SILRES® HP 1250

Silicone Resins

SILRES® HP 1250 is a glycidoxy functional silicone polymer, which is used as a binder to increase UV resistance and corrosion resistance of coating formulations. This patented* technology combines the chemical resistance and adhesion of an epoxy resin with the UV and high temperature resistance of a silicone polymer into one product. The incorporation of phenyl substituents on the silicon atom increases high temperature resistance and chemical resistance of the polymer. In addition the phenyl substituent increases the compatibility of the silicone with organic polymers such as acrylics, fluorocarbons, and polyesters. The use of difunctional dimethyl groups increases the flexibility of the coating which increases the resistance of the polymer to cracking. The ratio of tri-functional (T-units) silicon to di-functional (D-units) silicon is balanced to maximize the amount of high energy Si-O-Si concentration without sacrificing flexibility. The high level of T units increases the polymers ability to form a durable, chemical resistant coating. The incorporation of D units increase the polymers flexibility (see figure 1). The epoxy functionality on the SILRES® HP 1250 make it ideal for developing low VOC (volatile organic compounds), room temperature curable coatings, which have little to no film shrinkage (see figure 2). The incorporation of a glycidoxy group directly to the silicon atom through a Si-C bond increases stability and makes the polymer resistant to hydrolysis.

Properties

- UV resistance
- Corrosion resistance
- Good adhesion
- High-tempertaure resistance
- Chemical resistance

Technical data

General Characteristics

Property	Condition	Value	Method
Viscosity, kinematic	25 °C	90 - 135 cSt	-
Appearance	-	Clear Liquid, Light Amber	ASTM D 412
Content	-	100 % Actives	-
Density	23 °C	1.13 g/cm^3	-
Weight per epoxy equivalents (grams/mole)	-	660 - 680 g/mol	-

These figures are only intended as a guide and should not be used in preparing specifications.

Applications

- Industrial Coatings

Application details

SILRES® HP 1250 can be used as a binder to make high solids or solvent-free exterior durable coatings for the Marine, Architectural, and Industrial Protective Coatings Market. Coatings made using this product can be applied directly to zinc-rich coatings, bare steel or aluminum substrates.

SILRES® HP 1250 has a weight per epoxy between 660-680 grams of polymer per moles of epoxy, which makes it highly reactive with nucleophiles such as phosphoric acid, acid functional acrylics, amine and amino functional curing agents. The degree of replacement of organic binder should be determined through laboratory evaluations.

SILRES® HP 1250 will increase the UV resistance of the coating. The silicone-epoxy polymer is only a portion of the coating formulation, and therefore to make a exterior durable coating, ceramic pigments, extenders and hardeners designed for exterior applications should be used. The additives and hardeners used should also be UV and corrosion resistant. The silicone-epoxy polymer has a relatively low viscosity and has a high functionality, which enable formulators the ability to develop low VOC coatings.

Packaging and storage

Storage

The "Best use before end date" of each batch is shown on the Certificate of Analysis. Storage beyond the date specified on the Certificate of Analysis does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

Safety notes

For specific information regarding safe handling of this material, please refer to the Safety Data Sheet.

QR Code SILRES® HP 1250

For technical, quality or product safety questions, please contact:

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