LANDU

Technical data sheet
TDS-LEGRA-5071-L-EN
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LANDUSIL LEGRA

5071-L

Hexadecyltrimethoxysilane

Linear C16 methoxysilane for treated powders and defined mineral-surface systems



Chemical identity

Chemical name
Hexadecyltrimethoxysilane

CAS number
16415-12-6

EC number
240-464-3

Structure
$CH_3(CH_2)_{15}Si(OCH_3)_3$

Molecular formula
$C_{19}H_{42}O_3Si$

Molecular weight
346.62 g/mol

Hydrolysis by-product
Methanol

Product description

LANDUSIL LEGRA 5071-L is hexadecyltrimethoxysilane, a long-chain alkyl silane containing a linear C16 group and three hydrolyzable methoxy groups. It is a precursor for modifying appropriate inorganic surfaces and for controlled hybrid-network development.

Hydrolysis generates silanols with methanol release. Condensation can attach the silane to accessible hydroxyl groups or form siloxane structures retaining the hexadecyl group. Surface coverage, reaction and removal of unreacted material influence the final interface. Water, catalyst, substrate and processing history require control; wetting, binder compatibility and finished-treatment behavior must be measured in the actual system.

Features and benefits

- Linear hexadecyl group contributes nonpolar character
- Three methoxy groups provide condensation sites
- Precursor for silica and oxide-powder treatment trials
- Co-condensation unit for hybrid siloxane structures
- Releases methanol during hydrolysis

Specification

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

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

Typical properties

Viscosity, 20 °C	approx. 6 – 8 mPa·s
Flash point, closed cup	approx. 119.5 °C

For guidance only; not part of the specification.

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Applications

Silica and oxide-coated powders
Treatment candidate for suitable hydroxylated particles before compounding or dispersion. Assess coverage, residual methanol, agglomeration and binder behavior.

Composite films and glass studies
Component in defined particle/polymer or surface-treatment systems. Measure haze, transmission, adhesion and cleaning durability alongside wetting.

Mineral finishes and hybrid networks
Precursor for defined stone, cured mineral-board surface and hybrid-resin trials with controlled reaction, curing and residual methoxy content.

Silica-coated aluminum pigments
Candidate for a qualified process using an existing silica layer. Evaluate flake integrity, layer continuity, metallic appearance and formulation stability.

Porous silica and textiles
Candidate for C16 attachment or formulated textile treatment. Evaluate accessible pores and extractables or wash retention and permeability in the selected system.

Guidelines for use

Particle pretreatment	Apply uniformly to an agitated, suitably hydroxylated powder. Control water and catalyst, remove residual methanol and unreacted material, then evaluate the receiving dispersion or compound.
Surface application	Use a compatible treatment formulation on the actual prepared substrate. Select concentration and cure in trials; assess appearance, water uptake and adhesion after the intended exposure.
Hybrid processing	Combine with compatible precursors using controlled water addition, mixing and temperature. Follow pH, alcohol release, viscosity and gel formation 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 ventilate transfer, treatment and drying operations.
- Avoid eye and skin contact and breathing mist. Use suitable chemical-resistant gloves and splash goggles.
- Hydrolysis releases toxic methanol. Keep bulk liquid dry and control alcohol-vapor exposure during preparation and curing.
- Read the Safety Data Sheet before use.

Storage and shelf life

Store in original, tightly sealed containers above 0 °C in a cool, dry, ventilated area away from moisture and sunlight. Allow cold-solidified material to thaw completely and homogenize before sampling. 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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