

# SilForce™ UV9700

## Product Description

SilForce UV9700 as a base polymer application is a photocurable epoxysilicone polymer composition suitable for use as release coating against aggressive bitumen, acrylic pressure sensitive adhesives and hot melts. It provides a low release force (easy peel off) in comparison with the standard UV silicone release coatings available on the market. SilForce UV9700 is suitable for paper and plastic substrates. The processing conditions of this unique epoxypolymer must be finetuned, in order to achieve an optimal cured coating. SilForce UV9700 can be used as an additive for increasing the viscosity of the bath as well as for decreasing the release force.

## Key Features and Typical Benefits

- Premium release
- No initial spike
- UV cure under normal atmosphere
- Excellent performance on thermally sensitive substrates
- To increase the viscosity of the bath for open substrates

## Applications

SilForce UV9700 polymer may be coated by any of the standard industrial solvent-less silicone coating techniques capable of depositions in the 0.5-1.5 g/m<sup>2</sup> range. These include 3-roll offset and smooth multi-roll coating heads. Immediately after coating, the web should pass under a bank of UV lamps to initiate cure. For starting processing conditions, we advise to have an output of around 100-120 W/cm for a line speed of 50-100 m/min. Our epoxysilicone release coating are most efficiently photocured by deep UV radiation, particularly <300 nm wavelength. Either ARC or microwave fired, medium pressure mercury vapor lamps are recommended. Fusion Systems' H or H+ sources have been found to be well suited for the photocure of our UV9700 polymer.

## Suggested Formulation

Substrate	Parts by Weight	
	SilForce UV9700	SilForce UV9390C
Films	100	2.0
Papers	100	3.0

The level of photo-initiator SilForce UV9390C must be optimized according to the quality of the substrate and the processing conditions. For assistance, please feel free to contact our technical service people.

## Specifications

Typical product data values should not be used as per specifications. Assistance and specifications are available at the technical service department of Momentive Performance Materials.

## Typical Product Data

Property	SilForce UV9700
Viscosity, mPas @20°C	6000
Specific Gravity*	0.99

\*1 gram, 45 min. @150°C

## Containers

- 1 kg sample
- 18 kg pail
- 200 kg drum

## General Considerations for Use

### Bath Preparation

Weigh the required amount of SilForce UV9700 in a clean rust-free container. Add the needed amount of SilForce UV9400, for example, and stir it for few minutes. Add UV9390C photoinitiator and mix the bath for 5-10 minutes if let undistributed for long periods of time, it must be thoroughly re-mixed before use.

### Bath Life

The bath life of catalyzed SilForce UV9700 polymer may be as long as 5 days in a dark environment, i.e., in a light proof container having a tight-fitting closure, at normal room temperature. Bath gelation, or excessive viscosity increase, will result from exposure to sunlight, fluorescent light, high ambient temperature (e.g. 40°C) or when contaminated with strong acids. Intermittent opening of the container with some exposure to light will shorten the working bath life by an amount dependent on frequency of opening and ambient light intensity. Constant exposure to fluorescent lighting will give a bath life of approximately 24 hours. Exposure to bright, direct sunlight will give a bath life of less than 24 hours.

### Substrates

The SilForce UV9700 system can be applied on substrates having a gloss finish such as 'clean' as possible (no external plasticizer like Ca or Zn stearate and low level of antioxidant). All filmic substrates should have surface tension 45-50 dynes/cm range as measured by ASTM D-2578 wetting test, in order to have a good anchorage of the UV coating. The corona treatment may be done in-line just prior to coating, or off-line in advance of coating.

Optimal anchorage of the SilForce UV9700 system can be obtained on LDPE substrates, while on other substrates like HDPE an anchorage polymer might have to be used to obtain good anchorage.

The SilForce UV9700 / SilForce UV9390c system for paper substrates, but we recommend paper having a topcoat slightly acidic or neutral, and preferably with a superior holdout.

Cationic cross-linking (curing) of coating SilForce UV9XXX based epoxysilicone release agents is triggered by photogeneration of a 'super-acid' (very strong Bronsted acid species) followed by acid-catalyzed ring-opening polymerization of cycloaliphatic epoxy groups pendant on the polydimethylsiloxane molecules. Any substance present either as a containment in the formulation or in the substrate that can neutralize or otherwise react with the 'super-acid' will slow or prevent cure of the coating. Basic or nucleophilic substances including organic amines, fatty amides, phosphines, tin soaps (such as dimethyltin diacetate), water, inorganic bases (such as KOH and the like) and most metal driers are such poisons. Plasticizers commonly present in film substrates (particularly thicker gauge films) are known to interfere with cure and anchorage. It is always best to screen substrates (whether plastic films, paper, or glassine) to confirm compatibility with SilForce UV9XXX system cationic cure chemistry before commencing production of UV silicone coated liner. In general, the 'cleaner' (as free from slip agents, antioxidants, fillers etc) the substrate is, the more likely it can be coated with UV silicone and subsequently cured quickly and consistently.

### 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](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.

\*Correctly stored in its original, unopened container at 25°C SilForce UV9700 has a shelf life of 720\*\* days from the date of manufacturing. \*\*Please see also use-before/expiry date on product label and certificate.

## 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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