

FEI™
SAFETY DATA SHEET

Prepared to US OSHA, CMR, ANSI, Canadian WHMIS Standards, Australian WorkSafe, Japanese Industrial Standard 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#
U.S. RESIDENTIAL PHONE#
FAX NUMBER
E-MAIL
WEBSITE
BUSINESS PHONE#
U.S. RESIDENTIAL PHONE#
U.S. PHONE#
U.S. FAX#
U.S. SUPPLIER'S PHONE#
DATE OF ORIGINAL PREPARATION
DATE OF LAST REVISION

Gallium 69 & Mixed Isotope
Gallium
(Non-radioactive) isotope of Gallium
FEI Company
5350 NE Dawson Creek Dr., Hillsboro, OR 97124 USA
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503 726-2890
503 726-2698
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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) No1272/2008
This product meets the definition of a hazardous substance or preparation according to EU Regulations (EC) No 1272/2008
Index Number:
EC# 231-163-8 This substance is not classified in the Annex I of Directive 67/548/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):

P204 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 #	EINECS #	ICSC #	WT %	Hazard Symbol: Risk Phrases
Gallium 69 & 71	7440-55-3	231-163-8	Not Listed	100	HAZARD CLASSIFICATION SKIN IRRITANT RISK PHRASES: H315/H320

Materials of other components: Each of the other components is present in less than 1 percent concentration (by weight concentration for solids, by volume concentration for liquids, and by mass for gases).

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 CPR 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 diluents (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

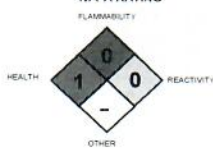
FLAMMABLE LIMITS (in air by volume, %): Lower NA Upper NA

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.

NFPA RATING



Hazard Scale: 0 = Minimal 1 = Slight
2 = Moderate
3 = Serious 4 = Severe

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 mists 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	NIOSH-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 mists 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: 6.904 (Solid) 6.905 (Liquid)
VAPOR PRESSURE, mm Hg @ 100°C: 0.004 mmHg
MELTING POINT: 85°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.

Carcinogeny
NTP Regulated No
IARC Regulated No
OSHA Regulated No
IRITANCY 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


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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 Giftlist List of Toxic Substances: Listed

U.S. TSCA: Listed

16. OTHER INFORMATION

PREPARED BY: Paul Eigbrett

GHS MSDS Compliance PLUS

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