

Safety Data Sheet
per OSHA HazCom 2012**1 Identification****Product identifier****Product name:** Gallium arsenide**Stock number:** 88458**CAS Number:**
1303-00-0**EC number:**
215-114-8**Index number:**
033-002-00-5**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
Thermo Fisher Scientific Chemicals, 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 business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**

GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H331 Toxic if inhaled.

Hazards not otherwise classified No information known.**Label elements****GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)**Hazard pictograms**

GHS06

Signal word Danger**Hazard statements**

H301+H331 Toxic if swallowed or if inhaled.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P311 Call a POISON CENTER/doctor/...

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D1A - Very toxic material causing immediate and serious toxic effects

D2A - Very toxic material causing other toxic effects

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**HEALTH 3 Health (acute effects) = 3
FIRE 0 Flammability = 0
REACTIVITY 1 Physical Hazard = 1**Other hazards****Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization:** Substances**CAS# Description:**

1303-00-0 Gallium arsenide

Identification number(s):

EC number: 215-114-8

Index number: 033-002-00-5

4 First-aid measures**Description of first aid measures****General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

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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 Do not induce vomiting; immediately call for medical help.

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 CO₂, sand, extinguishing powder. Do not use water.

Special hazards arising from the substance or mixture

If this product is involved in a fire, the following can be released:

Toxic metal oxide fume

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.

Methods and material for containment and cleaning up:

Dispose of contaminated material as waste according to section 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.

Open and handle container with care.

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: No information known.

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:

Arsenic, elemental, and inorganic compounds (except arsine), as As

mg/m³

ACGIH TLV 0.01; Confirmed human carcinogen

Belgium TWA 0.2

Denmark TWA 0.05

Finland TWA Carcinogen

France VME 0.2

Hungary 0.5-STEEL; Carcinogen

Korea TWA 0.01; Confirmed human carcinogen

Norway 0.02

Poland TWA 0.01

Sweden NGV 0.03; Carcinogen

Switzerland TWA 0.1; Carcinogen

United Kingdom TWA 0.1; Carcinogen

USA PEL 0.01

1303-00-0 Gallium arsenide (100.0%)

REL (USA) Ceiling limit value: 0.002* mg/m³
as As; *15-min; See Pocket Guide App. A

TLV (USA) Long-term value: 0.01 mg/m³
as As; BEI

EL (Canada) Long-term value: 0.0003 mg/m³
IARC 1

EV (Canada) Short-term value: 0.05 mg/m³
Long-term value: 0.01 mg/m³
as As

Additional information: No data

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USA

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Exposure controls

Personal protective equipment

General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Maintain an ergonomically appropriate working environment.

Breathing equipment:

Refer to 29CFR1910.1018 for regulations on respiratory protection required during exposure to inorganic arsenic.

Use self-contained respiratory protective device in emergency situations.

Protection of hands:

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form: Pieces

Color: Dark grey

Odor: Odorless

Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: 1238 °C (2260 °F)

Boiling point/Boiling range: Not determined

Sublimation temperature / start: Not determined

Flash point: Not applicable

Flammability (solid, gaseous) Not determined.

Ignition temperature: Not determined

Decomposition temperature: Not determined

Auto igniting: Not determined.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower: Not determined

Upper: Not determined

Vapor pressure: Not applicable.

Density at 20 °C (68 °F): 5.31 g/cm³ (44.312 lbs/gal)

Relative density Not determined.

Vapor density Not applicable.

Evaporation rate Not applicable.

Solubility in / Miscibility with

Water: Reacts

Partition coefficient (n-octanol/water): Not determined.

Viscosity:

dynamic: Not applicable.

kinematic: Not applicable.

Other information No further relevant information available.

10 Stability and reactivity

Reactivity No information known.

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known

Conditions to avoid No further relevant information available.

Incompatible materials: No information known.

Hazardous decomposition products: Arsenic compounds

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Toxic if inhaled.

Toxic if swallowed.

LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: Irritant to skin and mucous membranes.

Eye irritation or corrosion: Irritating effect.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity:

EPA-A: human carcinogen: sufficient evidence from epidemiologic studies to support a causal association between exposure and cancer.

IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.

ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.

Carcinogen as defined by OSHA.

NTP-K: Known to be carcinogenic: sufficient evidence from human studies.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

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:

Acute arsenic poisoning from ingestion results in marked irritation of the stomach and intestines with nausea, vomiting and diarrhea. In severe cases, the vomitus and stools are bloody and the patient goes into collapse and shock with weak, rapid pulse, cold sweats, coma and death.

Chronic arsenic poisoning may cause disturbances of the digestive system such as loss of appetite, cramps, nausea, constipation or diarrhea.

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USA

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Subacute to chronic toxicity:

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

- Behavioral - excitement.
 - Behavioral - ataxia.
 - Behavioral - somnolence (general depressed activity).
 - Behavioral - food intake (animal).
 - Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - true cholinesterase.
 - Biochemical - Metabolism (Intermediary) - Plasma proteins not involving coagulation.
 - Biochemical - Metabolism (Intermediary) - other.
 - Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).
 - Blood - pigmented or nucleated red blood cells.
 - Blood - changes in erythrocyte (RBC) count.
 - Brain and Coverings - recordings from specific areas of CNS.
 - Endocrine - changes in spleen weight.
 - Endocrine - changes in thymus weight.
 - Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).
 - Liver - changes in liver weight.
 - Lungs, Thorax, or Respiration - respiratory stimulation.
 - Lung, Thorax, or Respiration - changes in lung weight.
 - Lungs, Thorax, or Respiration - fibrosis, focal (pneumoconiosis).
 - Lungs, Thorax, or Respiration - dyspnea.
 - Lungs, Thorax, or Respiration - tumors.
 - Lungs, Thorax, or Respiration - other changes.
 - Nutritional and Gross Metabolic - weight loss or decreased weight gain.
 - Nutritional and Gross Metabolic - changes in calcium.
 - Nutritional and Gross Metabolic - changes in phosphorus.
 - Peripheral Nerve and Sensation - flaccid paralysis without anesthesia (usually neuromuscular blockage).
 - Related to Chronic Data - death.
 - Sense Organs and Special Senses (Eye) - conjunctive irritation.
 - Reproductive - Maternal Effects - other effects.
 - Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).
 - Reproductive - Paternal Effects - spermatogenesis (including genetic material, sperm morphology, motility, and count).
 - Reproductive - Paternal Effects - testes, epididymis, sperm duct.
 - Reproductive - Fertility - post-implantation mortality (e.g. dead/or resorbed implants per total number of implants).
 - Reproductive - Fertility - other measures of fertility.
 - Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue).
 - Reproductive - Specific Developmental Abnormalities - musculoskeletal system.
 - Reproductive - Effects on Embryo or Fetus - fetal death.
 - Tumorigenic - carcinogenic by RTECS criteria.
- 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.
- Bioaccumulative potential** No further relevant information available.
- Mobility in soil** No further relevant information available.
- Ecotoxic effects:**
- Remark:** Very toxic for aquatic organisms
- Additional ecological information:**
- General notes:**
- Do not allow material to be released to the environment without proper governmental permits.
- Do not allow product to reach ground water, water course or sewage system, even in small quantities.
- Danger to drinking water if even extremely small quantities leak into the ground.
- Also poisonous for fish and plankton in water bodies.
- May cause long lasting harmful effects to aquatic life.
- Avoid transfer into the environment.
- Very toxic for aquatic organisms
- 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.
- Uncleaned packagings:**
- Recommendation:** Disposal must be made according to official regulations.

14 Transport information

UN-Number DOT, IMDG, IATA	UN1557
UN proper shipping name DOT IMDG, IATA	Arsenic compounds, solid, n.o.s. (Gallium arsenide) ARSENIC COMPOUND, SOLID, N.O.S. (Gallium arsenide)
Transport hazard class(es) DOT	
	
Class	6.1 Toxic substances.
Label	6.1
Class	6.1 (T5) Toxic substances
Label	6.1

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IMDG, IATA



Class 6.1 Toxic substances.
Label 6.1

Packing group II
DOT, IMDG, IATA

Environmental hazards: Environmentally hazardous substance, solid

Special precautions for user Warning: Toxic substances

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT No
Marine Pollutant (DOT):

UN "Model Regulation": UN1557, Arsenic compounds, solid, n.o.s. (Gallium arsenide), 6.1, II

15 Regulatory information

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

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms



GHS06

Signal word Danger

Hazard statements

H301+H331 Toxic if swallowed or if inhaled.

Precautionary statements

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P311 Call a POISON CENTER/doctor/...

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

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

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings)

1303-00-0 Gallium arsenide

California Proposition 65

Prop 65 - Chemicals known to cause cancer

1303-00-0 Gallium arsenide

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.

Information about limitation of use:

For use only by technically qualified individuals.

This product contains arsenic and 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 Refer to 29CFR1910.1018 for regulations concerning inorganic arsenic.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) 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: Global Marketing Department

Date of preparation / last revision 11/23/2015 / -

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

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

DOT: US Department of Transportation

IATA: International Air Transport Association

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

vPvB: very Persistent and very Bioaccumulative

ACGIH: American Conference of Governmental Industrial Hygienists (USA)

OSHA: Occupational Safety and Health Administration (USA)

NTP: National Toxicology Program (USA)

IARC: International Agency for Research on Cancer

EPA: Environmental Protection Agency (USA)