForce UV9600 + 2 parts SilForce UV9380C or UV9390C
Paper & Glassine Substrates:
100 parts SilForce UV9600 + 3 parts SilForce UV9380C or UV9390C

The optimal level of catalyst will be determined by the nature of the substrate, target line speed, UV light source, and other factors. Please consult Momentive technical experts for assistance.

Typical Properties:

Solids, Wt. %:	>98%
Viscosity, cstk (25C):	400
Specific Gravity (20C)	0.99
Appearance	Clear, pale amber viscous fluid

Product Packaging:
1 Kg (sample)
25 Kg (pail)
180 Kg (drum)
950 Kg (tote)

Instructions For Use

Bath Preparation

Weigh desired amount of UV9600 into a clean, rust-free plastic or metal container. Add proper amount of UV9380C or UV9390C catalyst, then stir vigorously for at least 10 minutes to completely disperse the catalyst in the epoxysilicone polymer, using a mechanical stirrer to achieve thorough dispersion. A well mixed coating formula is critical to ensure proper cure and performance. If the coating bath is allowed to sit undisturbed for a few hours, remixing is recommended.

Bath Life

A well-mixed, catalyzed bath of UV9600 will retain coatability and good cure for several days if left in a dark, sealed container and remixed before use. Exposure to sunlight, strong fluorescent room lighting, and prolonged exposure to temperatures > 40C will hasten viscosity build and ultimately, gelation. Inadvertent contamination with acidic substances will also promote crosslinking and gelation of the coating bath.

Substrates

The choice of substrate is critical to obtaining desired photocure response and release performance. Silforce UV9600 coatings are best-suited for application to glossy plastic (films) liners, including LDPE, HDPE, PCK, PP, BOPP, PET, and PS. Films used for cationic UV cure silicone systems should be free of basic surface agents such as caclium stearates, and free of basic internal slip agents such as fatty amides. Flame- and chemically treated films with surface energy > 40 dynes are recommended for use to aid anchorage of the cured silicone. In-line corona treatment immediatly prior to silicone application is especially recommended. Silane additives such as Momentive A-186 or Anchorsil 9000 can be used in coating baths to improve anchorage of UV9600 to PET. Certain papers with acidic sizing or surface treatment can be coated with UV9600 release coating; glassines are usually compatible with these products.

Cure Chemistry

Cationic type crosslinking (cure) of epoxysilicone release agents is initiated by strong acids that are generated upon UV light absoprtion of sensitized iodonium salt ingredients of UV9380C or UV9390C present in the coating formula. The acid species in turn promote ring-opening polymerization of the cyclohexylepoxy groups

pendant on silicone molecules. Any substahce present as a contaminant in the coating bath or in the substrate that can neutralize the photogenerated acid will slow or prevent cure. Basic or nucleophilic chemicals including organic amines and phosphines, fatty amide slip agents, organotin soaps and other metal driers act as poisons and their presence will adversely affect product performance. Plasticizers commonly included in thicker gauge PE and PET will also interfere with photocure of UV9600 coatings. In general, the 'cleaner' the substrate (film or paper), the better! The Momentive technical support team will be pleased to assist in screening of substrates for use with SilForce UV9XXX coatings.

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

UV9600, UV9380C, and UV9390C are not considered hazardous, but proper industrial hygiene practices must be followed to prevent accidental skin or eye contact with these products. MSDS for all the Momentive UV cure release agents should be sent with any shipment or sample of UV9XXX delivered.

When correctly stored at 25C or lower in its original unopened container, the shelflife of UV9600 is 720 days from date of manufacture. Extended storage is promoted by prompt resealing of the product container and prevention of contamination with water, acids or bases, or other extraneous materials.

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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For literature and technical assistance, visit our website at: www.momentive.com

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