

SilForce™ UV9440E Release Coating

SilForce* UV9440E Release Coating

Description

SilForce UV9440E release coating is an additive intended for use in UV curable epoxysilicone release coating formulations. SilForce UV9440E photocures into crosslinked epoxysilicone networks and acts to reduce the 'zippy' character of radiation-cured silicone release, provide for smooth, low coefficient of friction coating character, and premium release of most aggressive pressure sensitive adhesives, particularly at low strip speed. UV9440E reduces the bulk modulus of crosslinked epoxysilicone coatings, which in turn leads to higher release at high peel speed, suitable for high speed roll label converting operations. UV9440E has also been found to assist in release of aggressive mastic, asphaltic, and hydrogel type adhesives. SilForce UV9440E is a linear polydimethylsiloxane with reactive carbinol (alcohol) functionality at the chainstopper positions. SilForce UV9440E can also be used as a curable slip agent in compatible urethane coating formulations.

Key Features and Benefits

- Reduction of Coefficient of Friction of cured epoxysilicone coatings facilitates rewind of thin film silicone liners
- Provides for premium low peel release
- Reduces 'zippy' release performance and initiation spike often observed in cured epoxysilicone release coatings

Typical Physical Properties

Property	Value
Viscosity, 25C	1000 cstk (Ostwald)
Solids*	> 99.5%
Specific Gravity, 25C	0.99
Hydroxyl Equivalent Weight (theoretical)	2500 grams/mole OH

* weight loss, 1 gram, 45 minutes @ 150C

Potential Applications

Substrates

All film and paper substrates compatible with UV9XXX polymers are suitable for UV9440E coatings.

Patent Status

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Processing Recommendations

FORMULATION AND APPLICATION

UV9440E may be added to any of the UV9XXX epoxysilicone polymers to alter performance. In general, 2 to 10 parts of UV9440E per 100 parts of total polymer formulation have been found useful to promote premium release and low CoF properties. NOTE: UV9440E cannot be used by itself, but only as an additive. The effect of UV9440E on release performance of easy and tight release coatings is displayed in Figures 1 and 2, respectively. Reduction of CoF by addition of UV9440E is illustrated in Figure 3. UV9440E can be used with various combinations of easy and tight release polymers, the effects of which are depicted in Figure 4. UV9440E provides great latitude in formulation possibilities for users of Momentive Performance Materials

UV9XXX systems. Catalyzed blends of UV9440E plus other epoxysilicone polymers will vary in appearance from very hazy to nearly clear solutions, depending on the precise formulation. UV9380C catalyst may drop out of suspension from hazy coating baths if the bath sets undisturbed for extended periods, necessitating vigorous, thorough remix prior to reuse.

Suggested Formulations

Component	Parts by Weight		
	Formula A	Formula B	Formula C
UV9XXX	98	95	92
UV9440E	2	5	8
UV9380c ^{***}	2	2	2

^{***}Catalyst level recommended for plastic films. For paper substrates, 3 parts of catalyst are recommended.

Bath Preparation

Weigh the required amount(s) of UV9XXX polymer(s) and UV9440E in an inert clean container, mix them thoroughly and add the proper amount of UV9380c catalyst. Mix the bath with a mechanical stirrer for 10 to 15 minutes. Thorough mixing is critical for proper performance. If the bath is left undisturbed for long periods of time, it must be thoroughly re-mixed.

Bath Life

Catalyzed UV9300, UV9315, UV9400, UV9430, UV9425, UV9500/UV9440E baths will be usable for several days if stored in the dark at ambient temperatures. Settling out of catalyst may occur, depending on particular polymers used, so vigorous re-agitation of catalyzed baths is recommended before re-use.

Figure 1

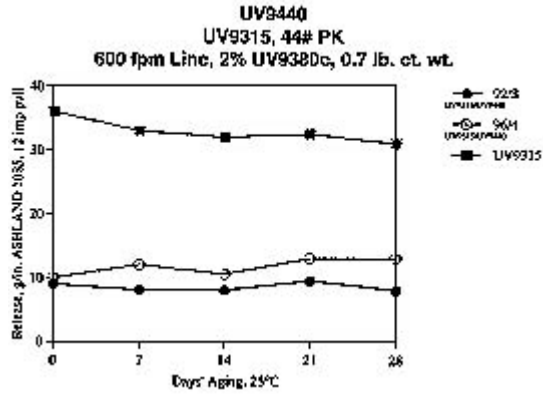


Figure 2

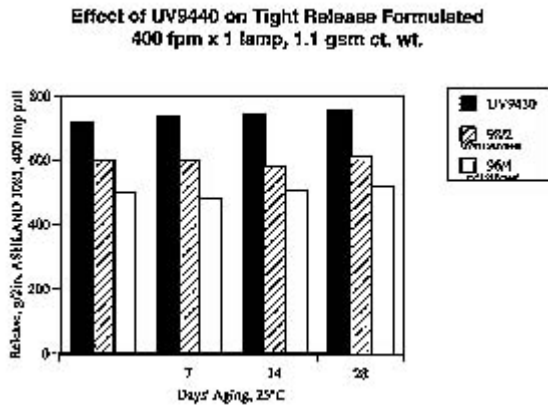


Figure 3

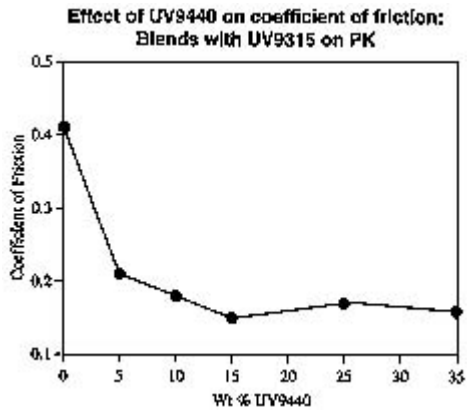


Figure 4

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