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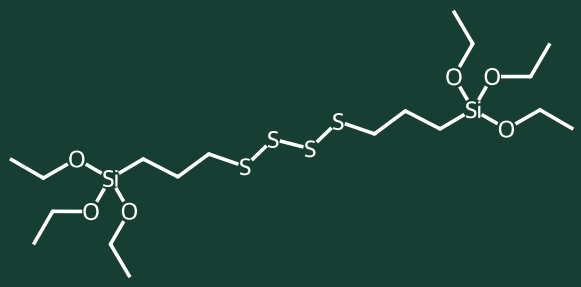
Technical data sheet
TDS-LEGRA-8020-L-EN
Revision 1.0, November 2026

LANDUSIL LEGRA

8020-L

Bis[3-(triethoxysilyl)propyl]tetrasulfide

Polysulfidic triethoxy silane for silica-filled rubber and related compound development



Chemical identity

Chemical name
Bis[3-(triethoxysilyl)propyl]tetrasulfide

CAS number
40372-72-3

Molecular formula
$C_{18}H_{42}O_6S_4Si_2$

Molecular weight
538.95 g/mol

Structure basis
Nominal S4 molecular species

Hydrolysis by-product
Ethanol

Product description

LANDUSIL LEGRA 8020-L identifies bis[3-(triethoxysilyl)propyl]tetrasulfide, commonly abbreviated TESPT. Its nominal structure contains two triethoxysilyl ends linked through a sulfur bridge. It is evaluated as a sulfur-functional coupling component in silica-filled elastomer compounds.

The ethoxy groups hydrolyze to silanols with ethanol release and can condense with suitable hydroxylated filler surfaces. Sulfur-containing groups can participate in the rubber cure system. Technical polysulfidic materials can have a distribution of sulfur-chain lengths; total sulfur and chain distribution must be assessed separately from nominal molecular identity. Filler, rubber, mixing history and curatives determine the resulting interface and network.

Features and benefits

- Two triethoxysilyl ends and a nominal tetrasulfide bridge
- Ethoxy hydrolysis releases ethanol
- Sulfur functionality participates in compatible rubber cure
- For evaluation in silica-filled elastomer compounds
- Total sulfur and chain distribution require separate control

Specification

Property	Unit	Value	Test method
Appearance		**Light yellow to yellow, clear liquid**	Visual
Total sulfur content	%	**22 ± 1**	Elemental sulfur analysis
Dynamic viscosity, 25 °C	mPa·s	**max. 19.0**	Rotational viscometry

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

Typical properties

Density, 25 °C	approx. 1.095 g/cm³
Flash point, method not reported	approx. 91 °C

For guidance only; not part of the specification.

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Applications

Silica-filled tire compounds
Coupling component for development with the selected elastomer, silica, mixing cycle and curative package; measure relevant dynamic properties.

Seals and footwear compounds
Evaluate mixing stability, scorch, cure and the properties required for the intended seal or sole formulation.

Rubber-to-metal primer research
Assess the actual surface and complete binder system; qualify adhesion and environmental durability independently.

Industrial rubber articles
Screen in compatible compounds for rollers, belts and similar articles, comparing dispersion, cure and conditioned mechanical properties.

Mineral pretreatment
Investigate controlled treatment of suitable hydroxylated fillers before compounding, with coverage, drying and residual volatiles assessed.

Guidelines for use

Compound screening	Screen 1.0 – 4.0 phr in a compatible rubber formulation. Adjust the complete sulfur and accelerator package through trials, and monitor torque, temperature, scorch and cure rather than substituting by equal mass for another silane.
Mixing sequence	Establish the silanization stage separately from curative addition. Control silica moisture, mixing time and temperature, and provide for removal of evolved ethanol under the actual process conditions.
Validation	Compare matched controls for filler dispersion, cure curve and conditioned mechanical or dynamic properties. Qualify pretreated fillers separately from direct addition during compounding.

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

Handling and safety

- Hydrolysis releases ethanol. Provide ventilation during mixing and drying and keep away from heat and ignition sources.
- Avoid skin and eye contact and inhalation of mist. Wear suitable protective gloves, clothing and eye protection.
- Prevent moisture contamination during storage. Collect spills and prevent release to drains or the environment.
- Read the Safety Data Sheet before use.

Storage and shelf life

Store in tightly closed original containers in a cool, dry and well-ventilated place, protected from moisture, heat and direct sunlight. Shelf life is 12 months in unopened containers under recommended conditions. Reseal promptly after sampling or transfer.

Packaging

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

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