SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Substance name</td>
<td>DI(t-BUTYLAMINO)SILANE</td>
</tr>
<tr>
<td>Product code</td>
<td>SID2795.0</td>
</tr>
<tr>
<td>Formula</td>
<td>C8H22N2Si</td>
</tr>
<tr>
<td>Synonyms</td>
<td>BIS(tert-BUTYLAMINO)SILANE; N,N'-DI-t-BUTYLSILANEDIAMINE; BTBAS</td>
</tr>
<tr>
<td>Chemical family</td>
<td>ORGANOAMINOSILANE</td>
</tr>
</tbody>
</table>

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

| Use of the substance/mixture | Chemical intermediate For research and industrial use only |

1.3. Details of the supplier of the safety data sheet

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.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 (GHS-US):
- Flam. Liq. 3    H226
- Acute Tox. 4 (Oral) H302
- Skin Corr. 1B   H314
- Eye Dam. 1      H318

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US):

- GHS02
- GHS05
- GHS07

Signal word (GHS-US): Danger

Hazard statements (GHS-US):
- H226 - Flammable liquid and vapor
- H302 - Harmful if swallowed
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage

Precautionary statements (GHS-US):
- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P210 - Keep away from heat, open flames, sparks. - No smoking
- P233 - Keep container tightly closed
- P240 - Ground/bond container and receiving equipment
- P241 - Use explosion-proof electrical equipment
- P242 - Use only non-sparking tools
- P243 - Take precautionary measures against static discharge
- P260 - Do not breathe vapors
- P264 - Wash hands thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
- P301+P312 - If swallowed: Call a doctor if you feel unwell
- P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. Rinse skin with water/shower
- P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove...
DI(t-BUTYLAMINO)SILANE
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2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type : Mono-constituent
Name : DI(t-BUTYLAMINO)SILANE
CAS No : 186598-40-3

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di(t-butyllamino)silane</td>
<td>(CAS No) 186598-40-3</td>
<td>&gt; 95</td>
<td>Flam. Liq. 3, H226 Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318</td>
</tr>
</tbody>
</table>

3.2. Mixture

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 victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Wash with plenty of soap and 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. Immediately call a poison center or doctor/physician.

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

Symptoms/injuries : Causes severe skin burns and eye damage.
Symptoms/injuries after skin contact : Causes (severe) skin burns.
Symptoms/injuries after eye contact : Causes serious eye damage.
Symptoms/injuries after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media


5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapor. Irritating fumes of t-butylamine and organic acid vapors may develop when material is exposed to water or open flame.

5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool exposed surfaces. 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 vapor and mist.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Remove ignition sources. Use special care to avoid static electric charges.
6.1.1. For non-emergency personnel
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment : Equip cleanup crew with proper 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
Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. 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
Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Take precautionary measures against static discharge. Containers must be properly grounded before beginning transfer. 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 : Ground/bond container and receiving equipment. Proper grounding procedures to avoid static electricity should be followed.
Storage conditions : Keep container tightly closed.
Incompatible materials : Acids, Alcohols, Oxidizing agent.
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
Di(t-butylamino)silane (186598-40-3) USA OSHA OSHA PEL (TWA) (ppm) 25 ppm t-butylamine

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 : Neoprene or nitrile rubber gloves.
Eye protection : Chemical goggles or face shield. Contact lenses should not be worn.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection : NIOSH-certified combination organic vapor - amine gas (brown cartridge) respirator.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties
Physical state : Liquid
Appearance : Clear liquid.
Molecular mass : 174.36 g/mol
Color : Straw.
Odor : Acrid. Amine.
Odor threshold : No data available
Refractive index : 1.4236
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : < -40 °C
Boiling point : 167 °C
Flash point : 30 °C
DI(t-BUTYLAMINO)SILANE
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Auto-ignition temperature : 190 °C
Decomposition temperature : No data available
Flammability (solid, gas) : Flammable liquid and vapor
Vapor pressure : 1 mm Hg @ 20°C
Relative vapor density at 20 °C : > 1
Relative density : 0.816
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
Oxidizing 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
No additional information available

10.2. Chemical stability
Stable in sealed containers stored under a dry inert atmosphere.

10.3. Possibility of hazardous reactions
Reacts with water and moisture in air liberating t-butylamine.

10.4. Conditions to avoid
Heat. Open flame. Sparks.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Organic acid vapors. t-Butylamine.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Oral: Harmful if swallowed.

<table>
<thead>
<tr>
<th>Di(t-butylamino)silane (186598-40-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : Not classified
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified

Potential Adverse human health effects and symptoms : Note: The hydrolysis products include t-butylamine which is toxic and flammable.
Symptoms/injuries after skin contact : Causes (severe) skin burns.
Symptoms/injuries after eye contact : Causes serious eye damage.
Symptoms/injuries after ingestion : Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Reason for classification : Expert judgment
DI(t-BUTYLAMINO)SILANE
Safety Data Sheet

SECTION 12: Ecological information

<table>
<thead>
<tr>
<th>12.1. Toxicity</th>
<th>No additional information available</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.2. Persistence and degradability</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.3. Bioaccumulative potential</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.4. Mobility in soil</td>
<td>No additional information available</td>
</tr>
<tr>
<td>12.5. Other adverse effects</td>
<td>Other adverse effects: This substance may be hazardous to the environment. Effect on ozone layer: No additional information available Effect on the global warming: No known ecological damage caused by this product.</td>
</tr>
</tbody>
</table>

SECTION 13: Disposal considerations


SECTION 14: Transport information

<table>
<thead>
<tr>
<th>14.1. UN number</th>
<th>UN-No.(DOT): 2924 DOT NA no.: UN2924</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2. UN proper shipping name</td>
<td>Proper Shipping Name (DOT): Flammable liquids, corrosive, n.o.s. (DI(t-BUTYLAMINO)SILANE) Transport hazard class(es) (DOT): 3 - Class 3 - Flammable and combustible liquid (49 CFR 173.120) Hazard labels (DOT): 3 - Flammable liquid 8 - Corrosive</td>
</tr>
<tr>
<td>14.3. Additional information</td>
<td>Emergency Response Guide (ERG) Number: 60 Other information: No supplementary information available.</td>
</tr>
</tbody>
</table>

**Transport by sea**

- DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.
- DOT Vessel Stowage Other: 40 - Stow “clear of living quarters”

**Air transport**

- DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 5 L
- DOT Quantity Limitations Cargo aircraft only (49 CFR 173.75): 60 L

SECTION 15: Regulatory information

<table>
<thead>
<tr>
<th>15.1. US Federal regulations</th>
<th></th>
</tr>
</thead>
</table>
Di(t-BUTYLAMINO)SILANE
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15.2. International regulations

- Listed on the United States TSCA (Toxic Substances Control Act) inventory
- Listed on the Canadian NDSL (Non-Domestic Substances List)
- Listed on the Japanese ISHL (Industrial Safety and Health Law)

15.3. US State regulations

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65</th>
<th>U.S. - California - Proposition 65</th>
<th>U.S. - California - Proposition 65</th>
<th>No significance risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Carcinogens List</td>
<td>- Developmental Toxicity</td>
<td>- Reproductive Toxicity - Female</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

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 Toxicty 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.

Full text of H-phrases:

| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| 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 |
| H226                | Flammable liquid and vapor |
| H302                | Harmful if swallowed |
| H314                | Causes severe skin burns and eye damage |
| H318                | Causes serious eye damage |

HMIS III Rating

- Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
- Flammability: 3 Serious Hazard
- Physical: 1 Slight Hazard

Prepared by safety and environmental affairs.

Date of issue: 04/09/2015
Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
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