

CoatOSil* 7001E

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Description

CoatOSil 7001 copolymer is an additive for improved flow and leveling of solventborne two-component acrylic-polyol isocyanate cured coatings.

When CoatOSil 7001 copolymer is incorporated as a flow and leveling additive, the appearance and distinctness of image (DOI) of the clearcoat is typically excellent, compared to current commercial additives used in the formulations discussed.

Key Features and Benefits

Incorporation of 0.05% to 0.10%wt CoatOSil 7001 copolymer into the polyol resin solids portion of a solvent-borne, two-component acrylic polyol clearcoat formulation, cured with a polyisocyanate, can improve the appearance of the final product as viewed by the customer

- greater distinctness of image (DOI)
- improved clarity of final film
- improved film coalescence
- reduces long wavelength wavescan values

Typical Physical Properties

Property	CoatOSil 7001
Density (g/cm ³) at 25°C	1.03
Viscosity at 25°C, cPoise	1,700
Flash Point, Pensky-Martens (closed cup) ASTM D93 °C (°F)	97 (207)
Liquid Static Surface Tensions @ 25°C (dyne/cm)	(Results on Next table)

CoatOSil 7001 copolymer added to various solvents on a wt% basis

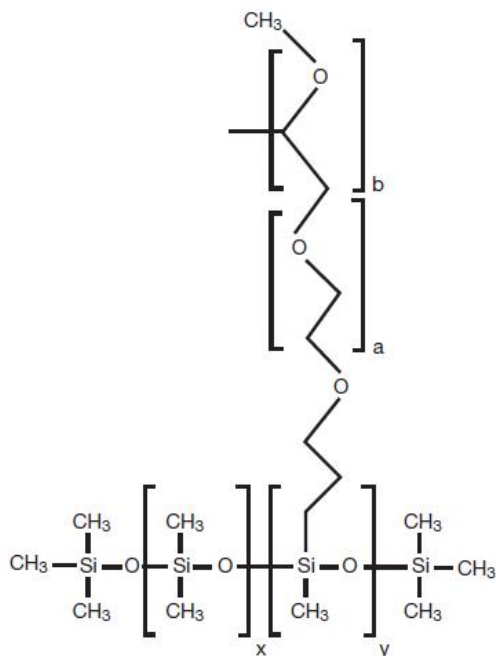
Liquid Surface Tensions	(dyne/cm)			
	DI Water	PGMEA ⁽¹⁾	m-pyrol	Aromatic 100
wt. % CoatOSil 7001				
0.0%	72.3	28.2	41.2	29.1
0.1%	31.1	26.1	23.7	28.0
0.5%	28.4	25.7	22.5	27.3

Solubility studies @ 25°C (0.5%wt CoatOSil 7001 copolymer levels^(a) show compatibility/solubility with multiple solvents including:

- ketones
- acetates
- aromatics
- glycol ethers
- alcohols
- water(a) ~ 0.1%wt CoatOSil 7001 copolymer loading

(a) Unless specified otherwise

Chemical Structure



Potential Applications

CoatOSil 7001 silicone-polyether block copolymer is an excellent candidate to consider for use as a flow and leveling additive in acrylic-polyol resin formulations for monocoat and clearcoat formulations. Table 1 shows two sample formulations using two acrylic polyol resins as the primary binder in the polyol portion of the formula.

Table 1: Sample Testing Coating Formulation and Preparation

Grind Paste Preparation:		
Material	Total Added (gms)	Comments
Acrylamac* 232-1375 ⁽²⁾	142.9	Add material under agitation
Fumed Silica ⁽³⁾	20.0	Slowly add fumed silica
n-Butyl Acetate	237.1	Cowles grind for 20 minutes
Add 1.0mm - 1.5mm mill beads to material blend. Grind for additional 30min. Hegman grind gauge will need to indicate a grind of >6.0. If this hasn't been attained, additional grinding time may be required.		
n-Butyl Acetate	75.0	Add as a solvent flush to remove additional paste.
	475.0 gms	(25.26% solids - Theoretical)
		(Test for % solids) Store for use

Coating Formulations: Under slow agitation add the following components sequentially:		
	Coatings Formulation #1	Coatings Formulation #2
Material	Total Added (gms)	Total Added (gms)
Grind Paste from above	14.2	11.8
Acrylamac 232-1375	138.6	–
Commercial Acrylic Polyol ⁽⁴⁾	–	139.3
UVA Light Stabilizer	3.0	3.0
Hindered Amine Stabilizer	1.0	1.0
Tin Catalyst	0.05	0.05
CoatOSil 7001 copolymer	0.10	0.10
n-Butyl Acetate	40.0	40.0
MEK	25.0	25.0
Solvent Reducer ⁽⁵⁾	144.0	115.0
100% solids HDI trimer ⁽⁶⁾ dissolved in n-Butyl Acetate to 70% wt solids	80.1	73.1

Contact Information

For product prices, availability, or order placement, contact our customer service at Momentive.com/CustomerService/

For literature and technical assistance, visit our website at: www.momentive.com

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