

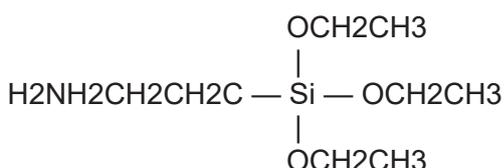
Silast LT-550

Product information

Silast LT-550
γ-Amino propyl tri ethoxy silane

Product description

Structural formula:



Empirical formula: $\text{C}_9\text{H}_{23}\text{NO}_3\text{Si}$

Molecular weight: 221.4

CAS No.: 919-30-2

Chemical name:

γ-Aminopropyltriethoxysilane

Properties

LT-550 is a bifunctional silane possessing a reactive primary amino group and hydrolyzable ethoxysilyl groups. The dual nature of its reactivity allows it to bind chemically to both inorganic materials (e.g. glass, metals, fillers) and organic polymers (e.g. thermoplastics, thermosets, elastomers) thus functioning as an adhesion promoter, crosslinker, and/or surface modifier. It also greatly increases water (vapor) and corrosion resistance.

LT-550 is a clear, colorless low-viscosity liquid with a characteristic amine odor. It is soluble in alcohols, and aliphatic or aromatic hydrocarbons. In addition it is completely and immediately soluble in water (with reaction).

Technical data

Typical characteristics	Value
Appearance	Colorless transparent liquid
Purity	≥98.50%
Density at 25°C	0.95g/ml
Boiling point at 760mmHg	220°C
Flash point	80 - 90 °C (1013 hPa)
Refractive index (25°C)	1.420

Note: the above data are for reference only, can not be used as a technical specification

Reactivity

In the presence of water, the ethoxy groups of LT-550 hydrolyze and form reactive silanol (Si-OH) groups which can bond to a variety of inorganic substrates. Upon hydrolysis ethanol is released. The organophilic amino group can react with a suitable polymer. The hydrolysis takes place autocatalytically and the pH of the aqueous solution is about 11.

Examples of suitable inorganic substrates are glass, glass fibers, glass wool, mineral wool, silicic acid, cristobalite, wollastonite, mica and aluminum trihydrate, magnesium dihydrate, kaolin, talc, other silicate fillers, metal oxides and metals.

Silast LT-550

LT-550 may be used with such polymers as epoxy, phenolic, furan and melamine resins, polyurethanes, PA, PBT, PC, EVA, modified PP, PVB, PVAC, PVC, PS, nitril Kautschuk, polyester, acrylates and silicones.

It can undergo reactions with ketone or ester solvents. Silane or silanized substrates can react with carbon dioxide to form the corresponding carbonates and/or carbamates. Product modifications are possible through addition reactions with suitable monomeric or polymeric compounds (e.g. isocyanates).

Application and performance

Coatings, adhesives and sealants

This aminosilane is an excellent adhesion promoter in acrylic coatings, adhesives and sealants. With polysulfide, urethane, RTV silicones, epoxy, nitrile, phenolic adhesives and sealants, the product can help improve pigment dispersion and maximizes adhesion to glass, aluminum and steel.

Glass-reinforced resin systems

In glass-reinforced thermosets, LT-550 silane can help enhance the flexural, compressive and interlaminar shear strengths before and after exposure to humidity. This product can help greatly improve wet electrical properties. Glass-reinforced thermoplastics, polyamide, polyester and polycarbonate typically exhibit increased flexural and tensile strengths before and after wet exposure when this silane is used.

Glass fiber and mineral wool insulation

As a phenolic resin binder additive, LT-550 imparts moisture resistance and allows recovery after compression.

Mineral-filled resin systems

LT-550 can help maximize the physical and electrical properties of mineral-filled phenolic, epoxy, polyamide, polybutylene terephthalate and many other thermoset and thermoplastic composites. Filler wetting and dispersibility in polymer matrix are also typically improved.

Foundry applications

In shell molding, it can help strengthen the bond between the phenolic binder and foundry sand.

Grinding wheels

The product can help promote an improved, water-resistant bond between the abrasive grit and phenolic resin binder.

Product safety, handling and storage

Customers considering the use of this product should review the latest Material Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage condition required. The "Best use before end" date of each batch is shown on the product label. Storage beyond the date specified on the label 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.