GREEN TECHNOLOGIES

SAFETY DATA SHEET

12/30/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Tin(II) chloride dihydrate
Brand : GTI Laboratories Supplies
CAS-No. : 10025-69-1

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

Identified uses : Research and Development

1.3 Details of the supplier of the safety data sheet

Company : GTI Laboratories Supplies
5611 Northdale Street
HOUSTON TX 77087

Telephone : +1 804-240-4719

1.4 Emergency telephone number

Emergency Phone # : (804) 240-4719

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Inhalation (Category 4), H332
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Skin sensitization (Category 1), H317
Germ cell mutagenicity (Category 2), H341
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure, Oral (Category 2), Cardio-vascular system, H373
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H361   Suspected of damaging fertility or the unborn child.
H373   May cause damage to organs (Cardio-vascular system) through prolonged or repeated exposure if swallowed.
H410   Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201   Obtain special instructions before use.
P202   Do not handle until all safety precautions have been read and understood.
P260   Do not breathe dust/fume/gas/mist/vapors/spray.
P264   Wash skin thoroughly after handling.
P271   Use only outdoors or in a well-ventilated area.
P272   Contaminated work clothing should not be allowed out of the workplace.
P273   Avoid release to the environment.
P280   Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P363   Wash contaminated clothing before reuse.
P391   Collect spillage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405   Store locked up.
P501   Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS
3.1 Substances

| Synonyms | Stannous chloride dihydrate |
| Formula | Cl₂Sn · 2H₂O |
| Molecular weight | 225.65 g/mol |
| CAS-No. | 10025-69-1 |
| EC-No. | 231-868-0 |

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stannous chloride dihydrate</td>
<td>Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Skin Sens. 1; Muta. 2; Repr. 2; STOT SE 3; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H314, H317, H318, H322, H335, H341, H361, H373, H410</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES
4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Hydrogen chloride gas, tin/tin oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
7.3 **Specific end use(s)**
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. **EXPOSURE CONTROLS/PERSONAL PROTECTION**

8.1 **Control parameters**

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
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</thead>
<tbody>
<tr>
<td>Stannous chloride dihydrate</td>
<td>10025-69-1</td>
<td>TWA</td>
<td>2.000000 mg/m³</td>
<td>USA, Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USA, ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
- Eye & Upper Respiratory Tract irritation
- Headache
- Pneumoconiosis
- Nausea varies

8.2 **Exposure controls**

**Appropriate engineering controls**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

**Personal protective equipment**

**Eye/face protection**
Face shield and safety glasses, use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**
Handle with gloves, gloves must be inspected prior to use. Use proper glove removal technique (without touching glove’s outer surface) to avoid skin contact with this product. Dispose of contaminated glovesafter use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril®
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril®

Test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, the type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| a) Appearance       | Form: Fine crystals and fragments |
| b) Odor            | No data available                |
| c) Odor Threshold  | No data available                |
| d) pH              | No data available                |
| e) Melting point/freezing point | Melting point/range: 37 - 38 °C (99 - 100 °F) - dec. |
| f) Initial boiling point and boiling range | 652 °C (1,206 °F) - lit. |
| g) Flash point     | No data available                |
| h) Evaporation rate | No data available                |
| i) Flammability (solid, gas) | No data available                |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapor pressure  | No data available                |
| l) Vapor density   | No data available                |
| m) Relative density | 2.71 g/cm3                      |
| n) Water solubility | soluble                        |
| o) Partition coefficient: n-octanol/water | No data available |
| p) Auto-ignition temperature | No data available |
| q) Decomposition temperature | No data available |
9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Exposure to moisture may affect product quality. Exposure to air may affect product quality.

10.5 Incompatible materials
Hydrogen peroxide, strong bases, strong oxidizing agents, bromine trifluoride, hydrazine, ethylene oxide, metals, organic nitrates

10.6 Hazardous decomposition products
Other decomposition products - No data available. In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
In vitro tests showed mutagenic effects

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity

Reproductive toxicity - Rat - Oral
Maternal Effects: Other effects. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death.

Suspected human reproductive toxicant

Developmental Toxicity - Rat - Oral
Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: XP8850000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3260 Class: 8 Packing group: II
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Stannous chloride dihydrate)
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

UPS Ground
Small Quantity maximum 30 grams/milliliters per container
Corrosive solid, acidic, inorganic, n.o.s. (Stannous chloride dihydrate), 8, UN3260, III

DHL IATA
Dangerous Goods in Excepted Quantities maximum 30 grams/milliliters per container
Corrosive solid, acidic, inorganic, n.o.s. (Stannous chloride dihydrate), 8, UN3260, III

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.  | Acute toxicity
Aquatic Acute | Acute aquatic toxicity
Aquatic Chronic | Chronic aquatic toxicity
Eye Dam.     | Serious eye damage
H314         | Causes severe skin burns and eye damage.
H317         | May cause an allergic skin reaction.
H318         | Causes serious eye damage.
H332         | Harmful if inhaled.
H335         | May cause respiratory irritation.
H341         | Suspected of causing genetic defects.
H361         | Suspected of damaging fertility or the unborn child.
H373         | May cause damage to organs through prolonged or repeated exposure if swallowed.
H400         | Very toxic to aquatic life.
H410         | Very toxic to aquatic life with long lasting effects.
Muta.        | Germ cell mutagenicity

HMIS Rating

<table>
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<tr>
<th>Rating</th>
<th>Health Hazard</th>
<th>Chronic Health Hazard</th>
<th>Flammability</th>
<th>Physical Hazard</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>3</td>
<td>*</td>
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</table>

NFPA Rating

<table>
<thead>
<tr>
<th>Rating</th>
<th>Health Hazard</th>
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<tbody>
<tr>
<td></td>
<td>2</td>
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</tbody>
</table>
Fire Hazard: 0
Reactivity Hazard: 0

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a
guide. The information in this document is based on the present state of our knowledge and is applicable to the
product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the
product. GTI Laboratories Supplies and its Affiliates shall not be held liable for any damage resulting from handling
or from contact with the above product.

Preparation Information
GTI Laboratories Supplies
Product Safety & Health

Version: 4.5Revision Date: 03/17/2015Print Date: 12/30/2015