

Gallium Indium Tin Alloy

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Gallium-Indium-Tin alloy
Other: Gallium-Indium-Tin Eutectic, Gallium-In21.5wt%-Sn16wt%

Supplier: Consolidated Chemical & Solvents LLC
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Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Corrosive to metals, category 1.

GHS Label Elements:

Signal Word: Warning

Hazard Statements: H290 May be corrosive to metals.

Precautionary Statements: P234 Keep only in original container.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient:	CAS#:	%:	EC#:
Gallium	7440-55-3	66.0	231-163-8
Indium	7440-74-6	22.0	231-180-0
Tin	7440-31-5	10	231-141-8

4 FIRST AID MEASURES

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, brush material off skin, wash affected area with soap and water. Seek medical attention if irritation develops or persists.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if irritation develops or persists.

Most Important Symptoms/Effects, Acute and Delayed: May cause irritation. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use Class D dry powder extinguishing agent.

Unsuitable Extinguishing Media: No information available.

Specific Hazards Arising from the Material: May emit toxic fumes under fire conditions.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing when necessary.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Avoid breathing dust or fume. Isolate spill area and provide ventilation.

Methods and Materials for Containment and Cleaning Up: If possible, molten metal should be allowed to cool and harden before cleanup. Scoop up and place in properly labeled plastic containers. Avoid creating dusts. Liquid metal should be contained by pushing pool of molten metal into plastic dustpan and placing it into a sealed plastic container for recycling.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Handle in a well-ventilated area. Avoid moisture as this will discolor the metal. Avoid creating dust. Avoid exposure to high temperature. Avoid breathing dust or fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking. See section 8 for information on personal protection equipment.

Conditions for Safe Storage, Including Any Incompatibilities: Store in closed unbreakable containers (polyethylene). Store in the original labeled shipping container when possible. Store in a cool, dry area away from metals. Do not store together with oxidizers, acids or halogens. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

	OSHA/PEL:	ACGIH/TLV:
Gallium	No exposure limit established	No exposure limit established
Indium	0.1 mg/m ³	0.1 mg/m ³
Tin	2 mg/m ³	2 mg/m ³

Appropriate Engineering Controls: Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: When potential exposures are above the occupational limits, approved respirators must be used.

Eye Protection: Safety glasses. A face shield should be added when handling liquid metal where there is a potential for splashes.

Skin Protection: Gloves should be worn to protect skin and also in order to prevent contamination of the metal.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form:	Liquid at room temperature
Color:	Silvery metallic liquid or gray solid
Odor:	Odorless
Odor Threshold:	Not determined
pH:	N/A
Melting Point:	10.7 °C
Boiling Point:	No data

Flash Point:	N/A
Evaporation Rate:	N/A
Flammability:	N/A
Upper Flammable Limit:	N/A
Lower Flammable Limit:	N/A
Vapor Pressure:	No data
Vapor Density:	N/A
Relative Density (Specific Gravity):	6.5 g/cc
Solubility in H₂O:	Insoluble
Partition Coefficient (n-octanol/water):	Not determined
Autoignition Temperature:	No data
Decomposition Temperature:	No data
Viscosity:	N/A

10 STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Potentially explosive reaction with hydrogen peroxide and hydrochloric acid. Violent or vigorous reaction with halogens. Corrosive to light alloys and metal especially aluminum alloys.

Conditions to Avoid: Avoid creating fumes or dusts. Avoid high temperatures. Gallium will tarnish in moist air.

Incompatible Materials: Strong oxidizing agents, strong acids, halogens, strong bases, moisture, metals - especially aluminum and aluminum alloys.

Hazardous Decomposition Products: Gallium oxide fume.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin and eyes.

Symptoms of Exposure: May cause irritation.

Acute and Chronic Effects:

Gallium: There is little definitive information on the toxicity of elemental gallium. Contact with gallium metal may cause skin or eye irritation. When exposed to air, gallium slowly forms an oxide layer which is toxic if inhaled. The most hazardous mode of exposure is inhalation and care should be taken to avoid inhaling any dusts or fumes associated with gallium and its compounds.

Indium: There is little definitive information on the toxicity of elemental indium. Exposure to indium metal in solid form is expected to have few adverse health effects as long as no dust or fume is produced. In laboratory animals, indium-tin oxide was found to increase cancer risks through inhalation. The soluble salts of indium were very toxic when given intravenously.

Tin: Elemental tin is considered to have low toxicity. Ingestion of food contaminated with tin may cause transient gastrointestinal disturbances such as nausea, vomiting, diarrhea, fever and headache. Inhalation of tin as dust or fumes may cause a benign pneumoconiosis in exposed workers.

Acute Toxicity: No data

Carcinogenicity: No components of this alloy have been identified by NTP or IARC as carcinogenic.

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

UN Number: UN2803

UN Proper Shipping Name: Gallium

Transport Hazard Class: 8

Packing Group: III

Marine Pollutant: No

Special Precautions: Corrosive to metals, especially aluminum and aluminum alloys.

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): Corrosive to metals, category 1.

Canada WHMIS Classification (CPR, SOR/88-66): Class E - Corrosive material.

HMIS Ratings: Health: 1 Flammability: 0 Physical: 1

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 1

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

16 OTHER INFORMATION

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