SECTION 1: Identification

1.1. Identification

Product name: DI-n-BUTYLDICHLOROTIN
Product code: SND3250
Product form: Substance
Physical state: Solid
Formula: C8H18Cl2Sn
Synonyms: DIBUTYLTINDICHLORIDE; DIBUTYLDICHLOROSTANNANE
Chemical family: ORGANOTIN

1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

1.3. Supplier

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: Hazard(s) Identification

2.1. Classification of the substance or mixture

GHS-US classification
Acute toxicity (oral) Category 3 H301 - Toxic if swallowed
Skin corrosion/irritation Category 1B H314 - Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1 H318 - Causes serious eye damage
Hazardous to the aquatic environment - Acute Hazard Category 1 H400 - Very toxic to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 1 H410 - Very toxic to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Signal word (GHS US): Danger
Hazard pictograms (GHS US): 

Hazard statements (GHS US): H301 - Toxic if swallowed
H314 - Causes severe skin burns and eye damage
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS US): P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P264 - Do not breathe dust.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P301+P310 - If swallowed: Immediately call a POISON CENTER
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 contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER
P321 - Specific treatment (see first aid instructions on this label)
P363 - Wash contaminated clothing before reuse.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.
DI-n-BUTYLDICHLOROTIN
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2.3. Hazards not otherwise classified (HNOC)
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Mono-constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>DI-n-BUTYLDICHLOROTIN</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>683-18-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier (CAS-No.)</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di-n-butyldichlorotin</td>
<td>683-18-1</td>
<td>95 - 100</td>
<td>Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Full text of hazard classes and 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 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 (acute and delayed)

Symptoms/effects : Causes severe skin burns and eye damage.

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : Causes (severe) skin burns. Organotins may be absorbed through the skin.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

Note to physician: Application of corticosteroid creams has been effective in treating severe skin irritation. If blisters develop, they may require abrasion to promote healing.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


Unsuitable extinguishing media : None known.

5.2. Specific hazards arising from the chemical

Fire hazard : Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Exercise caution when fighting any chemical fire. Use water spray to cool exposed surfaces.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.
DI-n-BUTYLDICHLOROTIN
Safety Data Sheet

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
Avoid release to the environment. Prevent entry to sewers and public waters. Notify authorities if product 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. Sweep or shovel spills into appropriate container for disposal. Collect spillage.

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 contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.
Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Keep container tightly closed. Store locked up.
Storage area : Store in a well-ventilated place. Store away from heat.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di-n-butyltetrachloride (683-18-1)</td>
<td></td>
<td>0.1 mg/m³ as tin</td>
</tr>
</tbody>
</table>

8.2. Appropriate engineering controls
Appropriate engineering controls : Handle in an enclosing hood with exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

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:
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Physical state | Solid |
| Appearance     | Crystals. |
| Molecular mass | 303.83 g/mol |
| Color          | White. |
| Odor           | characteristic. |
| Odor threshold | No data available |
| Refractive index | 1.499 |
DI-n-BUTYLDICHLOROTIN
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pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : 39 - 41 °C
Freezing point : No data available
Boiling point : 153 °C @ 5 mm Hg
Flash point : 168 °C
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : 10 mm Hg @ 134°C
Relative vapor density at 20 °C : > 1
Relative density : 1.36 @ 50°C
Solubility : Insoluble in water. Organic solvent: Soluble: hexane, ether, THF
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
Explosion 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.

10.3. Possibility of hazardous reactions
Direct sunlight causes degradation to an inorganic tin salt.

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

10.5. Incompatible materials

10.6. Hazardous decomposition products
Organic acid vapors. Tin oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified

<table>
<thead>
<tr>
<th>DI-n-BUTYLDICHLOROTIN (683-18-1)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
<td>112 mg/kg body weight</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DI-n-butyl dichlorotin (683-18-1)</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.
Skin Irritation - rabbit: 2 mg/24H: severe irritation effect

Serious eye damage/irritation : Causes serious eye damage.
Eye Irritation - rabbit: 50 ug/24H: severe irritation effect

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
DI-n-BUTYLDICHLOROTIN
Safety Data Sheet

Specific target organ toxicity – repeated exposure: Not classified
Aspiration hazard: Not classified
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: Causes (severe) skin burns. Organotins may be absorbed through the skin.
Symptoms/effects after eye contact: Causes serious eye damage.
Symptoms/effects after ingestion: Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.
Reason for classification: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Di-n-butylchlorotin (683-18-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Di-n-butylchlorotin (683-18-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Effect on the ozone layer: No additional information available

SECTION 13: Disposal considerations

13.1. Disposal 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.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

14.1. UN number
UN-No.(DOT): 3146
DOT NA no.: UN3146

14.2. UN proper shipping name
Transport document description: UN3146 Organotin compounds, solid, n.o.s. (DI-n-BUTYLDICHLOROTIN), 6.1, III
Proper Shipping Name (DOT): Organotin compounds, solid, n.o.s. (DI-n-BUTYLDICHLOROTIN)
Packing group (DOT): III - Minor Danger
Hazard labels (DOT): 6.1 - Poison

Dangerous for the environment: Yes
Marine pollutant: Yes

DOT Packaging Non Bulk (49 CFR 173.xxx): 213
DOT Packaging Bulk (49 CFR 173.xxx): 240
DI-n-BUTYLDICHLOROTIN
Safety Data Sheet

DOT Packaging Exceptions (49 CFR 173.xxx) : 153

14.3. Additional information

Emergency Response Guide (ERG) Number : 153

Other information : No supplementary information available.

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) : 100 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 200 kg

SECTION 15: Regulatory information

15.1. US Federal regulations

Di-n-butylchlorotin (683-18-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Di-n-butylchlorotin (683-18-1)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Di-n-butylchlorotin (683-18-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Di-n-butylchlorotin (683-18-1)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECS (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)
Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Di-n-butylchlorotin (683-18-1)
U.S. - Massachusetts - Right To Know List

SECTION 16: Other information

Full text of H-phrases:

| H301 | Toxic if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H318 | Causes serious eye damage |
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |
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.

Hazard Rating

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

Flammability: 1 Slight Hazard - Materials that must be preheated before ignition will occur. Includes liquids, solids and semi solids having a flash point above 200 F. (Class IIIB)

Physical: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 12/18/2015 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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