1 Identification

Product identifier
Product name: Tin, AAS standard solution, Specpure®, Sn 1000 µg/ml
Stock number: 88112
EC number: 231-595-7
Index number: 017-002-01-X

Relevant identified uses of the substance or mixture and uses advised against.
Identified 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 Classification(s) identification

Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS05 Corrosion
Skin Corr. 1B H314 Causes severe skin burns and eye damage.

GHS07
STOT SE 3 H335 May cause respiratory irritation.

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

Hazard statements

Danger
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary statements
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P303+P361+P333 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 2)
3 Composition/information on ingredients

Chemical characterization: Substances
CAS® Description:
Tin, AAS standard solution, Specpure®, Sn 1000 µg/ml
Identification number(s):
EC number: 231-595-7
Index number: 017-002-01-X
Additional information:
Elements and concentrations in micrograms/milliliter are as follows (balance is water):
Sn 1000 µg/ml

4 First-aid measures

Description of first aid measures
General information Immediately remove any clothing soiled by the product.
After inhalation 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 Rinse opened eye for several minutes under running water. Then consult a doctor.
After swallowing Seek medical treatment.
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 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents
Product is not flammable. Use fire fighting measures that suit the surrounding fire.
Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:
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
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Environmental precautions:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow product to reach sewage system or any water course.
Do not allow to penetrate the ground/soil.

Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

Prevention of secondary hazards: No special measures required.

Reference to other sections
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling
Precautions for safe handling
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: No information known.

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 metals.
Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals.

Further information about storage conditions:
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.

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:

Hydrogen chloride

<table>
<thead>
<tr>
<th>Country</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>2-Ceiling</td>
</tr>
<tr>
<td>Austria</td>
<td>5</td>
</tr>
<tr>
<td>Belgium</td>
<td>5-STEL</td>
</tr>
<tr>
<td>Denmark</td>
<td>5</td>
</tr>
<tr>
<td>Finland</td>
<td>5-STEL (skin)</td>
</tr>
<tr>
<td>France</td>
<td>5</td>
</tr>
<tr>
<td>Germany</td>
<td>5</td>
</tr>
<tr>
<td>Hungary</td>
<td>5-STEL</td>
</tr>
<tr>
<td>Japan</td>
<td>5-STEL</td>
</tr>
<tr>
<td>Korea</td>
<td>5-Ceiling</td>
</tr>
<tr>
<td>Norway</td>
<td>5</td>
</tr>
<tr>
<td>Poland</td>
<td>5 mg/m³; 7 mg/m³-Ceiling</td>
</tr>
<tr>
<td>Russia</td>
<td>5-STEL</td>
</tr>
<tr>
<td>Sweden</td>
<td>5-STEL</td>
</tr>
<tr>
<td>Switzerland</td>
<td>5; 10-KG-W</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>5-STEL</td>
</tr>
<tr>
<td>USA PEL</td>
<td>5-Ceiling</td>
</tr>
</tbody>
</table>

Tin metal, tin oxide and inorganic tin compounds, except tin hydride, as Sn

<table>
<thead>
<tr>
<th>Country</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>2</td>
</tr>
<tr>
<td>Austria</td>
<td>2</td>
</tr>
<tr>
<td>Belgium</td>
<td>2</td>
</tr>
<tr>
<td>Denmark</td>
<td>2</td>
</tr>
<tr>
<td>Finland</td>
<td>2</td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
</tr>
</tbody>
</table>
## 9 Physical and chemical properties

### Information on basic physical and chemical properties

**General Information**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>pH-value</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>Not determined</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>Approx. 1 °C (Approx. 34 °F)</td>
</tr>
<tr>
<td>Sublimation temperature / start</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Not determined</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Auto igniting</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Danger of explosion</strong></td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits</strong></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not determined</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F)</td>
<td>Approx. 1 g/cm³ (Approx. 8.345 lbs/gal)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with</strong></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water)</strong></td>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td></td>
</tr>
<tr>
<td>dynamic</td>
<td>Not determined</td>
</tr>
<tr>
<td>kinematic</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

### Other information

- Not determined.
Thermal decomposition / conditions to be avoided:
Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions
Water reacts violently with alkali metals.
Reacts with alkali and metals
Incompatible materials:
Alkali metals
Bases
Sulfides
Water reacts with many metals to give hydrogen, often violently. Water is also incompatible with many reactive organic and inorganic chemicals.
Hazardous decomposition products: Hydrogen chloride (HCl)

11 Toxicological information
Information on toxicological effects
Acute toxicity:
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
LD/LC50 values that are relevant for classification:
ORL-RBT LD50: 900 mg/kg (HCl)
INH-RAT LC50: 3124 ppm/1H (HCl)
IHL-HMN LC50: 1300 ppm/30M (HCl)
IHL-HMN LC50: 1108 ppm/5M (HCl)
Skin irritation or corrosion: Causes severe skin burns.
Eye irritation or corrosion: Causes serious eye damage.
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: No effects known.
Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.
Reproductive toxicity: No effects known.
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity:
Hydrochloric acid is a severe irritant to skin, eyes, and mucous membranes. Vapors may cause severe irritation to the eyes and respiratory tract. Inhalation of vapor may cause pulmonary edema. Dilute solutions have a less irritating effect.
Metallic tin and inorganic tin compounds may cause nausea, vomiting, diarrhea, irritation and pneumoconiosis.
Additional toxicological information:
To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information
Toxicity
Aquatic 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:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Avoid transfer into the environment.
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.
14 Transport information

**UN-Number**

DOT, ADR, IMDG, IATA: UN1789

**UN proper shipping name**

DOT: Hydrochloric acid
ADR: 1789 Hydrochloric acid
IMDG, IATA: HYDROCHLORIC ACID

**Transport hazard class(es)**

DOT

Class: 8 Corrosive substances.
Label: 8

ADR

Class: 8 (C1) Corrosive substances
Label: 8

IMDG, IATA

Class: 8 Corrosive substances.
Label: 8

**Packing group**

DOT, ADR, IMDG, IATA: II

**Environmental hazards:**

Not applicable.

**Special precautions for user**

Warning: Corrosive substances

**Danger code (Kemler):**

80

**Segregation groups**

Acids

**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

**Transport/Additional information:**

DOT

Marine Pollutant (DOT): No

**UN "Model Regulation":**

UN1789, Hydrochloric acid, 8, II

15 Regulatory information

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

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

**SARA Section 313 (specific toxic chemical listings)**

Tin, AAS standard solution, Specpure®, Sn 1000 µg/ml

**California Proposition 65**

Prop 65 - Chemicals known to cause cancer Substance is not listed.
Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.
Prop 65 - Developmental toxicity, male Substance is not listed.
# Safety Data Sheet
acc. to OSHA HCS

**Product name:** Tin, AAS standard solution, Specpure ®, Sn 1000 µg/ml

## Information about limitation of use:
For use only by technically qualified individuals.
This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

### Other regulations, limitations and prohibitive regulations
**Substances of very high concern (SVHC) according to REACH, Article 57**
Substance is not listed.

**REACH - Pre-registered substances** Substance is not listed.

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

## 16 Other information
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 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 SDS:** Health, Safety and Environmental Department.

**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)
- IMDG: International Maritime Code for Dangerous Goods
- DCT: US Department of Transportation
- IATA: International Air Transport Association
- GHS: Globally Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- HMIS: Hazardous Materials Identification System (USA)
- WHMIS: Workplace Hazardous Materials Information System (Canada)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent

* Data compared to the previous version altered.