LANDU

Technical data sheet
TDS-LEGRA-5060-L-EN
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LANDUSIL LEGRA

5060-L

Dodecyltriethoxysilane

Linear C12 ethoxysilane for mineral surface treatment and controlled condensation



Chemical identity

Chemical name
Dodecyltriethoxysilane

CAS number
18536-91-9

EC number
242-409-9

Structure
$CH_3(CH_2)_{11}Si(OC_2H_5)_3$

Molecular formula
$C_{18}H_{40}O_3Si$

Molecular weight
332.59 g/mol

Hydrolysis by-product
Ethanol

Product description

LANDUSIL LEGRA 5060-L is n-dodecyltriethoxysilane, a long-chain alkyl silane with a linear C12 group and three hydrolyzable ethoxy groups. It is a reactive precursor for mineral treatments, modified particles and siloxane intermediates.

Controlled hydrolysis generates silanols and ethanol. Condensation can attach the silane to compatible hydroxylated surfaces or form siloxane structures containing the retained dodecyl group. This alkyl group contributes nonpolar character to the interface. Accessible surface groups, water, catalyst, carrier and cure determine conversion and coverage; useful wetting and moisture response require tests of the actual treated system.

Features and benefits

- Linear dodecyl group contributes nonpolar character
- Three ethoxy groups enable hydrolysis and condensation
- Precursor for mineral and pigment surface-treatment trials
- Co-condensation unit for controlled siloxane networks
- Releases ethanol during hydrolysis

Specification

Property	Unit	Value	Test method
Appearance		**Colorless to light yellow, clear liquid**	Visual
Purity (GC)	%	**min. 95.0**	Gas chromatography

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

Typical properties

Boiling point, 3 mmHg	approx. 152 °C
Flash point, method not specified	approx. 110 °C

For guidance only; not part of the specification.

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Applications

Mineral surfaces and building materials
Candidate for formulated treatments on cured concrete, brick and stone. Assess water uptake, appearance, treatment distribution and vapor transport.

Porous silica supports
Candidate for C12 surface attachment to existing silica; measure loading, accessible pores and extractables in the intended separation study.

Thermal-paste interfaces
Candidate for separate treatment of an appropriate filler before formulation; evaluate residuals, bleed, stability and assembled-interface thermal resistance.

Inorganic powders and pigments
Precursor for treatment of suitable silica, oxide-coated pigments and other hydroxylated particles before incorporation into the selected binder.

Hybrid coatings and oligomers
Building block for controlled prehydrolysis and co-condensation, with residual ethoxy groups, alcohol removal and gel formation monitored.

Guidelines for use

Mineral application	Prepare a compatible treatment formulation for the actual substrate and carrier. Apply to a clean, cured mineral surface; select concentration and cure through controlled trials with untreated specimens.
Particle pretreatment	Distribute uniformly over an agitated hydroxylated powder. Control water, catalyst and drying, then assess surface coverage, residual ethanol and dispersion in the receiving binder.
Controlled condensation	Combine with compatible precursors using controlled mixing and water addition. Follow pH, alcohol evolution, viscosity and gelation; verify work-solution stability before coating or further reaction.

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

Handling and safety

- Can burn when heated. Keep away from ignition sources and provide ventilation during transfer, treatment and drying.
- Causes eye irritation and may irritate skin. Avoid contact and breathing mist; use suitable chemical-resistant gloves and splash goggles.
- Moisture causes hydrolysis and ethanol release. Keep bulk material dry and prevent alcohol-vapor accumulation during preparation and curing.
- Read the Safety Data Sheet before use.

Storage and shelf life

Store in original, tightly sealed containers in a cool, dry, well-ventilated area away from moisture, direct sunlight and heat. Use opened containers promptly and keep transfer equipment dry. Shelf life is 12 months in unopened containers.

Packaging

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

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