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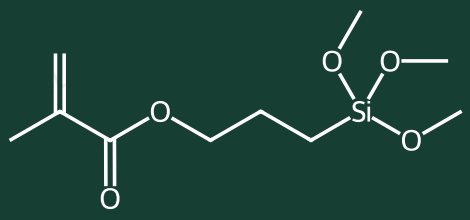
**Technical data sheet**
TDS-LEGRA-4011-L-EN
Revision 1.0, November 2026

LANDUSIL LEGRA

# 4011-L

## 3-Methacryloxypropyltrimethoxysilane

Methacrylate-functional trimethoxy silane for glass, minerals and compatible reactive resins




### Chemical identity

Chemical name
**3-Methacryloxypropyltrimethoxysilane**

CAS number
**2530-85-0**

Molecular formula
**$C_{10}H_{20}O_5Si$**

Molecular weight
**248.35 g/mol**

Hydrolysis by-product
**Methanol**

## Product description

LANDUSIL LEGRA 4011-L is 3-methacryloxypropyltrimethoxysilane, containing one methacrylate group and three hydrolyzable methoxy groups. It is a coupling-agent candidate for glass, silica and mineral interfaces in compatible polyester, vinyl ester and acrylic systems.

The methacrylate double bond can enter a suitably initiated radical polymerization. Separately, the methoxy groups hydrolyze to release methanol and form silanols that can condense with hydroxylated surfaces. Control organic cure and siloxane formation independently. Water content, substrate condition, inhibitor and processing sequence affect conversion and interfacial performance; validate the complete formulation after conditioning.

## Features and benefits

- Methacrylate functionality for compatible radical cure
- Trimethoxy groups for surface reaction and condensation
- Hydrolysis releases methanol
- Applicable to glass and mineral surface treatment trials
- Can be incorporated during acrylic polymer manufacture

## Specification

| Property | Unit | Value | Test method |
|---|---|---|---|
| Appearance | | **Colorless to almost colorless, clear liquid** | Visual |
| Purity (GC) | % | **min. 98.0** | Gas chromatography |
| Color | Pt-Co | **max. 30** | Platinum-cobalt colorimetry |
| Density, 20 °C | g/cm³ | **1.035 – 1.060** | Oscillating-tube densimetry |
| Refractive index, nD25 | – | **1.4250 – 1.4350** | Refractometry |

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

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## Typical properties

| | |
|---|---|
| Flash point, closed cup | approx. 92 °C |
| Viscosity, 20 °C | approx. 2.8 mPa·s |

For guidance only; not part of the specification.

## Applications

**Glass fiber sizing**
Coupling component for polyester or compatible vinyl ester reinforcement; coordinate the film former, lubricant and drying cycle.

**Acrylic polymers**
Reactive comonomer in compatible polymer manufacture; assess residual monomer, particle stability and subsequent film formation.

**Coatings and adhesives**
Screen where the methacrylate cure and substrate treatment are compatible; measure conditioned adhesion in the intended system.

**Mineral-filled castings**
Treatment of quartz, silica and suitable oxide fillers in polyester or acrylic cast materials, with matched treated and untreated controls.

**UV-curable hybrids**
Evaluate in complete radical-curing resin and inorganic-precursor formulations; confirm conversion and removal of volatile components.

## Guidelines for use

| | |
|---|---|
| **Aqueous pretreatment** | Screen a 1 – 5 wt.% solution in water adjusted to pH 3 – 4 with acetic acid. Allow hydrolysis before treating clean glass or suitable fillers, then dry. Establish bath life under the actual process conditions. |
| **Resin addition** | Mix into a compatible resin before or together with the filler. Check pot life, cure and dispersion stability; prevent premature reaction during storage. |
| **Polymer incorporation** | Introduce during a validated acrylic polymerization sequence. Assess silane incorporation separately from later hydrolysis and condensation in the coating or adhesive. |

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

## Handling and safety

- Moisture exposure releases toxic methanol. Use ventilation during hydrolysis and drying; avoid vapor inhalation.
- Avoid skin and eye contact. Wear suitable protective gloves and eye protection.
- Protect from heat, light and initiator contamination. Confirm inhibitor and oxygen requirements before bulk handling.
- Read the Safety Data Sheet before use.

## Storage and shelf life

Store in tightly closed original containers in a cool, dry, ventilated place, protected from moisture, sunlight and ignition sources. Shelf life is 12 months in unopened containers under recommended conditions. Reseal promptly and prevent contamination.

## Packaging

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

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