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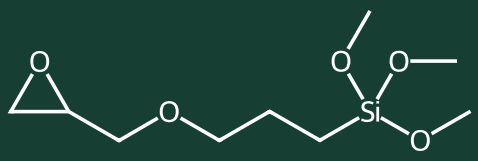
Technical data sheet
TDS-LEGRA-2011-L-EN
Revision 1.0, November 2026

LANDUSIL LEGRA

2011-L

3-Glycidoxypropyltrimethoxysilane

Glycidyl epoxy silane for glass, mineral-filled polymers and resin interfaces



Chemical identity

Chemical name
3-Glycidoxypropyltrimethoxysilane

CAS number
2530-83-8

EC number
219-784-2

Molecular formula
$C_9H_{20}O_5Si$

Molecular weight
236.34 g/mol

Hydrolysis by-product
Methanol

Product description

LANDUSIL LEGRA 2011-L is 3-glycidoxypropyltrimethoxysilane, a coupling agent with one glycidyl epoxide and three hydrolyzable methoxy groups. It is used in compatible adhesive, coating, glass-fiber and mineral-treatment formulations.

Methoxy-group hydrolysis produces silanols and methanol. Silanols can condense with hydroxyl-bearing inorganic surfaces or with one another. The epoxide can react separately with suitable epoxy-reactive partners. Control bath pH, water content and aging to retain the functionality needed for subsequent resin cure. The material supplies an epoxy reaction site and requires an appropriate cure partner.

Features and benefits

- One glycidyl epoxide for compatible organic reactions
- Three methoxy groups for inorganic surface coupling
- Releases methanol during hydrolysis
- Primer, filler-treatment and integral-addition routes
- Applicable to controlled organic–inorganic hybrid development

Specification

Property	Unit	Value	Test method
Appearance		**Colorless, clear liquid**	Visual
Purity (GC)	%	**min. 98.0**	Gas chromatography
Color	Pt-Co	**max. 30**	ASTM D1209
Density, 20 °C	g/cm³	**1.070 ± 0.005**	Density measurement
Refractive index, n_D^{25}	–	**1.4220 – 1.4320**	Refractometry

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

Typical properties

Boiling point, 2 mmHg	approx. 120 °C
Flash point, closed cup	approx. 110 °C
Dynamic viscosity, 20 °C	approx. 3.65 mPa·s

For guidance only; not part of the specification.

Applications

Epoxy adhesives and coatings
Reactive interface component for compatible epoxy systems; account for hardener balance and verify working life and final conversion.

Mineral and pigment treatment
Surface treatment of silica, quartz and suitable oxides. Compare pretreatment with direct resin addition using the actual filler.

Electronic filled compounds
Interface development for filled adhesives and encapsulants; qualify ionic contamination, residual volatiles and complete-part properties.

Glass-fiber sizing and finishing
Ingredient in glass-fiber sizes and glass-fabric finishes matched to the film former, drying stage and composite matrix.

Functional glass surfaces
Epoxide-bearing treatment for subsequent reaction with suitable functional partners; assess retained epoxide and extractable residue.

Guidelines for use

Integral addition	Published guidance uses less than 1 % in many compositions. Screen the level in the actual formulation and establish the concentration basis before scale-up.
Dilute surface treatment	Apply from a compatible dilute aqueous or solvent-based treatment. Control pH, bath age and drying, and verify retained epoxide before the next reaction.
Qualification	Compare resin addition and separate surface pretreatment. Determine treatment demand experimentally for each substrate and filler surface area.

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

Handling and safety

- Causes serious eye damage and may be harmful in contact with skin. Prevent contact; use chemical-resistant gloves, protective clothing and splash eye protection.
- Hydrolysis releases toxic, flammable methanol. Provide ventilation during mixing, application and drying; avoid breathing vapor and mist.
- Prevent uncontrolled contact with moisture and reactive acid, base or amine contamination. Evaluate reaction heat during bath preparation.
- Harmful to aquatic life with long lasting effects. Keep material out of drains; manage ignition sources around alcohol-containing treatments. Read the Safety Data Sheet before use.

Storage and shelf life

Store in tightly closed original containers in a cool, dry, ventilated place, away from sunlight, moisture and ignition sources. Shelf life is 12 months in unopened containers. Minimize moisture entry during sampling and reseal opened containers promptly under dry inert gas.

Packaging

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

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