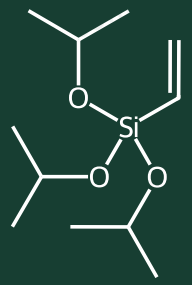
LANDUSIL LEGRA

3013-L

Vinyltriisopropoxysilane

Vinyl-functional isopropoxysilane for selected latex and mineral-interface development



Chemical identity

Chemical name
Vinyltriisopropoxysilane

CAS number
18023-33-1

EC number
241-931-4

Molecular formula
$C_{11}H_{24}O_3Si$

Molecular weight
232.39 g/mol

Hydrolysis by-product
Isopropanol

Product description

LANDUSIL LEGRA 3013-L is vinyltriisopropoxysilane, a molecular silane containing one silicon-bound vinyl group and three hydrolyzable isopropoxy groups. It is a starting material for selected latex modification and reactive mineral-interface development.

The vinyl group can participate in a designed radical reaction with compatible monomers or polymers. The isopropoxy groups hydrolyze to silanols while releasing isopropanol; subsequent condensation can connect suitable inorganic surfaces or silane-bearing chains. Establish the required hydrolysis and incorporation rates in the actual formulation.

Features and benefits

- One silicon-bound vinyl group for selected radical reactions
- Three hydrolyzable isopropoxy groups
- Releases isopropanol during hydrolysis
- Comonomer option for compatible vinyl and acrylic latexes
- Coupling component for selected mineral-filled polymers

Specification

Property	Unit	Value	Test method
Appearance		**Colorless to light yellow, clear liquid**	Visual
Purity (GC)	%	**min. 97.0**	Gas chromatography
Density, 20 °C	g/cm³	**0.8660 ± 0.0050**	Density measurement

Tested on every batch and reported on the Certificate of Analysis.

Typical properties

Boiling point, 760 mmHg	approx. 180 °C
Flash point, closed cup	approx. 45 °C
Refractive index, n_D^{20}	approx. 1.399

For guidance only; not part of the specification.

Applications

Vinyl acetate/ethylene latexes
Comonomer for a designed polymerization route. Evaluate incorporation, residual silane, particle stability and subsequent film behavior.

Waterborne coating binders
Silane-modified binder development for selected substrates. Verify film formation, water exposure and storage stability in the complete coating.

Grafting and moisture-cure development
Investigate polymer incorporation before a separate hydrolysis and condensation stage. Measure gel, residual monomer and cure through the actual section.

Acrylic dispersion modification
Reactive monomer for compatible acrylic latex synthesis. Assess addition sequence, condensation during aging and conditioned adhesion.

Mineral-filled reactive polymers
Coupling development for glass, aluminum hydroxide or magnesium hydroxide with a compatible matrix reaction and controlled filler moisture.

Guidelines for use

Latex polymerization	Establish addition level and feed sequence for the monomer recipe and initiator package. Measure conversion, particle behavior and residual silane before optimizing drying and later condensation.
Mineral pretreatment	Set loading for the actual surface area and moisture. Compare pretreatment with addition during compounding; follow silane retention, isopropanol removal and matrix cure.
Hydrolysis control	Determine water, pH, solvent and temperature in trials. Follow remaining isopropoxy groups and bath aging; compare stored and fresh material under the same film or compound test.

These levels are starting points. Determine the optimum level and method in trials under your own production conditions.

Handling and safety

- Flammable liquid and vapor. Exclude heat, sparks and flames; ground and bond transfer equipment and use suitable ventilation.
- Causes serious eye irritation. Avoid skin and eye contact; wear suitable gloves, protective clothing and eye protection.
- Hydrolysis releases isopropanol. Control vapor during treatment and drying; excessive exposure may cause drowsiness or dizziness.
- Prevent uncontrolled moisture, oxidizer or initiator contamination and heating. Read the Safety Data Sheet before use.

Storage and shelf life

Store in original, tightly closed containers in a cool, dry, well-ventilated area, away from moisture, sunlight, heat and ignition sources. Shelf life is 12 months in unopened containers. Use dry transfer equipment, promptly reseal after sampling and assess material condition before use.

Packaging

25 kg plastic drum, 200 kg steel drum, 1,000 kg IBC. Other pack sizes on request.

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