

SLAM™ 3000

Description

SLAM* 3000 silicone anti-mist additive is an excellent candidate to consider to help suppress the misting of solventless thermally cured silicone release coatings during high speed roll application. It is a high molecular weight silicone polymer, which can effectively modify the rheology of solventless silicone release coatings and, as a result, significantly reduce or eliminate misting along the coating nip.

Key Features and Benefits

- Can effectively reduce mist generation at low addition levels
- Compatible with Momentive's SilForce thermal solventless silicone release coatings
- Can be mixed with release coatings at concentrations for specific machine conditions
- Can be pre-blended with formulated vinyl polymers
- Typically does not adversely affect cure, coverage and release properties of release coatings
- Typically does not affect bath life

Typical Physical Properties

Table 1		
Property	Unit of Measure	Value
Solids	%	100
Viscosity	cps, 25%	>20,000
Density	Lbs./gal.	7.97
Specific Gravity	–	0.958

Flash Point (closed cup)	°C	135
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Potential Applications

SLAM* 3000 silicone anti-mist additive may be considered for possible use with Momentive's SilForce addition-cured thermal solventless silicone release coatings.

Patent Status

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Processing Recommendations

Formulation

SLAM* 3000 silicone anti-mist additive is compatible with Momentive's SilForce thermally cured solventless silicone release coatings. It may be formulated with a base polymer and other components of a release coating just prior to use, or it may be p-blended with partially formulated vinyl polymers containing platinum catalyst and/or inhibitor without adverse effect on bath life. Typical starting formulations are listed in Tables 2, 3 and 4.

Table 2. Typical starting point formulation for multi-component SilForce SL6100-based, alkynol alcohol inhibited release coatings

	SLAM* 3000 Silicone Content	
	0%	6%
Component	Parts by Weight	
SilForce SL6161	90.0	84.0
SLAM* 3000	0	6.0
SilForce SL6020(1)	5.0	5.0
SilForce SL6210	10.0	10.0

(1) SilForce SL6020 either D1 or E versions

Table 3. Typical starting point formulation for multi-component SilForce SL6100-based, maleate inhibited release coatings

	SLAM* 3000 Silicone Content	
	0%	6%
Component	Parts by Weight	
SilForce SL6100	63.0	57.0
SLAM* 3000	0	6.0
SilForce SL6145	27.0	27.0
SilForce SL6210	10.0	10.0
SilForce SL6020(1)	5.0	5.0

(1) SilForce SL6020 either D1 or E versions

Table 4. Typical starting point formulation for pre-blended SilForce SL7025 & SL6425 maleate inhibited release coatings

	SLAM* 3000 Silicone Content			
	0%		6%	
Component	Parts by Weight			
SilForce SL7025	100.0	–	94.0	–
SilForce SL6425	–	100.0	–	94.0
SLAM* 3000	0	0	6.0	6.0
SilForce SL6020(1)	6.4	4.0	6.4	4.0

(1) SilForce SL6020 either D1 or E versions

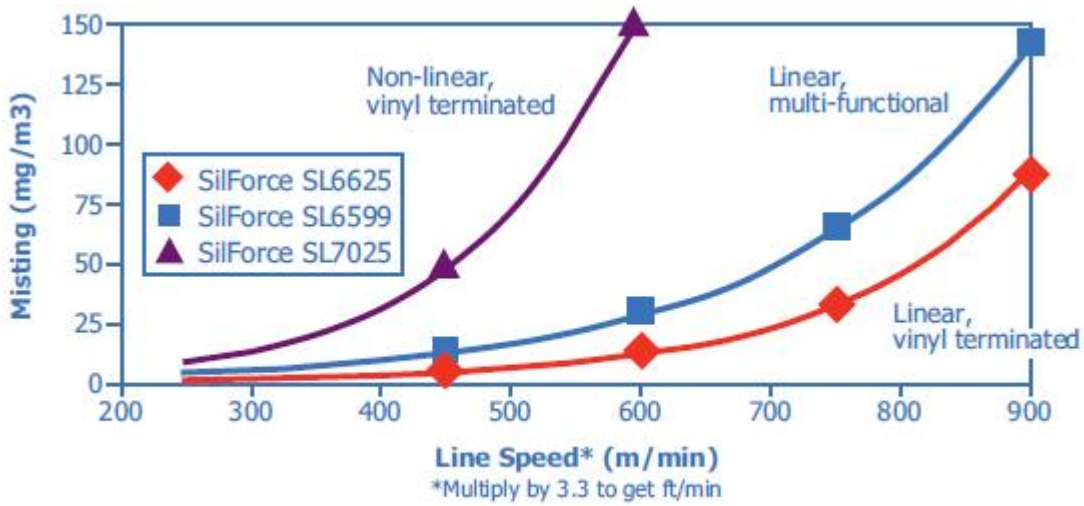
Product formulations are included as illustrative examples only. Momentive makes no representation or warranty of any kind with respect to any such formulations, including, without limitation, concerning the efficacy or safety of any product manufactured using such formulations.

The optimal level of SLAM* 3000 silicone anti-mist additive addition for a particular silicone polymer will depend on line speed, coating head characteristics (nip pressure, roll diameter, rubber hardness, surface technology), substrate properties (porosity and surface topology), and type of polymer used (molecular structure, rheology, homogeneity, cavitation). It should be established and optimized during extensive machine trials by the customer

Performance

Generally, non linear, vinyl terminated coatings will generate the highest amount of mist, followed by linear, vinyl pendant and linear, vinyl terminated silicone coatings at equal viscosity and equal coating conditions, as illustrated in Figure 1.

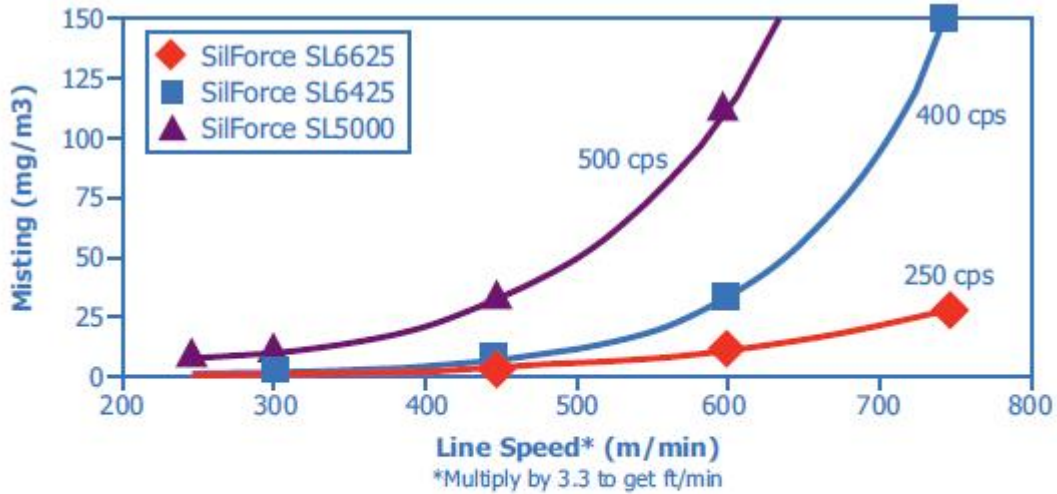
Figure 1. Misting properties of various silicone polymers at constant viscosity and equal coating parameters



Note: Black Clawson 5 roll coater, 68 gsm SCK substrate

Lower viscosity vinyl polymers will typically generate less mist than higher viscosity coatings as illustrated in Figure 2.

Figure 2. Misting properties of vinyl terminated polymers at various viscosities



Note: Black Clawson 5 roll coater, 68 gsm SCK substrate

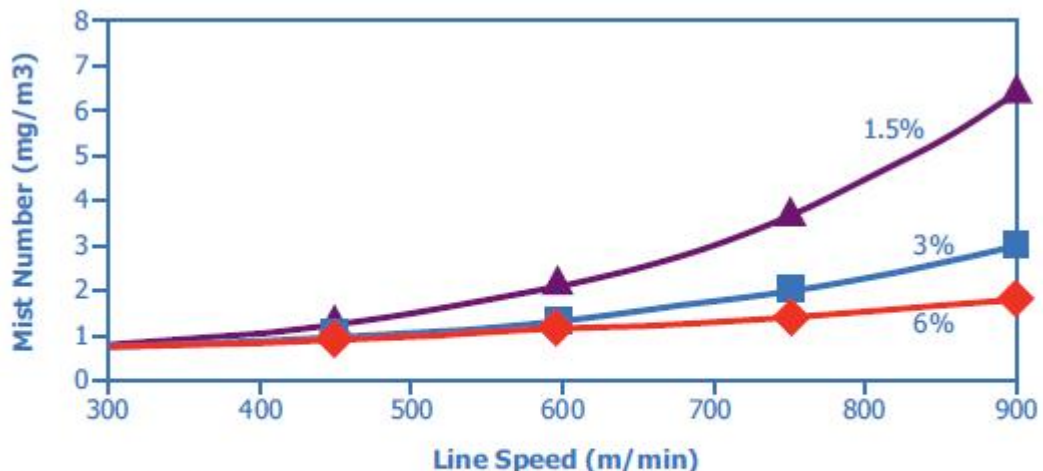
Note: Test data. Actual results may vary.

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Performance (continued)

The level of addition for a particular silicone polymer will depend, in addition to the other factors mentioned above, on the required speed of the coater. Lower levels may effectively reduce or eliminate mist at lower line speeds, while higher levels of addition may be needed to obtain comparable performance at higher line speeds. Typical performance of SLAM™ 3000 silicone anti-mist additive in the SilForce SL6425 coating is illustrated in Figure 3 below.

Figure 3. SilForce SL6425 misting characteristics at various SLAM™ 3000 silicone anti-mist additive concentrations and various machine speeds



Note: Black Clawson 5 roll coater, 68 gsm SCK substrate

Note: Test data. Actual results may vary.

Availability

SLAM* 3000 silicone anti-mist additive may be ordered from Momentive Performance Materials sales office nearest you or an authorized Momentive Performance Materials product distributor

Limitations

Standard copy to come

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