LANDU

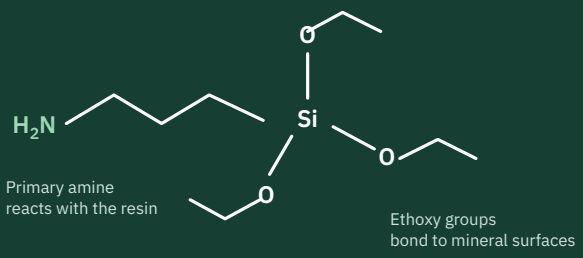
Technical data sheet
TDS-LEGRA-1010-L-EN
Revision 1.0, November 2026

LANDUSIL LEGRA

1010-L

3-Aminopropyltriethoxysilane

Amino-functional silane coupling agent for glass, mineral and metal-oxide interfaces



Chemical identity

Chemical name
3-Aminopropyltriethoxysilane

Abbreviation
APTES

CAS number
919-30-2

EC number
213-048-4

Structure
$H_2N(CH_2)_3Si(OC_2H_5)_3$

Molecular formula
$C_9H_{23}NO_3Si$

Molecular weight
221.37 g/mol

Hydrolysis by-product
Ethanol

Product description

LANDUSIL LEGRA 1010-L is 3-aminopropyltriethoxysilane (APTES), a bifunctional organosilane that carries a primary amino group and three hydrolyzable ethoxy groups in the same molecule.

The ethoxy groups hydrolyze to reactive silanols that condense with hydroxyl groups on glass, silica, mineral fillers and many metal oxides. The primary amine reacts with or interacts with compatible organic resins such as epoxies, phenolics, polyurethanes and polyamides. LEGRA 1010-L therefore acts as a molecular bridge that can improve adhesion, filler dispersion and the retention of mechanical properties after moisture exposure.

Features and benefits

- Primary amine reacts with epoxy, isocyanate and phenolic resins
- Releases ethanol, not methanol, on hydrolysis
- Improves wet and dry adhesion to glass, silica and metal oxides
- Aids filler wetting and dispersion
- Use as integral additive, primer or filler pretreatment

Specification

Property	Unit	Value	Test method
Appearance		**Colorless to light yellow, clear liquid**	Visual
Purity (GC)	%	**min. 98.0**	Gas chromatography
Color	Pt-Co	**max. 50**	ASTM D1209
Density, 25 °C	g/cm³	**0.940 – 0.950**	ASTM D4052
Refractive index, n_D^{25}	–	**1.4150 – 1.4250**	ASTM D1218

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

© 2026 LANDUSIL

Typical properties

Boiling point, 1013 hPa	approx. 217 °C
Flash point, closed cup	approx. 93 °C
Viscosity, 25 °C	approx. 1.6 mPa·s
Amine content (calculated)	approx. 4.5 mmol/g
pH of aqueous solution	10 – 11
Solubility	Miscible with alcohols and hydrocarbons; hydrolyzes in water

For guidance only; not part of the specification.

Applications

Glass fiber sizing and fabric finishing
Coupling component in sizes and finishes for glass fiber used with epoxy, phenolic, melamine and selected polyurethane matrices.

Mineral filler treatment
Surface treatment of silica, quartz, glass beads, wollastonite, kaolin and other hydroxylated fillers before compounding.

Foundry resins
Coupling additive in phenolic and furan resin-bonded sand systems.

Adhesives, sealants and primers
Adhesion promoter added to epoxy and polyurethane systems or used in primers for glass, ceramic and metal substrates.

Mineral wool and abrasive binders
Additive to phenolic binders for glass and stone wool insulation and for resin-bonded abrasives.

Coatings and inks
Adhesion promoter in primers and coatings that are compatible with an amino-functional interface.

Guidelines for use

Integral addition	Add 0.5 – 2.0 % on resin weight. Account for the amine in the stoichiometry of epoxy and isocyanate systems, and check pot life and storage stability.
Filler pretreatment	Apply 0.5 – 1.5 % on filler weight, by spraying onto the agitated filler or from an alcohol/water solution, then dry to remove alcohol and water.
Primer	Use as a 0.5 – 2.0 % solution in ethanol or ethanol/water. Apply a thin film to a clean surface and allow it to dry before bonding or coating.

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

Handling and safety

- Hydrolyzes on contact with moisture and releases ethanol. Keep containers tightly closed and handle under dry conditions.
- Dissolving in water is exothermic. Add the silane to water slowly with stirring.
- Reacts with ketones and aldehydes, and exchanges alkoxy groups with alcohols other than ethanol. Do not use acetone or MEK as a diluent.
- Corrosive to eyes and skin. Wear suitable gloves and eye protection, and read the Safety Data Sheet before use.

Storage and shelf life

Store in the original, tightly closed containers in a cool, dry and well-ventilated place, protected from moisture and direct sunlight. Shelf life is 12 months from the date of manufacture in unopened containers. Blanket opened containers with dry nitrogen before resealing.

Packaging

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

The information in this data sheet reflects our current knowledge and is given in good faith. It is not a guarantee of properties or of suitability for a particular use, and it does not release users from testing the product for their own application and process. Users are responsible for complying with applicable laws, regulations and third-party rights. Only the values under Specification are binding, as confirmed on the Certificate of Analysis. This edition supersedes all previous editions. For safety information, see the current Safety Data Sheet. © 2026 LANDUSIL. All rights reserved. LANDUSIL and its product series names are trademarks of LANDUSIL. No part of this document may be reproduced, modified or redistributed without prior written permission.