

SilForce™ UV9430 Release Coating

SilForce* UV9430 Release Coating

Description

SilForce UV9430 release coating is a proprietary photocurable cycloaliphatic epoxy functional silicone polymer mixture. Photocured coatings of UV9430 provide tight (high) release of pressure sensitive adhesives in label constructions. UV9430 is used with UV9380C or UV9390C photocatalyst solution and is typically blended with UV9315 or UV9400 in order to provide a desired level of release performance. Catalyzed coating formulations including UV9430 are applied to paper or plastic (film) liner substrates by means of standard solvent-free silicone coating techniques capable of providing defect-free coatings in the 0.5 to 2.0 gram/meter² (0.25 - 1.5 lb/ream) coatweight range. UV9430 is rapidly crosslinked on exposure to focused ultraviolet light when mixed with cationic photocatalysts UV9380C or UV9390C, . UV9430 is useful for differential release applications when coated alone or combined with either UV9315 or UV9400.

Key Features and Benefits

- Fast Photo cure response in ambient atmosphere (inerting not required)
- Low temperature cure, suitable for thermally sensitive film or plastic laminate substrates
- Controlled, tight release either used alone or with UV9315 or UV9400
- Long catalyzed bathlife stored in the dark at or below room temperature
- Solvent-free, non hazardous product

Typical Physical Properties

Property	Typical Value
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Viscosity, 25C	500 cstk (Ostwald)
Specific Gravity, 25C	0.999
Lbs./gallon	8.34
Epoxy Equivalent Weight*	1300 grams/mole oxirane

* Potentiometric titre

Performance:

Silforce UV9430 serves as a controlled release additive when used in blends with UV9315 or UV9400. UV9430 can also be applied as a stand-alone coating and may be used with other compatible UV curable cycloaliphatic epoxy functional polymers and monomers, vinyl ether monomers and oligomers, and oxetane compounds.

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

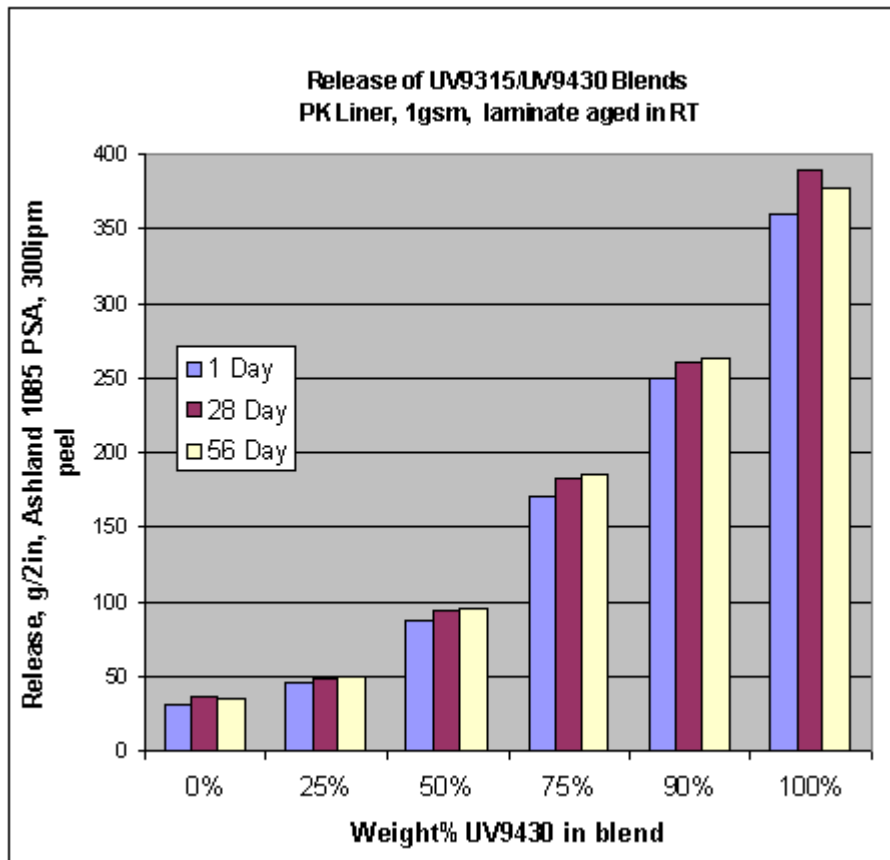
The warranty period is 12 months from date of shipment from Momentive Performance Materials if stored in its original unopened container at 25C (77F). As with any reactive chemical system, due care should be taken to avoid contamination from other chemicals, especially strong acids and bases. UV9430 epoxy-silicone polymer will retain its original properties for up to 12 months when stored at room temperature in its original sealed container. Freezing of UV9430 will not harm the product, which should be warmed to room temperature before use.

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.

Processing Recommendations

Photocured coatings which include UV9430 retain release differential post-cure, as depicted in Figure 1.



Useful release differential is normally achieved by blending 25 to 75 parts of UV9430 with 75 to 25 parts of either UV9315 or UV9400, then mixing the polymer blend with 1 to 3 parts of UV9380c or UV9390c catalyst. The recommended catalyst content is a function of substrate. 1-2 parts of catalyst per 100 parts epoxysilicone polymer(s) are normally sufficient for good cure on film or plastic laminate (such as polyethylene coated kraft paper) liners, while 2-4 parts of catalyst per 100 parts of epoxysilicone polymer blend are suggested for proper cure performance on paper and glassine liner materials.

Depending on the particular epoxysilicone polymer mix used, the catalyzed coating bath may vary in appearance from very hazy to a clear solution. The catalyst may settle out of hazy coating baths after prolonged standing, in which case vigorous, thorough remixing is required before resuming use of the coating mixture. Catalyzed coating baths including UV9430 will remain useful for several days to several weeks provided storage in the dark at or below room temperature is practiced. The active ingredient in the catalyst is an iodonium salt cationic type photocatalyst, which is a deep UV absorbing molecule (< 300 nm wavelength light). Medium pressure mercury vapor lamps, either arc fired or electrodeless microwave fired type are recommended UV light sources for photocure of coatings of UV9430 and other epoxysilicones. Typical coating formulations are noted below:

Input	Parts by Wt.			
	0	25	50	75
UV9315 or UV9400	0	25	50	75
UV9430	100	75	50	25
UV9380 c or UV9390c	1-3	1-3	1-3	1-3*

* UV9380c or UV9390c charge depends on substrate (see text)

NOTE: Blending UV9430 with UV9300 or UV9500 is not recommended for differential release applications

Application

Silforce UV9430 polymer or blends with UV9XXX polymers may be coated by standard industrial solventless silicone coating techniques such as differential offset gravure or multiroll coaters.

Substrates

Silforce UV9430 polymer, either alone or in blends with UV9315 or UV9400 may be coated on most film and film laminate substrate liners including polyethylenekraft and polypropylene kraft papers, HDPE, MDPE, LDPE, PET, OPP, and polystyrene. Films selected for use with cationic photocurable epoxysilicones should be as free from slip

agents, plasticizers, or other additives as possible, as many such materials interfere with photocure processes and anchorage. Corona treatment, preferably in-line prior to coating, is highly recommended to optimize anchorage of the silicone coating to film and film laminates. Dyne levels of at least 45 dyne/cm are preferred. Selected paper and glassine liners can be coated with UV epoxy silicones provided that the sheets used are neutral or acidic through sizing, coating, or other treatment. As noted above, higher photocatalyst concentrations (2-3 phr) are normally required for good performance on paper and glassine compared to catalyst content (1-2 phr) recommended for film applications. We urge thorough evaluation of any substrate to insure that it is suitable for use with Momentive Performance Materials UV9XXX systems before committing to commercial production.

Bath Life

The bath life of catalyzed UV9430 polymer or its blends varies from a few days to a month or more in a light proof container at or below room temperature. Bath gelation or high bath viscosity will result from exposure of a catalyzed formula to high ambient temperature (e.g. 120F) or contamination with strong acids. Exposure of photo catalyzed coating baths to sunlight or fluorescent lights will limit bath life of this material to less than 24 hours. Momentive Performance Materials does not guarantee performance of catalyzed coating baths that include UV9430 that are more than a few hours' age.

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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