

**DIIODOSILANE, 95%**

Safety Data Sheet SID3520.0

Date of issue: 17/09/2015

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Version: 2.3

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Product form	: Substance
Physical state	: Liquid
Substance name	: DIIODOSILANE, 95%
Product code	: SID3520.0
Formula	: H2I2Si
Synonyms	: SILICON DIODIDE
Chemical family	: SILANE

1.2. Relevant identified uses of the substance or mixture and uses advised against**1.2.1. Relevant identified uses**

Use of the substance/mixture : Chemical intermediate

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet**GELEST, INC.**11 East Steel Road
Morrisville, PA 19067**USA**

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info@gelestde.com - www.gelestde.com**1.4. Emergency telephone number**

Emergency number : CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Flammable liquids, Category 3	H226
Substances and Mixtures which, in contact with water, emit flammable gases, Category 2	H261
Skin corrosion/irritation, Category 1B	H314
Serious eye damage/eye irritation, Category 1	H318

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS05

Signal word (CLP) :

Danger

Hazard statements (CLP) :

H226 - Flammable liquid and vapour.
H261 - In contact with water releases flammable gases.
H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP) :

P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P223 - Do not allow contact with water.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P231+P232 - Handle under inert gas. Protect from moisture.
P240 - Ground/bond container and receiving equipment.
P310 - Immediately call a POISON CENTER or doctor/physician

EUH-statements :

EUH029 - Contact with water liberates toxic gas.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type :

Mono-constituent

Name :

DIIDOSILANE, 95%

CAS-No. :

13760-02-6

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Diidosilane	(CAS-No.) 13760-02-6	95 - 100	Flam. Liq. 3, H226 Water-react. 2, H261 Skin Corr. 1B, H314 Eye Dam. 1, H318

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general :

Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation :

Remove person to fresh air and keep comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact :

Wash with plenty of water/.... Get immediate medical advice/attention.

First-aid measures after eye contact :

Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion :

Never give anything by mouth to an unconscious person. Get medical advice/attention.

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

Symptoms/effects :

Causes severe skin burns and eye damage.

Symptoms/effects after inhalation :

May cause irritation to the respiratory tract. Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia.

Symptoms/effects after skin contact :

Causes (severe) skin burns. Prolonged absorption of iodides may produce skin rashes, running nose, headache, mucous membrane irritation, anemia, loss of weight and depression.

Symptoms/effects after eye contact :

Causes serious eye damage.

Symptoms/effects after ingestion :

May be harmful if swallowed.

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

Note to physician: Diiodosilane reacts with water to form hydroiodic acid, consequently treatment for acid burns may be considered.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry chemical. Dry soda ash.
Unsuitable extinguishing media : Water.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour. Irritating fumes and acid vapors may develop when material is exposed to elevated temperatures or open flame.
Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. Advice for firefighters

Firefighting instructions : Exercise caution when fighting any chemical fire.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapour and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Use only non-sparking tools.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Precautions for safe handling : Avoid contact with water. Avoid all eye and skin contact and do not breathe vapour and mist. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only non-sparking tools.
Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
Storage conditions : Keep container tightly closed. Keep in a cool place. Store locked up.
Incompatible materials : Moisture. Water. Amines.
Storage area : Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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8.2. Exposure controls

Appropriate engineering controls:

Provide local exhaust or general room ventilation.

Personal protective equipment:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection:

Wear impervious gloves (neoprene or nitrile rubber gloves)

Eye protection:

Chemical goggles or face shield. Contact lenses should not be worn

Skin and body protection:

Wear impervious protective clothing

Respiratory protection:

Where exposure through inhalation may occur from use, use full face NIOSH-certified respirator with APF of 50.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Molecular mass	: 283.91 g/mol
Colour	: Pale yellow to pink.
Odour	: Acrid. Hydrogen iodide.
Odour threshold	: No data available
Refractive index	: No additional information available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: -1 °C
Boiling point	: 149 - 150 °C
Flash point	: 38 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapour.
Vapour pressure	: 25 mm Hg 60°C
Relative vapour density at 20 °C	: > 1
Relative density	: 2.834
Solubility	: Reacts with water.
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts with water.

10.2. Chemical stability

Stable in sealed, inerted containers, out of exposure to light.

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10.3. Possibility of hazardous reactions

Reacts with water and moisture in air liberating hydrogen iodide, liberates hydrogen in presence of platinum and in contact with base. Unstable in presence of hindered amines, potentially forming pyrophoric products.

10.4. Conditions to avoid

Heat. Open flame. Sparks.

10.5. Incompatible materials

Moisture. Water. Amines.

10.6. Hazardous decomposition products

Acid vapors. Hydrogen iodide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	: Not classified
Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Causes serious eye damage.
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
	None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract. Inhalation of large amounts is expected to cause necrosis of tracheal epithelium, bronchitis and interstitial pneumonia.
Symptoms/effects after skin contact	: Causes (severe) skin burns. Prolonged absorption of iodides may produce skin rashes, running nose, headache, mucous membrane irritation, anemia, loss of weight and depression.
Symptoms/effects after eye contact	: Causes serious eye damage.
Symptoms/effects after ingestion	: May be harmful if swallowed.
Reason for classification	: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity	: Not classified
Chronic aquatic toxicity	: Not classified

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : This substance may be hazardous to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Sewage disposal recommendations	: Do not dispose of waste into sewer.
Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Additional information	: Handle empty containers with care because residual vapours are flammable.
Ecology - waste materials	: Avoid release to the environment.

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SECTION 14: Transport information

14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR) : 3129
UN-No. (IMDG) : 3129
UN-No. (IATA) : 3129
UN-No. (ADN) : 3129
UN-No. (RID) : 3129

14.2. UN proper shipping name

Proper Shipping Name (ADR) : WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (IMDG) : WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (IATA) : Water-reactive liquid, corrosive, n.o.s.
Proper Shipping Name (ADN) : WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name (RID) : WATER-REACTIVE LIQUID, CORROSIVE, N.O.S.
Transport document description (ADR) : UN 3129 WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (DIIODOSILANE), 4.3 (8), I, (B/E)
Transport document description (IMDG) : UN 3129 WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (DIIODOSILANE), 4.3 (8), I
Transport document description (IATA) : UN 3129 Water-reactive liquid, corrosive, n.o.s. (DIIODOSILANE), 4.3, I
Transport document description (ADN) : UN 3129 WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (DIIODOSILANE), 4.3 (8), I
Transport document description (RID) : UN 3129 WATER-REACTIVE LIQUID, CORROSIVE, N.O.S. (DIIODOSILANE), 4.3 (8), I

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : 4.3 (8)
Danger labels (ADR) : 4.3, 8



IMDG

Transport hazard class(es) (IMDG) : 4.3 (8)
Danger labels (IMDG) : 4.3, 8



IATA

Transport hazard class(es) (IATA) : 4.3 (8)
Hazard labels (IATA) : 4.3, 8



ADN

Transport hazard class(es) (ADN) : 4.3 (8)
Danger labels (ADN) : 4.3, 8

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RID

Transport hazard class(es) (RID) : 4.3 (8)
Danger labels (RID) : 4.3, 8



14.4. Packing group

Packing group (ADR) : I
Packing group (IMDG) : I
Packing group (IATA) : I
Packing group (ADN) : I
Packing group (RID) : I

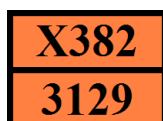
14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Classification code (ADR) : WC1
Special provisions (ADR) : 274
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P402
Special packing provisions (ADR) : RR7, RR8
Mixed packing provisions (ADR) : MP2
Portable tank and bulk container instructions (ADR) : T14
Portable tank and bulk container special provisions (ADR) : TP2, TP7
Tank code (ADR) : L10DH
Tank special provisions (ADR) : TU14, TE21, TM2
Vehicle for tank carriage : AT
Transport category (ADR) : 0
Special provisions for carriage - Packages (ADR) : V1
Special provisions for carriage - Loading, unloading and handling (ADR) : CV23
Special provisions for carriage - Operation (ADR) : S20
Hazard identification number (Kemler No.) : X382
Orange plates :



Tunnel restriction code (ADR) : B/E
EAC code : 4W

- Transport by sea

Special provisions (IMDG) : 76, 274

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Limited quantities (IMDG)	: 0
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P402
Tank instructions (IMDG)	: T14
Tank special provisions (IMDG)	: TP2, TP7, TP13
EmS-No. (Fire)	: F-G
EmS-No. (Spillage)	: S-N
Stowage category (IMDG)	: D
Stowage and handling (IMDG)	: H1
Segregation (IMDG)	: SG26

- Air transport

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: Forbidden
PCA max net quantity (IATA)	: Forbidden
CAO packing instructions (IATA)	: 480
CAO max net quantity (IATA)	: 1L
Special provisions (IATA)	: A3
ERG code (IATA)	: 4CW

- Inland waterway transport

Classification code (ADN)	: WC1
Special provisions (ADN)	: 274
Limited quantities (ADN)	: 0
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP, EP, EX, A
Ventilation (ADN)	: VE01
Provisions for handling and stowage of the cargo (ADN)	: HA08
Number of blue cones/lights (ADN)	: 0

- Rail transport

Classification code (RID)	: WC1
Special provisions (RID)	: 274
Limited quantities (RID)	: 0
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P402
Special packing provisions (RID)	: R7, RR8
Mixed packing provisions (RID)	: MP2
Portable tank and bulk container instructions (RID)	: T14
Portable tank and bulk container special provisions (RID)	: TP2, TP7
Tank codes for RID tanks (RID)	: L10DH
Special provisions for RID tanks (RID)	: TU14, TU38, TE21, TE22, TM2
Transport category (RID)	: 0
Special provisions for carriage – Packages (RID)	: W1
Special provisions for carriage - Loading, unloading and handling (RID)	: CW23
Hazard identification number (RID)	: X382

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

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DIIODOSILANE, 95% is not on the REACH Candidate List

DIIODOSILANE, 95% is not on the REACH Annex XIV List

15.1.2. National regulations

Germany

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark

Class for fire hazard : Class II-1

Store unit : 5 liter

Classification remarks : R10 <H226;H261;H314>; Emergency management guidelines for the storage of flammable liquids must be followed

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development; GHS: The Globally Harmonized System of Classification and Labelling; APF: Assigned Protection Factor

Other information : Prepared by safety and environmental affairs.

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Category 2
H226	Flammable liquid and vapour.
H261	In contact with water releases flammable gases.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
EUH029	Contact with water liberates toxic gas.

SDS EU (REACH Annex II) - Custom

The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.

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**NOTICE OF TSCA USE RESTRICTIONS AND REQUIRED CONTROLS FOR
SID3520.0
DIIODOSILANE, 95%**

Dear Customer:

The chemical product purchased, SID3520.0 has been granted a Low Volume Exemption by the U.S. Environmental Protection Agency (EPA) under the Toxic Substances Control Act (TSCA) regulations (40 CFR 723.50). Any manufacturer or processor who intends to use this chemical substance for commercial purposes must comply with the specific use restrictions and controls specified as follows:

USE OF THIS CHEMICAL SUBSTANCE IS RESTRICTED TO: Precursor for the deposition of silicon nitride in microelectronics applications

CONTROLS: Workers must use personal protection equipment to limit dermal and inhalation exposures as described in Section 8: Exposure Controls/Personal Protection of the Safety Data Sheet (SDS). These exposure controls include:

Hand protection: Impervious gloves (neoprene or nitrile rubber gloves)

Eye Protection: Chemical goggles. Contact lenses should not be worn.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: Air-purifying respirator with APF of 50.

WASTE DISPOSAL: Customer must rinse containers with solvent prior to disposal. Residues and wash solvents must be containerized for off-site disposal by incineration at licensed waste disposal facility. Do not release to publicly owned treatment works (POTW) via sewer or to surface waters.

If you have questions or need more information related to allowable use of this substance, contact Gelest Regulatory Affairs at 215-547-1015.

Best Regards,

Gelest, Inc.
Regulatory Affairs Department