Technical Data Sheet

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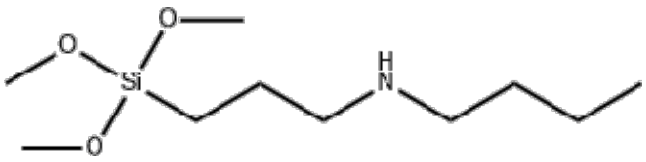
Silfluo LS-A431

Secondary Amino-Functional Silane

Description

Silfluo LS-A431 is N-(3-(Trimethoxysilyl)propyl)butylamine, a secondary amino-functional silane.
The molecule contains one secondary amine group and one trimethoxysilyl group connected by a propyl chain.
The secondary amine interacts with compatible resin systems and selected reactive polymers.
The trimethoxysilyl group hydrolyzes and reacts with hydroxylated inorganic surfaces including glass, silica, mineral fillers, and metal oxide surfaces.
Compared with primary aminosilanes, the secondary amine structure reduces yellowing tendency in selected transparent or light-colored formulations; verify color stability in the target system.
Used as adhesion promoter, coupling agent, surface treatment additive, or reactive silane component in adhesives, sealants, coatings, resin systems, fiberglass composites, and mineral filler treatment applications.
Performance equivalent to industry standards: Momentive Silquest A-1189, Evonik Dynasylan 1189.

Typical Physical Properties

Silfluo Code:	LS-A431
Chemical Name:	(3-(Trimethoxysilyl)propyl)butylamine;
Synonyms:	N-(n-Butyl)-3-aminopropyltrimethoxysilane; N-Butyl-3-aminopropyltrimethoxysilane; Secondary amino-functional trimethoxysilane
CAS NO.	31024-56-3
EINECS No.:	250-437-8
Formula	C10H25NO3Si
Appearance	Colorless to Pale Yellow Transparent Liquid
Density(ρ20°C，g.cm³）	0.947
Refractive Index(n 25°C)	1.4246
Purity (by GC,%)	97 min
Chemical Structure	

Applications

1. Adhesives and sealants

Used as adhesion promoter or reactive silane additive in polyurethane, silicone, MS polymer, SPUR, and hybrid adhesive or sealant systems. Verify adhesion, cure behavior, viscosity, and storage stability by formulation testing.

2. Coatings and primers

Used in epoxy, acrylic, polyurethane, and hybrid coating systems. Test wet adhesion, dry adhesion, corrosion resistance, and film compatibility in the target formulation.

3. Resin modification and foundry binders

Used in phenolic, furan, melamine, and other binder systems. Verify mechanical properties, moisture resistance, gas evolution, and processing behavior under customer process conditions.

4. Fiberglass composites

Used as sizing or surface treatment component for fiberglass fabrics and glass fiber-reinforced composite systems. Verify interfacial adhesion and composite properties in the target resin system.

5. Mineral filler treatment

Used for treating silica, ATH, talc, and other inorganic fillers. Verify dispersion, viscosity, mechanical properties, and processing behavior in the target compound.

6. Surface treatment and primers

Used in primer and surface treatment systems requiring secondary amine functionality and alkoxysilane reactivity. Verify adhesion and compatibility in the target system.

Formulation & Handling Guidelines

1. Hydrolysis behavior

Methoxy groups hydrolyze in the presence of moisture to form silanol groups, releasing methanol. Hydrolysis rate and silanol stability depend on water content, pH, solvent, catalyst, and temperature.

2. Aqueous bath pH

The hydrolysate is typically alkaline. Adjust pH per target process and stability requirements. Verify bath stability before scale-up.

3. Solvent compatibility

The secondary amine reacts with carbonyl-containing solvents including MEK, acetone, and ethyl acetate. Test compatibility before use.

4. Moisture and CO_2 sensitivity

Amino-functional silanes react with moisture and atmospheric CO_2 during storage and handling. Keep containers tightly sealed and minimize air exposure after opening.

5. Handling after opening

Reseal containers promptly after dispensing. Dry nitrogen blanketing can be considered for moisture-sensitive applications.

6. Formulation testing

Verify cure behavior, adhesion, color stability, viscosity change, and storage stability in the complete formulation before commercial use.

Packaging

In 20kg pail, 190kg drum and 950kg IBC

Safety and Storage

Store in a cool, dry, well-ventilated environment. Keep away from direct sunlight, heat, sparks, and open flames.
Shelf life: 12 months from manufacture date when stored at ≤25°C in original tightly sealed unopened containers.
Verify product properties against specification before use if stored beyond the stated shelf life.