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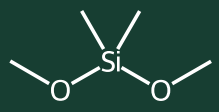
Technical data sheet
TDS-LEGRA-5021-L-EN
Revision 1.0, November 2026

LANDUSIL LEGRA

5021-L

Dimethyldimethoxysilane

Difunctional methyl silane for siloxane chain regulation and surface modification



Chemical identity

Chemical name
Dimethyldimethoxysilane

CAS number
1112-39-6

EC number
214-189-4

Structure
$(CH_3)_2Si(OCH_3)_2$

Molecular formula
$C_4H_{12}O_2Si$

Molecular weight
120.22 g/mol

Hydrolysis by-product
Methanol

Product description

LANDUSIL LEGRA 5021-L is dimethyldimethoxysilane (DMDMS), an alkylalkoxysilane carrying two methyl groups and two hydrolyzable methoxy groups. It is a difunctional building block for silicone-resin, hybrid-coating and mineral-interface development.

The methoxy groups hydrolyze with methanol release and the resulting silanols condense to siloxane linkages. With two hydrolyzable sites, this molecule can regulate chain development when combined with more highly functional precursors. The retained methyl groups modify surface character. Water, pH, catalyst and temperature control condensation; network structure and final film behavior require evaluation in the complete system.

Features and benefits

- Two methoxy groups for difunctional condensation
- Two retained methyl groups modify surface character
- Co-precursor for siloxane chain and network regulation
- Suitable for silica surface-modification trials
- Releases methanol during hydrolysis

Specification

Property	Unit	Value	Test method
Appearance		**Colorless clear liquid**	Visual
Purity (GC)	%	**min. 98.0**	Gas chromatography

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

Typical properties

Boiling point, 760 mmHg	approx. 82 °C
Flash point, closed cup	approx. -10.5 °C
Density, 25 °C	approx. 0.860 – 0.870 g/cm³

For guidance only; not part of the specification.

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Applications

Silicone-resin modification
Difunctional component for co-condensation with other silanes; assess branching, residual alkoxy content, viscosity and storage stability.

Mineral powder treatment
Candidate surface modifier for silica, quartz and selected oxide or pigment surfaces before addition to a compatible binder.

Hydrophobic interface research
Building block for controlled silicone-chain and mineral-hybrid interface studies. Define the substrate, condensation sequence and ageing tests.

Sol-gel and hybrid particles
Co-precursor for adjusting chain development in mixed-silane systems. Compare gel time, particle formation and cracking during drying.

Glass and ceramic films
Component in experimental surface-functional coatings. Evaluate transmission, haze, adhesion and abrasion with the selected co-precursors.

Guidelines for use

Co-condensation	Combine with compatible multifunctional precursors and introduce the hydrolysis components under controlled mixing. Track water, pH, temperature, methanol evolution and viscosity.
Filler treatment	Distribute uniformly over an agitated hydroxylated filler, then dry under controlled conditions. Compare moisture uptake, flow, agglomeration and binder viscosity.
Film development	Apply a defined mixed-silane system to a clean surface and use a controlled drying schedule. Measure optical quality and mechanical integrity after curing and ageing.

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

Handling and safety

- Highly flammable liquid and vapor, including below room temperature. Exclude ignition sources and use grounded transfer equipment with effective ventilation.
- May damage fertility. Avoid exposure and use suitable engineering controls, chemical-resistant gloves and eye protection.
- Hydrolysis releases toxic methanol. Protect bulk material from water and prevent vapor accumulation during processing.
- Separate from acids, alkalis and oxidizers. Read the Safety Data Sheet before use.

Storage and shelf life

Store tightly sealed in original containers in a cool, dry, well-ventilated area away from ignition sources and sunlight. Exclude moisture and use opened containers promptly. Shelf life is 12 months from manufacture 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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