Technical Data Sheet

CoatOSil™ 3573

CoatOSil* 3573

Description

CoatOSil 3573 coatings additive is a highly compatible agent for reducing the coefficient of friction (COF) of radiation-cured coatings containing either acrylated or cycloaliphatic epoxy resins. It contains 100% of an organo modified silicone polymer. It imparts abrasion and mar resistance to the radiation-cured coatings. Additional benefits may include enhanced substrate wetting and improved flow and leveling of the coating formulations.

CoatOSil 3573 coatings additive can also be used in solventborne and waterborne coatings. It is an excellent slip agent for solventborne coatings. It imparts good wetting as well as flow and leveling properties to the solventborne coatings formulations. In some waterborne systems where compatibility is not an issue, it is an excellent slip agent.

Key Features and Benefits

- Excellent resin compatibility
- Minimum COF values achieved at low addition levels
- Enhanced abrasion and mar resistance
- Improved release properties
- Improved substrate wetting
- Enhanced flow and leveling
- Minimal effect on gloss

Typical Physical Properties

Appearance	Clear colorless liquid
Color, GVS	1
Actives, %	100
Viscosity, cSt at 25°C	400
Flash Point, °C (°F)	110 (230)
Volatiles(1) % (g/L)	1.4 (13.9)

(1) ASTM Method D 2369

Potential Applications

Applications for radiation-cured coatings formulated with this product include:

- Overprint varnishes for packaging and publishing
- Coatings with release properties
- Inks
- Wood coatings
- Can end coatings

Solubility

CoatOSil 3573 coatings additive is readily soluble in ketones, alcohols, aromatic, halogenated and oxygenated solvents and insoluble in water.

CoatOSil 3573 Coatings Additive Concentration, wt %

Solvent	0.1	1	5	20	80
Water	Insoluble	Insoluble	Insoluble	Insoluble	Gel Phase
Hexanes	Soluble	Soluble	Insoluble	Insoluble	Dispersible
Acetone	Soluble	Soluble	Soluble	Soluble	Soluble
Xylenes	Soluble	Soluble	Soluble	Soluble	Soluble
Methylene Chloride	Soluble	Soluble	Soluble	Soluble	Soluble
Isopropanol	Soluble	Soluble	Soluble	Soluble	Soluble

Patent Status

Standard copy to come

Product Safety, Handling and Storage

Standard copy to come

Processing Recommendations

For COF Reduction (or Slip), Wetting, Flow and Leveling Addition levels of 0.2-1.5% are required for COF reduction in radiation-cured coatings. Optimization of addition levels is best accomplished through ladder studies; a quick evaluation at 0.5, 1.0 and 1.5% will identify the ideal use level in your system.

For Release Properties

Adding 1-3% to a radiation-cured coating will reduce the tendency of tapes and labels to stick permanently to the coated surface. This is useful for the packaging and shipment of furniture with a radiation-cured clear coating.

The additive should be incorporated with vigorous stirring or pre-diluted in reactive diluents to ensure optimal uniformity.

For Enhanced Compatibility

In some formulations, CoatOSil 3573 coatings additive may be slightly incompatible, resulting in reduction of gloss or other problems. Blending it with Silwet* L-7602 surfactant in the ratio of 1:10 to 1:3 CoatOSil 3573 coatings additive: Silwet L-7602 surfactant will enhance its compatibility and eliminate such problems. If it is used as a slip agent in waterborne systems, blending it with coalescing agents before the addition to waterborne formulations is highly recommended to improve its compatibility.

Performance

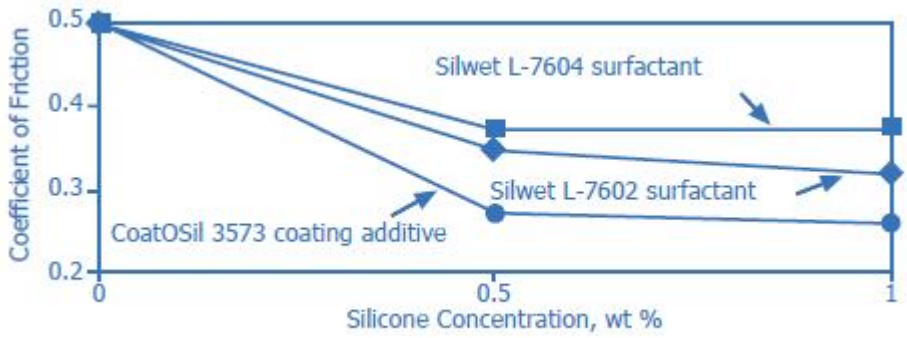
Figure 1 shows the COF reduction of a model radiation-cured coating (Table 1) using CoatOSil 3573 coatings additive. Also presented in the figure are two popular Momentive Performance Materials slip agents, Silwet* L-7604 surfactant and Silwet L-7602 surfactant. At the use levels of 0.5% and 1%, CoatOSil 3573 coatings additive reduces COF more than Silwet L-7604 surfactant and Silwet L-7602 surfactant.

With the model coating formulation 1.8-mil draw-downs on aluminum Q panels were cured at 300 mJ/cm2. The panels were allowed to stand for 24 hours at 70°F and 65% relative humidity. The static slip angle was measured and converted to COF (ASTM Test Method D 4518A).

Table 1: Radiation-Cured Formulation

Component	Weight, g	Supplier
“Ebecryl” 3600	20.0	Radcure Specialties
TRPGDA	35.0	Aldrich Chemical Company
OTA-480	40.0	Radcure Specialties
“Darocure” 1173	5.0	Ciba-Geigy
CoatOSil 3500 coatings additive	0.5-1.0	Momentive Performance Materials

Figure 1: Effect of Silicones on Coefficient of Friction (COF) in Radiation-Cured Formulation



Limitations

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