

# FEI™ SAFETY DATA SHEET

Prepared to U.S. OSHA, CMAA, ANSI, Canadian WHMIS Directives, Australian WHS Safe, Japanese Industrial Standards JIS Z 7250:2000, and European Union standards

## 1. PRODUCT IDENTIFICATION

**TRADE NAME (AS LABELED):**  
**CHEMICAL NAME:**  
**CHEMICAL FAMILY:**  
**U.S. SUPPLIER'S NAME:**  
**ADDRESS:**  
**BUSINESS PHONE#:**  
**EMERGENCY PHONE#:**  
**FAX NUMBER:**  
**WEB SITE:**  
**SUPPLIER 1:**  
**ADDRESS:**  
**BUSINESS PHONE#:**  
**SUPPLIER 2:**  
**ADDRESS:**  
**BUSINESS PHONE#:**  
**DATE OF ORIGINAL PREPARATION:**  
**DATE OF LAST REVISION:**

**Gallium 69 & Mixed Isotope**  
Gallium  
(Non-radioactive) isotope of Gallium  
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October 14, 2010  
December 9, 2013

## 2. HAZARD IDENTIFICATION

**EMERGENCY OVERVIEW:** Product Description: This product is a silver colored liquid or solid, with no odor. Health Hazards: This material can cause irritation to skin and eyes. Flammability Hazards: This product is Non-Flammable. Reactivity Hazards: Corrosive to light alloys especially aluminum alloys. Environmental Hazards: There is no information available on the environmental hazards associated with this product. Emergency Considerations: Emergency responders must wear the proper personal protective equipment (and have appropriate fire-suppression equipment) suitable for the situation to which they are responding.

### EU LABELING AND CLASSIFICATION:

Classification of the substance or mixture according to Regulation (EC) No 1272/2008  
This product meets the definition of a hazardous substance in preparation according to EU Regulations (EC) No 1272/2008  
Index Number: 062-231-183-8

EC# 231-183-8 This substance is not classified in the Annex I of Directive 67/541/EEC  
Substances not listed either individually or in group entries must be self classified.

Component(s) Determining Hazard:  
Gallium

GHS Classification:  
Skin Irritant Category 2  
Eye Irritant Category 2B

Label Elements:  
Pictogram



Signal Word: Warning!

Hazard Statement(s):  
H315 Causes skin irritation  
H320 Causes eye irritation

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### Precautionary Statement(s):

P264 Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.  
P280 Wear protective gloves/protective clothing.  
P302 + P352 IF ON SKIN: Gently wash with plenty of soap and water.

EU Hazard Classification Per Directive 1999/45/EC: [X] Irritant

Risk Phrases: R36/37/38 Irritating to eyes, respiratory and skin  
Safety Phrases: S24/25 Avoid contact with skin and eyes; S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice; S37/39 Wear suitable gloves and eye/face protection.

### HEALTH HAZARDS OR RISKS FROM EXPOSURE:

Primary Route(s) Of Entry: Eye Contact, Inhalation, Ingestion

**EYE HAZARDS:** May cause eye irritation.

**SKIN HAZARDS:** May cause skin irritation.

**INGESTION HAZARDS:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

**INHALATION HAZARDS:** Causes respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

**CONDITIONS AGGRAVATED BY EXPOSURE:** Individuals with pre-existing skin, eye or respiratory problems may be more susceptible to hazards associated with this product.

**CONDITIONS AGGRAVATED BY OVEREXPOSURE:** None known

## 3. COMPOSITION and INFORMATION ON INGREDIENTS

Hazardous Ingredients:	CAS #	EMEC# #	ICSC #	WT %	Hazard Symbol/ Risk Phrases
Gallium 69 & 71	7440-55-3	231-183-8	Not Listed	100	HAZARD CLASSIFICATION (see PHASES) (see PHASES) (see PHASES)

NOTE: ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-2010 format. This product has been classified in accordance with the hazard criteria of the GPR and the MSDS contains all the information required by the CPR. EU Directives and the Japanese Industrial Standard JIS Z 7250:2000. This material is classified as hazardous under OSHA regulations 29 CFR 1910.1200.

## 4. FIRST-AID MEASURES

Contaminated individuals of chemical exposure must be taken for medical attention if any adverse effect occurs. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to health professional with contaminated individual.

**SKIN EXPOSURE:** Immediately wash with soap and copious amounts of water. If discomfort occurs or persists, contact a physician immediately.

**EYE EXPOSURE:** Flush for 15 minutes with plenty of water. If discomfort occurs or persists, contact a physician immediately.

**INHALATION:** If breathing becomes difficult remove contaminated individual to fresh air. Seek immediate medical attention if breathing difficulties continue.

**INGESTION:** If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, do not induce vomiting. Never induce vomiting or give diuretics (milk or water) to someone who is unconscious, having convulsions, or unable to swallow.

**RECOMMENDATIONS TO PHYSICIANS:** Treat symptoms and eliminate overexposure.

**CONDITIONS AGGRAVATED BY OVEREXPOSURE:** Material may cause irritation to respiratory tract, eyes and skin. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## 5. FIRE-FIGHTING MEASURES

**FLASH POINT:** Not Available

**AUTOIGNITION TEMPERATURE:** Not Available

**FLAMMABLE LIMITS (in air by volume, %):** Lower NA Upper NA

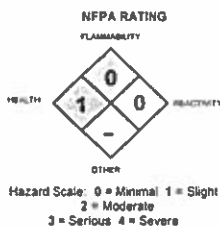
**FIRE EXTINGUISHING MATERIALS:** Suitable: Water spray, Dry chemical powder, carbon dioxide or appropriate foam.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** This product can decompose to emit toxic, irritating fumes of carbon monoxide, carbon dioxide and metal oxide.

**Explosion Sensitivity to Mechanical Impact:** Not Sensitive

**Explosion Sensitivity to Static Discharge:** Not Sensitive

**SPECIAL FIRE-FIGHTING PROCEDURES:** Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Isolate materials not yet involved in the fire and protect personnel. Move containers from fire area if this can be done without risk; otherwise, cool with carefully applied water spray, if possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.



## 6. ACCIDENTAL RELEASE MEASURES

**SPILL AND LEAK RESPONSE:** Personnel should be trained for spill response operations. Wear appropriate protective equipment such as rubber gloves, safety glasses, and appropriate body protection. Stop discharge if safe to do so.

**SPILL:** Sweep solid into appropriate container and hold for recycling. If possible, freeze liquid gallium with CO2 and place in container for recycling. Ventilate area. Wash spill area after material pickup is complete.

**DISPOSAL:** Dispose of in accordance with applicable Federal, State, and local procedures (see Section 13, Disposal Considerations). Dispose of recovered material and report spill per regulatory requirements. It is recommended you contact local authorities to determine if there may be other local reporting requirements.

## 7. HANDLING and STORAGE

**WORK PRACTICES AND HYGIENE PRACTICES:** As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat, drink, smoke, or apply cosmetics while handling this product. Avoid breathing mist or sprays generated by this product. Use in a well-ventilated location. Remove contaminated clothing immediately.

**STORAGE AND HANDLING PRACTICES:** All employees who handle this material should be trained to handle it safely. Avoid contact with eyes, skin and clothing. Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

## 8. EXPOSURE CONTROLS - PERSONAL PROTECTION

**VENTILATION AND ENGINEERING CONTROLS:** Use with adequate ventilation to ensure exposure levels are maintained below the limits provided below. Use local exhaust ventilation, and process enclosure if necessary, to control airborne dust. Ensure eyewash/safety shower stations are available near areas where this product is used.

### EXPOSURE LIMITS/GUIDELINES:

Component Name	CAS#	ACGIH-TLV's	OSHA PEL's	NOSH-TLV's	Other
Gallium 69 & 71	7440-55-3	Not Listed	Not Listed	Not Listed	Check specific local requirements

International exposure limits may be established for the components of this product. Please check with competent authority in each country for the most recent limits in place.

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The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132) or equivalent standard of Canada, or standards of EU member states (including EN 149 for respiratory PPE, and EN 166 for face/eye protection), and those of Japan. Please reference applicable regulations and standards for relevant details.

**RESPIRATORY PROTECTION:** NIOSH approved chemical cartridge respirator for particulates and dust or self-contained breathing apparatus with full face shield. If necessary, use only respiratory protection authorized in the U.S. Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), equivalent U.S. State standards, Canadian CSA Standard Z94.4-93, the European Standard EN149, or EU member states. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under U.S. Federal OSHA's Respiratory Protection Standard (1910.134-1998) or the regulations of various U.S. States, Canada, EU Member States, or those of Japan. Air-purifying respirators with dust/mist/fume filters are recommended if operations may produce mist or sprays from this product.

**EYE PROTECTION:** Safety glasses and/or face shield to prevent contact. If necessary, refer to U.S. OSHA 29 CFR 1910.133, Canadian Standards, and the European Standard EN166, Australian Standards, or relevant Japanese Standards.

**HAND PROTECTION:** Wear rubber (neoprene) chemical resistant gloves to prevent skin contact. If necessary, refer to U.S. OSHA 29 CFR 1910.138, the European Standard DIN EN 374, the appropriate Standards of Canada, Australian Standards, or relevant Japanese Standards.

**BODY PROTECTION:** Wear appropriate clothing sufficient to prevent skin contact. If necessary, refer to appropriate Standards of Canada, or appropriate Standards of the EU, Australian Standards, or relevant Japanese Standards.

## 9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY: NA

SPECIFIC GRAVITY @ 20°C: 5.904 (Solid) @ 905 (Liquid)

VAPOR PRESSURE, mm Hg @ 1000°C: @ 0.04 mmHg

MELTING POINT: 86°F

ODOR THRESHOLD: None

APPEARANCE, ODOR and COLOR: This product is a silver colored liquid or solid, with no odor

EVAPORATION RATE (n-BuAc#1): Not applicable

SOLUBILITY IN WATER: Insoluble

pH: Not Available

BOILING POINT: 4357°F

## 10. STABILITY and REACTIVITY

**STABILITY:** Stable

**DECOMPOSITION PRODUCTS:** Toxic fumes

**MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE:** Strong acids, strong bases, strong oxidizing materials, halogens, moisture.

**HAZARDOUS POLYMERIZATION:** Will not occur

**CONDITIONS TO AVOID:** None listed

## 11. TOXICOLOGICAL INFORMATION

**TOXICITY DATA:** To the best of our knowledge the chemical, physical, and toxicological properties of this compound have not been thoroughly investigated.

**SUSPECTED CANCER AGENT:** The components of this product are not listed by agencies tracking the carcinogenic potential of chemical compounds as follows:

Carcinogenically

NTP Regulated No

IARC Regulated No

OSHA Regulated No

**IRRITANCY OF PRODUCT:** This product can cause skin and eye irritation.

**SENSITIZATION TO THE PRODUCT:** These products are not known to cause human skin or respiratory sensitization.

**REPRODUCTIVE TOXICITY INFORMATION:** Listed below is information concerning the effects of this product and its components on the human reproductive system.

**Mutagenicity:** The components of this product are not reported to produce mutagenic effects in humans.

**Embryotoxicity:** The components of this product are not reported to produce embryotoxic effects in humans.

**Teratogenicity:** The components of this product are not reported to produce teratogenic effects in humans.

**Reproductive Toxicity:** The components of this product are not reported to produce reproductive effects in humans.

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**12. ECOLOGICAL INFORMATION**

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

**MOBILITY IN SOIL:** No Data

**PERSISTENCE/DEGRADABILITY:** No Data

**ENVIRONMENTAL STABILITY:** Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways

**BIOACCUMULATION/ACCUMULATION:** These products have not been tested for bio-accumulation potential.

**13. DISPOSAL CONSIDERATIONS**

**PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations, those of Canada, Australia, EU Member States and Japan.

**14. TRANSPORTATION INFORMATION**

**US DOT, IATA, IMO, ADR:**

**DOT (US)**

UN-Number: 2803 Class: 8, Packing group: III

Proper shipping name: Gallium

Marine pollutant: No

Poison Inhalation Hazard: No

**IMDG**

UN-Number: 2803 Class: 8, Packing group: III

Proper shipping name: Gallium

Marine pollutant: No

Poison Inhalation Hazard: No

**IATA**

UN-Number: 2803 Class: 8, Packing group: III

Proper shipping name: Gallium

Marine pollutant: No

Poison Inhalation Hazard: No

**U.S. DEPARTMENT OF TRANSPORTATION (DOT) SHIPPING REGULATIONS:** This product is classified as dangerous goods, per U.S. DOT regulations, under 49 CFR 172.101

**TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:** These products are classified as Dangerous Goods, per regulations of Transport Canada.

**INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA):** These products are classified as Dangerous Goods, by rules of IATA.

**INTERNATIONAL MARITIME ORGANIZATION (IMO) DESIGNATION:** These products are classified as Dangerous Goods by the International Maritime Organization.

**EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD (ADR):** These products are classified by the United Nations Economic Commission for Europe to be dangerous goods

**15. REGULATORY INFORMATION**

**UNITED STATES REGULATIONS:**

**U.S. SARA REPORTING REQUIREMENTS:** The components of this product is not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.

**U.S. SARA THRESHOLD PLANNING QUANTITY:** There are no specific Threshold Planning Quantities for any component of these products. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) therefore applies, per 40 CFR 370.20

**U.S. CERCLA REPORTABLE QUANTITY (RQ):** Not applicable.

**U.S. TSCA INVENTORY STATUS:** The components of this product are listed in the TSCA Inventory.

**CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):** This product does not contain any component above the 0.1% level which is listed as a California Proposition 65 chemical.

**CANADIAN REGULATIONS:**

**CANADIAN DSL/NDSL INVENTORY STATUS:** The components of this product are on the DSL Inventory, or are exempted from listing.

**CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS:** No component of this product is on the CEPA First Priorities Substance Lists.

**CANADIAN WHMIS CLASSIFICATION and SYMBOLS:** This is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS), Class E Corrosive material.



**EUROPEAN ECONOMIC COMMUNITY INFORMATION:**

See Section 2 for Details

**AUSTRALIAN INFORMATION FOR PRODUCT:**

**AUSTRALIAN INVENTORY OF CHEMICAL SUBSTANCES (AICS) STATUS:** The components of this product are listed on the AICS

**STANDARD FOR THE UNIFORM SCHEDULING OF DRUGS AND POISONS:** Not applicable.

**JAPANESE INFORMATION FOR PRODUCT:**

**JAPANESE MINISTER OF INTERNATIONAL TRADE AND INDUSTRY (MITI) STATUS:** The components of this product are not listed as Class I Specified Chemical Substances, Class II Specified Chemical Substances, or Designated Chemical Substances by the Japanese MITI.

**INTERNATIONAL CHEMICAL INVENTORIES:**

Listing of the components on individual country Chemical Inventories is as follows:

Asia-Pac: Listed

Australian Inventory of Chemical Substances (AICS): Listed

Korean Existing Chemicals List (ECL): Listed

Japanese Existing National Inventory of Chemical Substances (ENCS): Listed

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed

Swiss Gifliste List of Toxic Substances: Listed

U.S. TSCA: Listed

**16. OTHER INFORMATION**

PREPARED BY: Paul Eigbrett

DATE OF PRINTING: December 9, 2013

GHS MSDS Compliance PLUS

(585) 490-8079

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