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

Product identifier

Product name: Tin(II) chloride dihydrate

Stock number: A14610
CAS Number: 10025-69-1
EINECS Number: 231-868-0

Relevant identified uses of the substance or mixture and uses advised against.
Sector of Use SU24 Scientific research and development

Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com

Information Department: Health, Safety and Environmental Department
Emergency telephone number:
During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification

Classification of the substance or mixture

GHS05 Corrosion

H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

C Corrosive
R34 Causes burns.

Information concerning particular hazards for human and environment: Not applicable

Label elements

Labelling according to EU guidelines:
The product has been classified and marked in accordance with directives on hazardous materials.

Code letter and hazard designation of product:
C Corrosive

Risk phrases:
34 Causes burns.

Safety phrases:
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
45 In case of accident or if you feel unwell, seek medical advice immediately.

Hazard description:

WHMIS classification
D2B - Toxic material causing other toxic effects
E - Corrosive material

Classification system
HMIS ratings (scale 0-4)
(Hazardous Materials Identification System)

<table>
<thead>
<tr>
<th></th>
<th>HEALTH</th>
<th>FIRE</th>
<th>REACTIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health (acute effects) = 2</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Flammability = 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactivity = 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Contd. on page 2)
Material Safety Data Sheet
According to OSHA and ANSI
Printing date 06/01/2011 Reviewed on 04/18/2011

Product name: Tin(II) chloride dihydrate

3 Composition/information on ingredients
Chemical characterization: Substances
(CAS#) Description:
10025-69-1 Tin(II) chloride dihydrate
Identification number(s):
EINECS Number: 231-868-0

4 First aid measures
Description of first aid measures
General information Immediately remove any clothing soiled by the product.
After inhalation Supply fresh air or oxygen, call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
After skin contact Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
After eye contact Call a doctor immediately.
Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Drink copious amounts of water and provide fresh air. Immediately call a doctor.
Seek immediate medical advice.
Information for doctor
Most important symptoms and effects, both acute and delayed
No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Firefighting measures
Extinguishing media
Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Special hazards arising from the substance or mixture
In case of fire, the following can be released:
Metal oxide fume
Hydrogen chloride (HCl)
Advice for firefighters
Protective equipment:
Wear self-contained respirator.
Wear fully protective impervious suit.

6 Accidental release measures
Personal precautions, protective equipment and emergency procedures
Avoid formation of dust.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Environmental precautions:
Do not allow to enter sewers/surface or ground water.
Do not allow to penetrate the ground/soil.
Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up:
Prevent formation of dust.
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
7 Handling and storage

Handling

Precautions for safe handling
Thoroughly remove all dust particles.
Handle under dry protective gas.
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.

Information about protection against explosions and fires:
Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities

Storage

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:
Store away from air.
Store away from water/moisture.
Store away from oxidizing agents.
Store away from strong bases.

Further information about storage conditions:
Store under dry inert gas.
This product is hygroscopic.
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
Protect from humidity and water.
This product is air sensitive.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems:
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Control parameters

Components with limit values that require monitoring at the workplace: Not required.

Additional information:
The exposure limits that were valid when the MSDS was created were used.
No data

Exposure controls

Personal protective equipment

General protective and hygienic measures
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Breathing equipment:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
Use suitable respirator when high concentrations are present.

Protection of hands:
Rubber gloves
Impervious gloves
Check protective gloves prior to each use for their proper condition.

Material of gloves
The selection of suitable gloves not only depends on the material, but also on quality.
Quality will vary from manufacturer to manufacturer.

Eye protection:
Gauze goggles
Safety glasses
Tightly sealed goggles
Full face protection

Body protection: Protective work clothing.
9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
</tr>
<tr>
<td>Appearance:</td>
</tr>
<tr>
<td>Form: Crystalline</td>
</tr>
<tr>
<td>Color: White</td>
</tr>
<tr>
<td>Odor: Odorless</td>
</tr>
<tr>
<td>Odour threshold: Not determined.</td>
</tr>
<tr>
<td>pH-value: Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Change in condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/Melting range: 42-46°C (108-115 °F)</td>
</tr>
<tr>
<td>Boiling point/Boiling range: None</td>
</tr>
<tr>
<td>Sublimation temperature / start: Not determined</td>
</tr>
</tbody>
</table>

| Flash point: Not applicable                           |

<table>
<thead>
<tr>
<th>Flammability (solid, gaseous)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product is not flammable</td>
</tr>
</tbody>
</table>

| Ignition temperature: Not determined                  |

| Decomposition temperature: Not determined             |

| Auto igniting: Not determined                          |

| Danger of explosion: Product does not present an explosion hazard. |

<table>
<thead>
<tr>
<th>Explosion limits:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower: Not determined</td>
</tr>
<tr>
<td>Upper: Not determined</td>
</tr>
</tbody>
</table>

| Vapor pressure: Not applicable.                        |

<table>
<thead>
<tr>
<th>Density at 20°C (68 °F): 2.71 g/cm³ (22.615 lbs/gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative density: Not determined.</td>
</tr>
<tr>
<td>Vapour density: Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate: Not applicable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solubility in / Miscibility with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water at 20°C (68 °F): 1187 g/l</td>
</tr>
<tr>
<td>Segregation coefficient (n-octonol/water): Not determined.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Viscosity:</th>
</tr>
</thead>
<tbody>
<tr>
<td>dynamic: Not applicable</td>
</tr>
<tr>
<td>kinematic: Not applicable</td>
</tr>
</tbody>
</table>

| Other information: No further relevant information available. |

10 Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
</tr>
<tr>
<td>Thermal decomposition / conditions to be avoided:</td>
</tr>
<tr>
<td>To avoid thermal decomposition do not overheat.</td>
</tr>
<tr>
<td>Decomposition will not occur if used and stored according to specifications.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possibility of hazardous reactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reacts with alcohols</td>
</tr>
<tr>
<td>Reacts with alkali (lyes)</td>
</tr>
<tr>
<td>Reacts with strong oxidizing agents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Incompatible materials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
</tr>
<tr>
<td>Bases</td>
</tr>
</tbody>
</table>

| Hazardous decomposition products: Metal oxide fume    |

11 Toxicological information

<table>
<thead>
<tr>
<th>Information on toxicological effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LD/LC50 values that are relevant for classification:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary irritant effect:</th>
</tr>
</thead>
<tbody>
<tr>
<td>on the skin: Corrosive effect on skin and mucous membranes.</td>
</tr>
<tr>
<td>on the eye: Strong corrosive effect.</td>
</tr>
<tr>
<td>Sensitization: No sensitizing effects known.</td>
</tr>
</tbody>
</table>
Subacute to chronic toxicity:
Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known. Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute and/or other multiple dose toxicity data for components in this product. The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive and/or mutation data for components in this product. No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

12 Ecological information

Toxicity
Acquatic toxicity: No further relevant information available.
Persistence and degradability: No further relevant information available.
Behavior in environmental systems:
Bioaccumulative potential: No further relevant information available.
Mobility in soil: No further relevant information available.

Additional ecological information:
General notes:
Must not reach bodies of water or drainage ditch undiluted or unneutralized. Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. Do not allow material to be released to the environment without proper governmental permits.

Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
Other adverse effects: No further relevant information available.

13 Disposal considerations

Waste treatment methods
Recommendation: Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.
Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

DOT regulations:

Hazard class: 8
Identification number: UN3260
Packing group: III
Proper shipping name (technical name): CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Tin(II) chloride dihydrate)
Label: 8

Land transport ADR/RID (cross-border):

ADR/RID class: 8 (C2) Corrosive substances
Danger code (Kemler): 60
**Material Safety Data Sheet**  
According to OSHA and ANSI

**Product name:** Tin(II) chloride dihydrate

<table>
<thead>
<tr>
<th><strong>UN-Number:</strong></th>
<th>3260</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Packaging group:</strong></td>
<td>III</td>
</tr>
<tr>
<td><strong>UN proper shipping name:</strong></td>
<td>3260 CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Tin(II) chloride dihydrate)</td>
</tr>
</tbody>
</table>

**Maritime transport IMDG:**

- **IMDG Class:** 8
- **UN Number:** 3260
- **Label:** 8
- **Packaging group:** III
- **Marine pollutant:** No
- **Proper shipping name:** CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Tin(II) chloride dihydrate)

**Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** 8
- **UN/ID Number:** 3260
- **Label:** 8
- **Packaging group:** III
- **Proper shipping name:** CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Tin(II) chloride dihydrate)

**UN "Model Regulation":** UN3260, CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S., 8, III

**Special precautions for user:** Warning: Corrosive substances

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:** Not applicable.

### 15 Regulatory information

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

**Product related hazard information:**
The product has been classified and marked in accordance with directives on hazardous materials.

**Hazard symbols:**
- C Corrosive

**Risk phrases:**
- 34 Causes burns.

**Safety phrases:**
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.

**National regulations**
- All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
- All components of this product are listed on the Canadian Domestic Substances List (DSL).

**Information about limitation of use:**
- Employment restrictions concerning pregnant and lactating women must be observed.
- For use only by technically qualified individuals.

**Disturbance regulations:**
- Critical quantity values according to the regulations on accidents should be adhered to.

**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure...
(Contd. of page 6)

Material Safety Data Sheet
According to OSHA and ANSI

Printing date 06/01/2011 Reviewed on 04/18/2011

Product name: Tin(II) chloride dihydrate

proper use and protect the health and safety of employees. This information is furnished
without warranty, and any use of the product not in conformance with this Material Safety
Data Sheet, or in combination with any other product or process, is the responsibility of the
user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact:
Zachariah C. Holt
Global EHS Manager

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International
Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning
the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
WHMIS: Workplace Hazardous Materials Identification System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent