Technical Data Sheet

SilForce™ SL6575

SilForce* SL6575

Description

SL6575 is a thermal cure solventless silicone release coating system designed for use in the manufacture of release liners for pressure sensitive tapes and labels. SL6575 includes a vinyl silicone polymer, a cure catalyst, and an inhibitor for ease of formulation. SL6575 is characterized by a flat dynamic release profile. It may be suitable for use on paper and certain film substrates in one-and two-sided constructions.

The SL6575 system consists of easy and tight release polymers that are delivered mixed with platinum catalyst and inhibitor. The SL6575 system can be used with either of three silicone crosslinkers.

- SL6575 Easy Release Polymer pre-blend
- SL4406 Tight Release Polymer (CRA) pre-blend
- SS4300c Homopolymer Crosslinker, or
- SL4320 Enhanced crosslinker, or
- SL6020-D1 Copolymer Crosslinker

SL6020-D1 crosslinker is recommended for fast cure at low temperature. SS4300c is used for superior anchorage to difficult substrates such as films or clay coated kraft. SL4320 combines the fast cure performance of SL6020-D1 with the anchorage enhancement of SS4300c.

Key Features and Benefits

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- Flat release profile for high speed label dispensing
- Low extractable silicone when properly cured
- Compatible with most acrylic and rubber based adhesives
- Controlled release available with SL4406 pre-blend
- Good bulk and thin film bath life
- Easy to handle and to formulate (pre-blended system)

Typical Physical Properties

Property	Value	Unit of Measure
Viscosity, Ostwald, 25C	225 - 350	cstk
Density, 25°C	8.07	Lb./gal
VOC (EPA Method 24)	0.1	%
Appearance	Clear to slightly hazy	

REGULATORY STATUS

All components of the SL6575 system are on TSCA, EINECS, and other inventories.

The SL6575 system without tight release polymer complies with these FDA regulations:

- 175.320, resinous and polymeric coatings for polyolefin films
- 176.180, components of paper and paperboard in contact with dry foods for use as release surfaces for pressure sensitive adhesives.
- 176.170, components of paper and paperboard in contact with aqueous and fatty foods

Potential Applications

Possible applications include release liners for pressure sensitive tapes and labels.

Patent Status

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Product Safety, Handling and Storage

CAUTION NOTE: SL6020-D1, SL4320, and SS4300C crosslinkers generate flammable hydrogen gas on contact with strong acids, bases, and oxidizing agents. Empty containers of the crosslinkers should not be reused.
The limited warranty period for SL6575 is 12 months from date of shipment from Momentive Performance Materials if stored in original unopened container at or below 25°C (77°F).

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Processing Recommendations

APPLICATION

The SL6575 coating system can be applied by most of the commercial methods in use for solventless silicone coating. These include three-roll differential offset gravure and various smooth roll configurations. Heat should be applied immediately after coating to initiate cure.

Good results are obtained by use of zoned ovens. Operation of the first oven zone at 90 - 120 °C(200 - 250 °F) allows the silicone to level and form a continuous film before crosslinking commences. Subsequent oven zones should be high enough in temperature to achieve required web (substrate) temperature to insure crosslinking of the silicone. A web temperature of 120 °C (250 °F) is generally required for fast, complete cure of SL6575.

This information is intended as a guide; actual web temperature required for optimal performance is dependent on machine conditions, oven type, oven air velocity, coating weight, and substrate. A certain minimum web temperature must be maintained for a certain finite time for satisfactory cure of SL6575 release coating. This time and temperature are a function of oven length, oven air velocity, crosslinker concentration, and basis weight of substrate.

FORMULATION RECOMMENDATIONS

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PARTS BY WEIGHT			
Component	**No CRA**	**20% CRA**	**40% CRA**
SL6575	100	80	60
SL4406	0	20	40
SL4320	8	9	10

To obtain better anchorage (on clay coated krafts or films), SS4300C crosslinker is recommended. To calculate amount of SS4300C required, multiply the amount of SL4320 noted in table above by 0.79. If faster cure is needed, SL6020-D1 crosslinker is recommended; multiply the SL4320 charge by 1.38.

Suggested formulations in the above table are based on cure optimization studies and are substrate and adhesive-dependent. High and unstable release, particularly from aggressive acrylic adhesives, can result from use of too much crosslinker. We suggest that users of SL6575 system consult with the technical assistance staff at Momentive Performance Materials for help in formulation of release coatings.

BATH LIFE

The working life of a fully formulated solventless silicone release agent will vary dependent on catalyst and inhibitor levels, ambient temperature and humidity, and crosslinker levels. The formulations suggested in the above table will have a minimum useable life of 8 hours. If formulated unused coating is saved, refrigerated storage will extend its useful life.

Preparation of Coating Formulations

To ensure consistent results and long bathlife, the components of the coating bath should be mixed in this order: weigh and add the base polymers (SL6575 and SL4406 CRA) first, to a clean mixing vessel, agitate for a few minutes, then add the SL4320 or other crosslinker. The complete coating bath should be mixed for 10-15 minutes to create a homogeneous mixture. Baths should be prepared just before use.

Coat Weights and Substrates

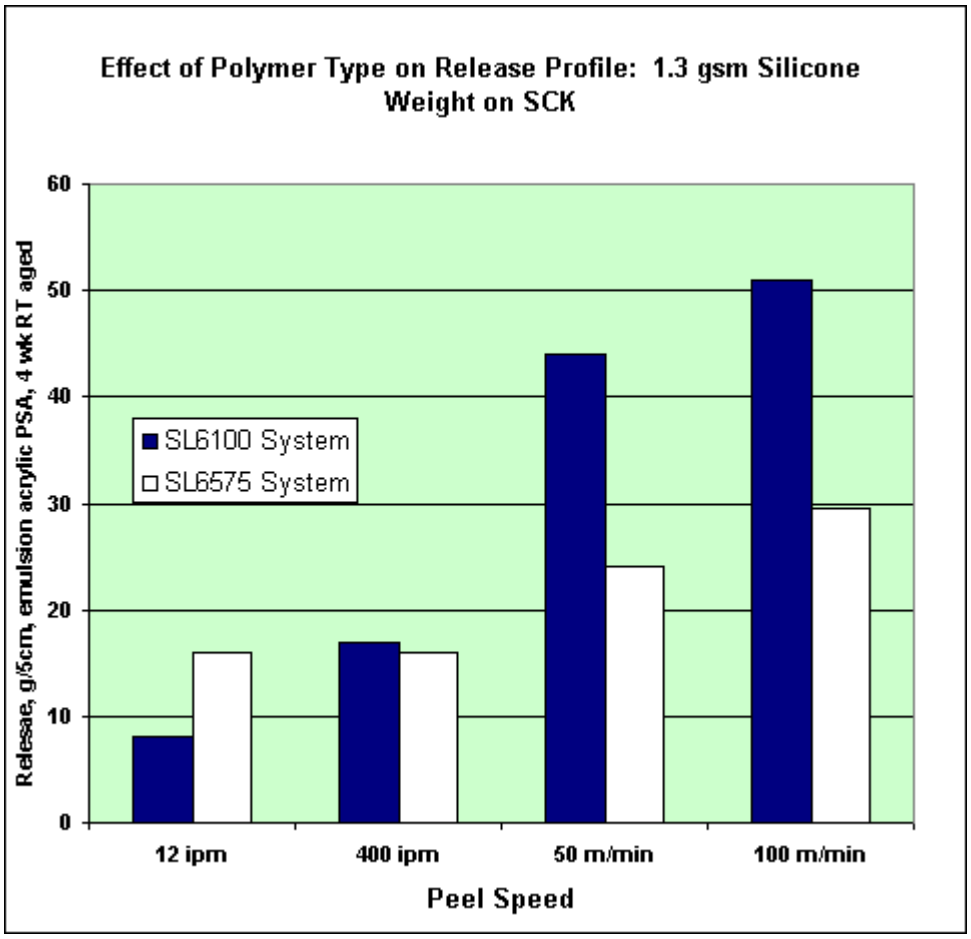
The SL6575 system can be applied to a variety of papers such as supercalendered and clay coated krafts and glassine and to certain film substrates. Coating weight required for good release performance depends on holdout and surface smoothness of the liner. Most papers will need 1.0 - 1.5 g/m ^{2} (0.6 - 0.9 lb/3000 foot ^{2}) applied silicone to furnish a smooth, continuous silicone surface. Film or film-laminate substrates require

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less applied silicone than papers.

Release Profile

The variation of force required to delaminate an adhesive/facestock lamina from a release liner as a function of peel speed is the dynamic peel release profile. The release profile of a given cured silicone release coating is dependent on the type of release coating, the PSA, liner, and facestock used in the construction. In general, highly crosslinked silicone coatings are higher modulus materials than analogous lightly crosslinked coatings and their release from PSAs is less dependent on peel speed. That is, highly crosslinked silicones display less build in release as peel speed increases, a flatter peel response. SL6575 has a high vinyl content relative to other solventless release systems such as SL6100, therefore cured coatings of SL6575 exhibit a flat release profile compared to cured coatings of SL6100-based systems as illustrated in Figure 1.

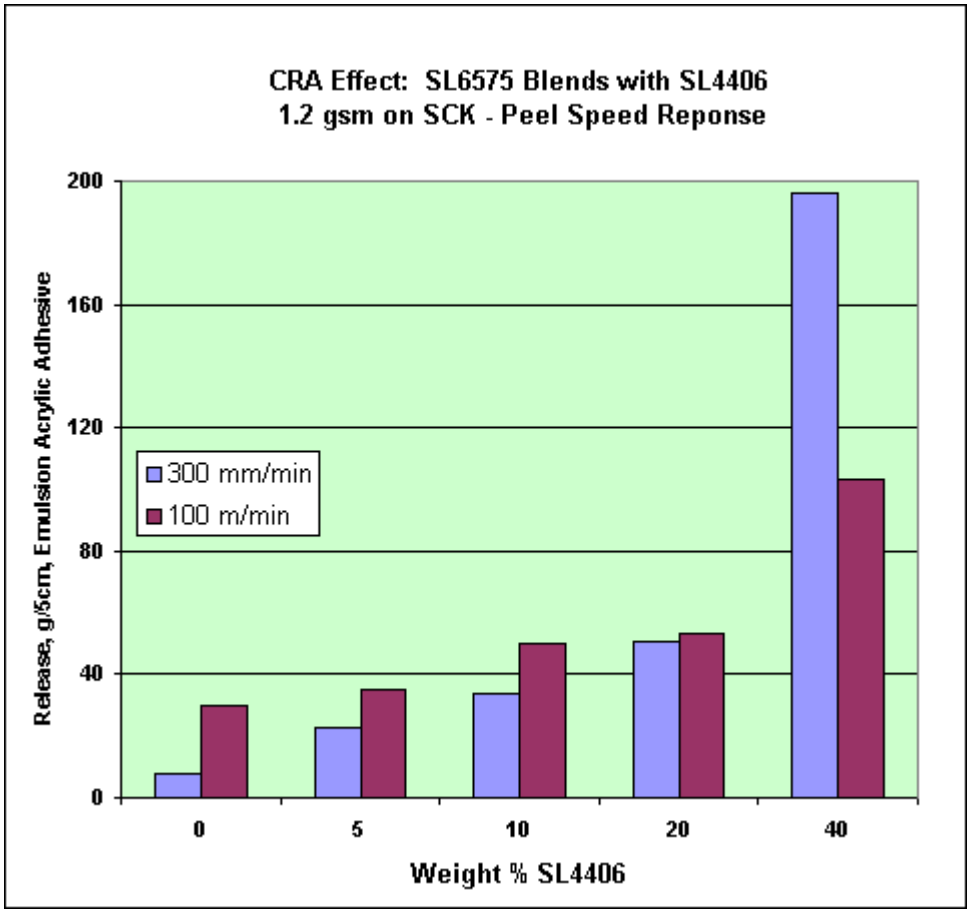


Controlled Release Action

A Controlled Release Additive (CRA) is used to modify the force required to delaminate

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(peel) a label or tape from the silicone coated release liner. We recommend SL4406 for use as a CRA with SL6575, as it is compatible with SL6575 and is very efficient. SL6635 preblend CRA can also be used with SL6575. The CRA effect of SL4406 in the SL6575 release coating is illustrated in Figure 2 below.



Limitations

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Availability

Products may be ordered from Momentive Performance Materials, Waterford, NY12188, the Momentive Performance Materials sales office nearest you or, where appropriate, an authorized Momentive Performance Materials product distributor.

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