

AnchorSil™ 9000 UV Anchorage Additive

Product Description

AnchorSil 9000 has been found useful to promote improved anchorage of the UV9XXX system to certain high surface energy film liner substrates, most notably polyester (PET), polypropylene, and biaxially oriented polypropylene (BOPP). This product is strictly an additive, and is not intended for use other than as a minor component of a completely formulated, catalyzed UV cure silicone release composition. For example, a typical formulation employing AnchorSil 9000 would be a 100:2:2 blend of UV9400:UV9390C:AnchorSil 9000. While AnchorSil 9000 can assist anchorage of UV9XXX release coatings on certain film liners, the product cannot overcome rub-off or other manifestations of cure inhibition caused by chemicals or additives present in the liner itself.

Key Features and Typical Benefits

- Reduces rub-off of UV cured release coatings from PET, PE, and (BO)PP liners
- Effective at low concentration
- Does not affect release performance
- No detackifying effect on PSA's

Typical Physical Properties

Property	AnchorSil 9000
Specific Gravity 25/25°C	1.00

Typical properties are average data and are not to be used as or to develop specifications.

Potential Applications

AnchorSil 9000 anchorage additive is recommended for use with the UV9XXX

epoxysilicone release system on films where anchorage of the coating is problematic. Polyester (PET), polyethylene and oriented polypropylene (OPP) liners are often found to be poorly suited for standard radiation cure silicone release agents due to poor adhesion of coatings to substrates. It is important to determine if substrates include additives such as fatty amide slip agents, plasticizers, or other substances that are known to bleed to liner surfaces and interfere with photocure chemistry. In cases of 'poisoning', different liners are necessary if cationic UV cure epoxysilicone systems are being considered for use. As a general rule, the 'cleanest' additive-free films should be specified for use as liners with radiation cure silicones to prevent chemical inhibition of cure. Rub-off of well-cured silicone indicates that anchorage failure is not the result of cure inhibition, and in such cases AnchorSil 9000 can be used to improve adhesion of silicone.

General Considerations for Use

AnchorSil 9000 should be used in cases where UV cured coatings of UV9XXX release agents exhibit poor anchorage (manifested as rub-off) to plastic or plastic-laminated paper release liners. Most commonly, certain grades of polyester (PET) do not accept radiation-curable silicone release agents well. This problem can be observed immediately after cure or as the cured coating ages. In-line corona treatment of the substrate (to at least 40 dynes/cm or higher treatment levels) prior to silicone application is recommended when plastic liners are coated with the UV9XXX epoxysilicone system. If corona treatment alone does not resolve poor anchorage, AnchorSil 9000 can be added to the UV curable formulation. 1-3 parts of AnchorSil 9000 per 100 parts of UV9XXX polymer are recommended; higher levels of AnchorSil 9000 are generally not useful. Typical coating baths would include 100/2/3 UV9400/UV9390C/AnchorSil 9000 or 100/2/2 UV9300/UV9390C/AnchorSil 9000 for low release applications, and 50/50/2/3 UV9315/UV9430/UV9390C/AnchorSil 9000 for controlled release applications.

Wet-out and adherence of a silicone to a film substrate is a complex phenomenon. Rub-off of cured silicone can result from shrinkage of a coating, as it is very rapidly crosslinked, or from insufficient time for the coating to flow out and completely wet the film surface prior to photo-cure. Poor anchorage can also result from poor cure at the silicone-liner interface due to basic or other inhibiting substances present in the liner; if this is the case, AnchorSil 9000 will not permit use of chemically incompatible liners. Most coating lines have UV cure stations set up very close to the coating head, so that

the silicone has very little opportunity to flow-out to a defect-free coating on the film liner before rapid crosslinking occurs.

Cationic crosslinking (curing) of coatings of 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 contaminant 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, Ca(OH)₂ 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 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.

For details about which substrate to use, please feel free to contact our technical service people.

Packaging

- 1 kg sample
- 18 kg pail

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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