

SAFETY DATA SHEET**Si 69®**

Material no.		Version	4.0 / US
Specification	101854	Revision date	05/29/2015
Order Number		Print Date	05/29/2015
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1. Identification**1.1. Product identifier**

Trade name	Si 69®
Chemical Name	Bis[3-(triethoxysilyl)propyl]polysulfide
CAS-No.	211519-85-6

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified	Rubber - producing and processing industry
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1.3. Details of the supplier of the safety data sheet

Company	Evonik Corporation USA 299 Jefferson Road Parsippany, NJ 07054-0677 USA
Telephone	973-929-8000
Telefax	973-929-8040
Email address	Product-Regulatory-Services@Evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC - US & CANADA:	800-424-9300
CHEMTREC MEXICO:	01-800-681-9531
CHEMTREC INTERNATIONAL:	+1 703-527-3887 (collect calls accepted)
Product Regulatory Services	: 973-929-8060

2. Hazards identification**2.1. Classification of the substance or mixture**

Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Remarks Not a hazardous substance or mixture.

2.2. Label elements

Statutory basis	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
Remarks	Not a hazardous substance or mixture.

Contains Bis[3-(triethoxysilyl)propyl]polysulphide
The following percentage of the mixture consists of ingredient(s) with unknown acute toxicity: 100 %
Contains Bis[3-(triethoxysilyl)propyl]polysulphide
The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 100 %

2.3. Other hazards

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None known

3. Composition/information on ingredients**• Bis[3-(triethoxysilyl)propyl]polysulphide**

CAS-No. 211519-85-6

Remarks Not a hazardous substance or mixture.

4. First aid measures**4.1. Description of first aid measures****Inhalation**

If aerosol or mists are formed: Take affected persons out into the fresh air.

Skin contact

Wash off with soap and plenty of water.

Eye contact

In case of contact, immediately flush eyes with plenty of water. Obtain medical attention if irritation develops.

Ingestion

If accidentally swallowed, rinse mouth thoroughly with water and afterwards, drink plenty of water. In case of discomfort, obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed**Symptoms**

None known

4.3. Indication of any immediate medical attention and special treatment needed

After absorbing large amounts of substance: Administration of activated charcoal: Acceleration of gastrointestinal passage.

5. Fire-fighting measures**5.1. Extinguishing media**Suitable extinguishing media: quenching powder, Foam, Carbon dioxide (CO₂), mist

Unsuitable extinguishing media: high volume water jet

5.2. Special hazards arising from the substance or mixture

May be released in case of fire: carbon monoxide, carbon dioxide, sulphur oxides.

5.3. Advice for firefighters

As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

In the event of fire, wear self-contained breathing apparatus.

6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Wear personal protective equipment.

6.2. Environmental precautions

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Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

6.3. Methods and material for containment and cleaning up

Pick up mechanically with a suitable material, e.g., adsorption agent, activated charcoal, and collect in suitable container.

Additional advice

Defect containers must be isolated and sealed immediately.

7. Handling and storage**7.1. Precautions for safe handling**

Local ventilation. Always close container tightly after removal of product. Assure impermeability at all times.

7.2. Conditions for safe storage, including any incompatibilities**Advice on protection against fire and explosion**

Take precautionary measures against static discharges.

Keep away from sources of ignition - No smoking.

Keep away from humidity.

Explosion protection is recommended in case the explosion limits for the following substance might be exceeded: Ethanol.

Storage

Storage at less than 10 °C may lead to a slight precipitation of crystalline sulfur, which should be removed by mechanical means. The product is not impaired by that.

Keep container tightly sealed and store in a dry, well-ventilated place.

Advice on common storage

Do not store together with: acids and alkaline solutions.

Storage stability

12 month 10 - 40 °C

8. Exposure controls/personal protection**8.1. Control parameters**

• Ethanol		
CAS-No.	64-17-5	
Control parameters	1000 ppm 1900 mg/m ³	Permissible exposure limit:(OSHA Z1)
Control parameters	1000 ppm 1900 mg/m ³	Time Weighted Average (TWA) Permissible Exposure Limit (PEL):(US CA OEL)
Control parameters	1000 ppm	Short Term Exposure Limit (STEL):(ACGIH)
Control parameters	1000 ppm 1900 mg/m ³	Time Weighted Average (TWA):(TN OEL)

DNEL/DMEL values

Remarks not necessary (see chapter 15)

PNEC values

Remarks not necessary (see chapter 15)

8.2. Exposure controls**Engineering measures**

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see section 7.

Personal protective equipment**Respiratory protection**

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

Wear protective gloves made of resistant material.

Glove material for example, butyl-rubber

Material thickness 0.5 mm

Break through time \geq 480 min

Glove material for example, Nitrile rubber

Material thickness 0.35 mm

Break through time \geq 480 min

Glove material for example, Fluorinated rubber (Viton)

Material thickness 0.4 mm

Break through time \geq 480 min

The rupture time and material thickness data are guideline values! Exact rupture time / material thickness data can be obtained from the protective glove manufacturer.

The information is based on our own tests, references from the literature and information from glove manufacturers, or derived by analogy with similar materials.

Please observe that the daily duration of usage of a chemical protective glove is in practice far shorter due to the many influencing factors (e.g. temperature, mechanical strain on the glove material) than the permeation time determined acc. EN 374.

The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.

Eye protection

Wear safety glasses with side shields.

Skin and body protection

No special protective equipment required.

When handling larger quantities:

disposable protective suit

(Solvent-resistant)

A safety shower and eye wash fountain should be readily available.

To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR 1910.132) be conducted before using this product.

Hygiene measures

When using, do not eat, drink or smoke. Wash face and/or hands before break and end of work.

To ensure ideal skin protection: use super fatted soaps and skin cream for skin care.

Wash contaminated clothing before re-use.

Protective measures

Handle in accordance with good industrial hygiene and safety practice.

If workplace exposure limits are exceeded and/or larger amounts are released (leakage, spilling, dust) the indicated respiratory protection should be used.

If there is the possibility of skin/eye contact, the indicated hand/eye/body protection should be used.

Do not breathe in vapours or aerosols.

Avoid contact with the skin and the eyes.

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9. Physical and chemical properties**9.1. Information on basic physical and chemical properties**

physical state	liquid (20 °C) (1013 hPa)	
Colour	yellow	
Form	liquid	
Odour	characteristic	
Odour Threshold	no data available	
pH	not applicable	
Melting point/range	ca. -80 °C	
Boiling point/range	not applicable	
Flash point	> 94 °C	
Method:	DIN EN ISO 2719 (Pensky-Martens, Closed Cup)	
	183 °C	
Method:	ISO 2592:2000; JIS K 2265-4:2007 (Japan)	
Evaporation rate	not determined	
Flammability (solid, gas)	not determined	
Lower explosion limit	0.5 %(V)	(200 °C)
Upper explosion limit	7.5 %(V)	(200 °C)
Vapour pressure	ca. 1 hPa	(20 °C)
	Ethanol	
Density	ca. 1.1 g/cm ³	(20 °C)
Water solubility	insoluble	
Partition coefficient: n-octanol/water	not applicable	
Autoignition temperature	240 °C	
Thermal decomposition	> 250 °C	(1013 mbar)
Viscosity, dynamic	ca. 12 mPa.s	(20 °C)

9.2. Other information

Bulk density	not applicable
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10. Stability and reactivity**10.1. Reactivity**

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No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions**10.4. Conditions to avoid**

Keep away from heat and sources of ignition.

10.5. Incompatible materials

Reaction with water, acids and alkaline solutions., Formation of ethanol.

10.6. Hazardous decomposition products

Decomposition products on heating above decomposition temperature:
carbon monoxide, carbon dioxide, hydrogen sulphide, ethanol

11. Toxicological information**11.1. Information on toxicological effects**

Acute oral toxicity	LD50 Rat: > 17500 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	LC50 Rat: > 7.967 mg/l / 4 h / dust/mist Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	LD50 Rat: > 2000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity
Skin irritation	Rabbit No skin irritation Method: FDA 1965 Rabbit / 3 weeks slightly irritating Method: FDA 1965 repeated application
Eye irritation	Rabbit No eye irritation Method: FDA 1965
Sensitization	maximization test guinea pig: Does not cause skin sensitisation. Method: OECD Test Guideline 406
Repeated dose toxicity	Oral Rat Testing period: 28 d NOAEL: 200 mg/kg Method: OECD 407
Assessment of STOT single exposure	no evidence for hazardous properties
Assessment of STOT repeat	no evidence for hazardous properties

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exposure	
Risk of aspiration toxicity	No evidence of aspiration toxicity
Gentoxicity in vitro	Ames test Salmonella typhimurium negative Method: OECD TG 471
	gene mutation TK +/- mouse lymphoma cell (L5178Y) negative Method: OECD TG 476
	chromosomal aberration Chinese hamster fibroblasts negative Method: OECD TG 473
Toxicity to reproduction	Prenatal development toxicity study Oral Rat NOAEL (No Observed Adverse Effect Level) of parents: 1000 mg/kg NOAEL F1: 1000 mg/kg Method: OECD TG 414
Teratogenicity	Oral Rat NOAEL (No Observed Adverse Effect Level) teratogenesis: 1000 mg/kg NOAEL maternal (No Observed Adverse Effect Level): 1000 mg/kg Method: OECD TG 414
Human experience	Toxic effects from handling this product are unknown as yet.

12. Ecological information**12.1. Toxicity**

Toxicity to fish	NOEC (Brachydanio rerio): ≥ 10000 mg/l / 96 h Method: OECD 203 The reported toxic effects relate to the nominal concentration.
Toxicity in aquatic invertebrates	EL50 Daphnia magna (Water flea): > 10 mg/l / 48 h Method: OECD TG 202 Water Accomodated Fraction (WAF)
Toxicity to algae	NOEC Desmodesmus subspicatus (green algae): 1000 mg/l / 96 h Method: OECD 201 The reported toxic effects relate to the nominal concentration.
Toxicity to bacteria	Pseudomonas putida: > 10000 mg/l Method: UBA method Onset of inhibition of the cell proliferation The reported toxic effects relate to the nominal concentration.
	local activated sludge: > 100 mg/l / 3 h Method: OECD TG 209

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12.2. Persistence and degradability

Biodegradability inoculum: Activated sludge
Result: Not readily biodegradable.
Method: 84/449/EEC

12.3. Bioaccumulative potential

Bioaccumulation Method: OECD TG 305 C
low

12.4. Mobility in soil

Mobility Adsorption on the floor: low.

12.5. Other adverse effects

Further Information The data we have at our disposal do not necessitate identification concerning environmental hazard.

13. Disposal considerations**13.1. Waste treatment methods****Product**

Waste must be disposed of in accordance with local, state, provincial and federal laws and regulations. Empty containers must be handled with care due to product residue.

Uncleaned packaging

Packaging, that can not be reused after cleaning must be disposed or recycled in accordance with all federal, national and local regulations.

Incorrect disposal or reuse of this container is illegal and can be dangerous.

Recommended cleaning agent: (ethanol, acetone)

Other countries: observe the national regulations.

14. Transport information

Not dangerous according to transport regulations.

- 14.1. UN number: --
14.2. UN proper shipping name: --
14.3. Transport hazard class(es): --
14.4. Packing group: --
14.5. Environmental hazards (Marine pollutant): --
14.6. Special precautions for user: Yes
Not dangerous according to transport regulations.

15. Regulatory information

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US Federal Regulations**OSHA**

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories

The product meets the criteria only for the listed hazard classes:

- No SARA Hazards

SARA Title III Section 313 Reportable Substances

If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)

If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

State Regulations**California Proposition 65**

A warning under the California Drinking Water Act is required only if listed below:

- None listed

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health : 1

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Flammability : 0
Physical Hazard : 0

NFPA Ratings

Health : 1
Flammability : 0
Reactivity : 0

16. Other information**Further information**

Revision date 05/29/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO-TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(EC50)	LC50 or EC50
LOAEL	Low est observed adverse effect level
LOEL	Low est observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations
vPvB	very persistent, very bioaccumulative

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voc volatile organic compounds
WHMIS Workplace Hazardous Materials Information System
WHO World Health Organization