

Material Safety Data Sheet

1. Identification

Product identifier TCSM 35.0
Recommended use Metallic thermal material
Recommended restrictions No restrictions on use known
Chemical family **Composite with Metal alloy and carbon**
Manufacturer
Company name **TCLAD Inc.**
Address 1600 Orrin Road, Prescott, WI 54021, United States
Telephone +1 715 262 8206

2. Hazard(s) identification

PRIMARY ROUTES OF ENTRY:

*Eye *Inhalation *Skin *Ingestion

CARCINOGEN LISTED IN:

NTP IARC OSHA *Not Listed

GHS:



Signal Word: Warning

Hazard Statement(s)

H315 Causes skin irritation

H319 Causes serious eye irritation

H335 May cause respiratory irritation

H290 May be corrosive to metals

Precautionary Statement(s)

P234 Keep only in the original container

P261 Avoid breathing dust/fume/gas/mist/vapors/spray

P270 Do not eat, drink or smoke when using this product

P273 Avoid release to the environment

P280 Wear protective gloves/protective clothing/eye protection/face protection

P362 Take off contaminated clothing and wash before reuse

P302 + P352 IF ON SKIN: Wash with plenty of soap and water

P304 + 341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

P305 + 351 IF IN EYES: Rinse continuously with water for several minutes

POTENTIAL HEALTH EFFECTS:

Eye Contact: Contact may cause eye irritation or burns. Severe eye damage may result from hot molten metal being splashed into the eyes. Wear proper protection when working with molten metal. Powder form may cause eye irritation. Gallium metal at room temperature may be a splash hazard and cause



irritation to eyes.

Ingestion: Ingestion may be harmful. Gallium is corrosive to metal.

Inhalation: Inhalation of vapors may result in contamination and potential harmful effects. Inhalation of powders may cause irritation.

Skin Contact: Contact may cause irritation and dermatitis. GALLIUM metal may be liquid at room temperature and may be absorbed through skin. GALLIUM is corrosive to metal in the liquid state. Hot molten metal may cause burns to the skin. Wear proper protective equipment when handling hot molten metal.

Chronic: INDIUM: May cause damage to respiratory system if inhaled over long periods of time.

TIN: Has been shown to increase incidence of sarcoma in animal tests.

GALLIUM: May cause bone marrow abnormalities with damage to blood forming tissues.

WARNING: This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (trace levels of California listed metals). This is applicable within the State of California. This statement is not used outside of California.

NOTE: TCLAD Inc. does not recommend, manufacturer, market or endorse any of it's products for human consumption.

3. Composition/information on ingredients

Chemical name	Common name and synonyms	CAS number	Concentration(%)
Metallic based thermal material	Gallium (Ga)	7440-55-3	40~70%
	Tin (Sn)	7440-31-5	10~25%
	Indium (In)	7440-74-6	0-40%
	carbon allotrope	7740-40-3	0-30%
	Copper (Cu) mesh (only if the finished product comes in sheet form)**	7440-50-8	45-55%

4. First-aid measures

Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: If patient is conscious, ONLY induce vomiting as directed by trained personnel. NEVER give anything by mouth to an unconscious person. Seek medical attention immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or oxygen by trained personnel. Seek immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash affected area with soap and water. Wash clothing before reuse. If irritation persists, obtain medical attention. Gallium may be in concentrations to be corrosive.

5. Fire-fighting measures

Flash Point: Not established. **Method:** Not established.

Auto-ignition Temperature: Not established.

Flammable Limits: Limits not established. Massive metal is not flammable.

Extinguishing Media: Use extinguishers appropriate for the surrounding fire conditions. Do Not Direct Water at or onto the heated metal.

Special Fire Fighting Firefighters must wear NIOSH approved self-contained breathing apparatus and full Procedures: protective clothing.

Thermal decomposition can lead to release of irritating gases and vapors.

6. Accidental release measures

Spill or Leak Procedures: TCSM 35.0 may be highly viscous liquid at room temperature. As Gallium, one of the components of FlixiMetal, is corrosive to metal, it may be absorbed through skin, wear appropriate personal protection when containing spills. If possible, cool TCSM 35.0 to below its melting point, to solidify. Otherwise, remove by pushing the semi-solid composite into a plastic dustpan and place it into a plastic container. Solid metal should be cleaned up without generating dust. Do not sweep.

Dispose of following all Federal, State and Local regulations. Metal may have reclaim value. Wear personal protective equipment and avoid breathing any dust or fume.

7. Handling and storage

Handling Precautions:

If working with semi solid metals and composites, or exposed to fume or dust, use appropriate personal protective equipment. TCSM 35.0 is highly viscous liquid at room temperature and should be properly handled. The following are general procedures for handling it. User should review their own workplace situations and uses and determine the best guidelines for handling. PPE should be assessed based on the particular use or uses. Melting or grinding of gallium mixed alloys should be reviewed. Ventilation is recommended when there is a potential for work place exposures

to metal fume or particulate. Permissible exposure levels in high fume or particulate tasks should be assessed so that they are not exceeded. Ensure engineering controls are used to protect the worker.

TCSM 35.0 can be viscous liquid above 15 C. Personal protective equipment (PPE) must be worn when handling the composite.

Safety glasses or goggles shall be worn. Additional personal protective equipment should be used when handling molten metals: face shield, hot gloves for handling hot metals, sleeve protector for splash hazards if handling large volumes where there is a potential for splash and burns from hot metal. Additional protection includes apron. Keep unauthorized personnel away when handling viscous metal composites.

Exhaust ventilation should be provided for any metal fume when heating is being conducted.

Store materials in the proper container. Hot metals should be placed into a compatible container. Gallium is corrosive to many metals.

Storage Precautions:

Store product in a cool, dry area away from incompatible materials (metals and moisture). Close container when not in use, where applicable.

8. Exposure controls/personal protection

Engineering Controls: Exhaust ventilation is recommended to control any air contaminants and keep exposures as low as possible.

Personal protection:

Eyes: Chemical safety glasses/goggles and face shield with molten metal. . Face shield may need to be worn when handling viscous liquid metal composites at any temperature for splash protection.

Respirator: An authority approved or compliant marked air-purifying respirator with a fume/dust chemical cartridge is recommended under certain circumstances where airborne concentrations are expected to be elevated.

Skin: Wear rubber or vinyl gloves when handling gallium metal. Gloves-leather or impervious (vinyl) type.

Heat resistant gloves if handling hot metal. Safety type boots. Personal protective equipment is recommended when working with molten metal to avoid burns. Room temperature gallium is corrosive.

Other: Lab coat, safety shower and eyewash fountain in work area. Avoid the use of contact lenses.

Work/Hygienic Practices: Maintain good housekeeping. Clean up spills immediately. Good personal hygiene is essential. Avoid eating, smoking or drinking in the work area. Wash hands thoroughly with soap and water



immediately upon leaving the work area.

9. Physical and chemical properties

Appearance

Physical state	Paste
Form	paste
Color	silvery
Odor	Odorless
Vapor pressure	1 mmHG@1350C(gallium)
Specific gravity	4.5 to 6.5

10. Stability and reactivity

General: Stable in dry air. TCSM 35.0 may slightly tarnish in moist air.

Conditions to Avoid: Dusts, metals, exposure to moisture

Incompatible Materials: Potentially explosive reaction with hydrogen peroxide and hydrochloric acid.

Violent or vigorous reaction with halogens.

Hazardous Decomposition / Combustion: Corrosive and/or toxic gases

Hazardous Polymerization: Will not occur.

11. Toxicological information

Carcinogenicity: National Toxicity Program (NTP): No

Occupational Safety & Health Administration (OSHA): No

U.N. International Agency for Research on Cancer (IARC): No

RTECS# LW8600000 (gallium)

12. Ecological information

No specific ecological data for this material is available.

13. Disposal consideration

Waste Disposal Method: Scrap metal alloy usually has value. Contact a commercial reclaimer for recycling. Otherwise, dispose of in accordance with all Federal, State and Local environmental regulations.

14. Transport information

Transport in accordance with applicable regulations and requirements.

Special shipping information please review based on the exact product purchased. Must know product and must review alloy chart before determining proper shipping information.

NOTICE:

Shipping Name: UN2803, Gallium, 8, PG III

Must follow the gallium proper packaging requirements as stated in 49 CFR 173.162 (Department of Transportation regulations).

See Alloy Chart, Page 8, for assistance.

North America Emergency Guide 2004 – Guide# 172 (gallium)



OTHERWISE: not regulated as a corrosive for transportation and is therefore: Non - hazardous under shipping regulations.
UN - none

Know which product is being used in order to properly assess the risks.

15. Regulatory information

The information in this Material Safety Data Sheet meets the requirements of the United States Occupational Safety and Health Act and regulations promulgated hereunder (29 CFR 1910.1200).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation(CPR).



Canadian WHMIS:

Only for applicable products. Review listing.

This product has been classified in accordance with the guidelines set by the Dept. of Industrial Health of the Republic of Singapore.

California PROP 65 (Safe Drinking Water Standard): WARNING: This product contains a chemical known to the State of California to cause cancer and/or birth defects (or other reproductive harm). (trace lead). Applicable within the state.

All ingredients are listed on the EPA TSCA Inventory, Philippines Inventory, Japan Existing and New Chemical Substances, China Inventory of Existing Chemical Substances, Canadian Domestic Substances List EC Classification, Packaging and Labeling Requirements:

Symbol and Hazard Classification of Product

XI

Risk Phrases:

R36/37/38 Irritating to eyes, respiratory system and skin

Safety Phrases:

S20/21 When using do not eat, drink or smoke

S22 Do not breathe dust

S23 Do not breathe fumes

S24/25 S27 S28 S36/37/39 S62 Avoid contact with skin and eyes

Take off immediately all contaminated clothing

After contact with skin wash immediately with plenty of soap and water

Wear suitable protective clothing, gloves and eye/face protection

If swallowed, do not induce vomiting seek medical advice immediately and show container or label

16. Other information, including date of preparation or last revision

HMIS Hazard Rating: Health: 2

Fire: 0

Physical Hazard: 1

Issue date 2026.07

Version# 02

Disclaimer: The information on this data sheet represents our current data and best opinion as to the proper use in handling of this product under normal conditions. Any use of the product which is not in conformance with this data sheet or which involves using the product in combination with any other product or any other process is the responsibility of the user.