SECTION 1: Identification

1.1. Identification

Product name: TRIPHENYL Tin HYDRIDE, 95%
Product code: SNT8700
Product form: Substance
Physical state: Solid
Formula: C18H16Sn
Synonyms: TRIPHENYL STANNANE
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
Acute toxicity (dermal) Category 4 H312 - Harmful in contact with skin
Skin corrosion/irritation Category 2 H315 - Causes skin irritation
Serious eye damage/eye irritation Category 2A H319 - Causes serious eye irritation

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US):

Signal word (GHS US): Danger
Hazard statements (GHS US):
H301 - Toxic if swallowed
H312 - Harmful in contact with skin
H315 - Causes skin irritation
H319 - Causes serious eye irritation

Precautionary statements (GHS US):
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P330 - Rinse mouth.
P301+P310 - If swallowed: Immediately call a doctor.
P302+P352 - If on skin: Wash with plenty of water.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P305+P351+P338 - If in EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P312 - Call a doctor if you feel unwell.
P321 - Specific treatment (see first aid instructions on this label).
P362+P364 - Take off contaminated clothing and wash it before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Hazards not otherwise classified (HNOC)

No additional information available
TRIPHENYL Tin HYDRIDE, 95%

Safety Data Sheet

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Substance type : Multi-constituent
Name : TRIPHENYL Tin HYDRIDE, 95%
CAS-No. : 892-20-6

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triphenyl tin hydride</td>
<td>(CAS-No.) 892-20-6</td>
<td>90 - 100</td>
<td>Acute Tox. 3 (Oral), H301</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute Tox. 4 (Dermal), H312</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Irrit. 2, H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2A, H319</td>
</tr>
<tr>
<td>Other Organotins</td>
<td></td>
<td>0 - 10</td>
<td>Not classified</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 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 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 (acute and delayed)
Symptoms/effects after inhalation : May cause irritation to the respiratory tract.
Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation. Organotins may be absorbed through the skin. Repeated exposure to this material can result in absorption through skin causing significant health hazard.
Symptoms/effects after eye contact : Causes serious eye irritation.
Symptoms/effects after ingestion : Harmful 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 : Do not use straight streams.

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.
TRIPHENYLTIN HYDRIDE, 95%
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
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. Sweep or shovel spills into appropriate container for disposal.

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. Avoid dust formation. Do not breathe dust. Pressure build-up may occur in closed containers. Open containers slowly. 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. Store < 5°C.
Storage temperature: Storage stability: at 5°C: approximately 6 months (purity reduced below 95%); at 25°C: approximately 6 weeks (purity reduced below 95%)
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>Other Organotins</th>
<th>ACGIH TWA (mg/m³)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH Triphenyltin hydride (892-20-6)</td>
<td>0.1 mg/m³ as tin</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. 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 dust and mist (teal cartridge) respirator.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties
Physical state: Solid
TRIPHENYL Tin HYDRIDE, 95%
Safety Data Sheet

Appearance: Waxy solid or hazy liquid.
Molecular mass: 351.01 g/mol
Color: No data available
Odor: No data available
Odor threshold: No data available
Refractive index: 1.632
pH: No data available
Relative evaporation rate (butyl acetate=1): No data available
Melting point: 26 - 28 °C
Freezing point: No data available
Boiling point: 165 °C @ 0.2 mm Hg
Flash point: > 110 °C
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapor pressure: < 0.1 mm Hg @ 25°C
Relative vapor density at 20 °C: No data available
Relative density: 1.374
Solubility: Insoluble in 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
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 in sealed containers under dry inert atmosphere stored <5°C.

10.3. Possibility of hazardous reactions
Direct sunlight causes slow degradation to an inorganic tin salt. The product can generate small amounts of hydrogen when exposed to alkalis and protic materials such as water and alcohol in combination with metal salts such as aluminum chloride or precious metals such as platinum. Slowly liberates hydrogen gas.

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

10.5. Incompatible materials

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

TRIPHENYL Tin HYDRIDE, 95% (892-20-6)

<table>
<thead>
<tr>
<th>Route</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE US (oral)</td>
<td>140 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>2000 mg/kg body weight</td>
</tr>
</tbody>
</table>

Triphenyltin hydride (892-20-6)

<table>
<thead>
<tr>
<th>Route</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>140 mg/kg 491 mg/kg; RTECS Number: WH8882000</td>
</tr>
<tr>
<td>LD50 dermal rat</td>
<td>2000 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal mouse</td>
<td>350 mg/kg</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>140 mg/kg body weight</td>
</tr>
<tr>
<td>ATE US (dermal)</td>
<td>2000 mg/kg body weight</td>
</tr>
</tbody>
</table>
TRIPHENYL Tin HYDRIDE, 95%
Safety Data Sheet

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td>Not classified</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure</td>
<td>Not classified</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Not classified</td>
</tr>
<tr>
<td>Symptoms/effects after inhalation</td>
<td>May cause irritation to the respiratory tract.</td>
</tr>
<tr>
<td>Symptoms/effects after skin contact</td>
<td>Toxic in contact with skin. Causes skin irritation. Organotins may be absorbed through the skin. Repeated exposure to this material can result in absorption through skin causing significant health hazard.</td>
</tr>
<tr>
<td>Symptoms/effects after eye contact</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Symptoms/effects after ingestion</td>
<td>Harmful if swallowed. Swallowing a small quantity of this material will result in serious health hazard.</td>
</tr>
<tr>
<td>Reason for classification</td>
<td>Expert judgment</td>
</tr>
</tbody>
</table>

**SECTION 12: Ecological information**

12.1. **Toxicity**
No additional information available

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. **Other adverse effects**
Other adverse effects: This substance may be hazardous to the environment.
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.
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. (TRIPHENYL Tin HYDRIDE), 6.1, III
Proper Shipping Name (DOT): Organotin compounds, solid, n.o.s. (TRIPHENYL Tin HYDRIDE)
Packing group (DOT): III - Minor Danger
Hazard labels (DOT): 6.1 - Poison
TRIPHENYL Tin HYDRIDE, 95%
Safety Data Sheet

Marine pollutant : Yes (IMDG only)

DOT Packaging Non Bulk (49 CFR 173.xxx) : 213
DOT Packaging Bulk (49 CFR 173.xxx) : 240
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

TRIPHENYL Tin HYDRIDE, 95% (892-20-6)

TSCA Exemption/Exclusion

CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a “technically qualified individual” as defined by 40 CFR 720.3(ee). The use of this material for “commercial purposes” as defined by 40 CFR 720.3(r) is not permitted in the United States.

Triphenyltin hydride (892-20-6)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

Triphenyltin hydride (892-20-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Triphenyltin hydride (892-20-6)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)

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

SECTION 16: Other information

Full text of H-phrases::

<table>
<thead>
<tr>
<th>H-number</th>
<th>Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
</tbody>
</table>
TRIPHENYL Tin HYDRIDE, 95%

Safety Data Sheet

<table>
<thead>
<tr>
<th>H319</th>
<th>Causes serious eye irritation</th>
</tr>
</thead>
</table>

**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**

<table>
<thead>
<tr>
<th>Health</th>
<th>3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>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)</td>
</tr>
<tr>
<td>Physical</td>
<td>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.</td>
</tr>
</tbody>
</table>

Prepared by safety and environmental affairs.

Date of issue: 02/24/2016   Revision date: 03/11/2019   Version: 1.1

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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