

Safety Data Sheet

acc. to OSHA HCS

Printing date 01/22/2014

Reviewed on 02/04/2010

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, A Johnson Matthey Company
Johnson Matthey Catalog Company, 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 hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification**Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H331 Toxic if inhaled.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R23/25: Toxic by inhalation and if swallowed.



N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment: Not applicable**Hazards not otherwise classified** No information known.**Label elements****Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labeled according to the CLP regulation.

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/...

P321 Specific treatment (see on this label).

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

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

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D2A - Very toxic material causing other toxic effects

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	3
FIRE	0
REACTIVITY	1

Health (acute effects) = 3

Flammability = 0

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.

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.

Do not allow product to reach sewage system or any water course.

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Do not allow to penetrate the ground/soil.

Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to item 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/m ³
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-STEL; 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/m ³ as As; *15-min; See Pocket Guide App. A
TLV (USA)	Long-term value: 0.01 mg/m ³ as As; BEI
EL (Canada)	Long-term value: 0.0003 mg/m ³ IARC 1
EV (Canada)	Short-term value: 0.05 mg/m ³ Long-term value: 0.01 mg/m ³ as As

Additional information: No data**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.

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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.
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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.
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Explosion limits:

Lower:	Not determined
Upper:	Not determined

Vapor pressure:	Not applicable.
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Density at 20 °C (68 °F):	5.31 g/cm ³ (44.312 lbs/gal)
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Relative density	Not determined.
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Vapor density	Not applicable.
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Evaporation rate	Not applicable.
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Solubility in / Miscibility with

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

dynamic:	Not applicable.
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kinematic:	Not applicable.
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Other information	No further relevant information available.
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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

Incompatible materials: No information known.

Hazardous decomposition products: Arsenic compounds

11 Toxicological information**Information on toxicological effects****Acute toxicity:**

Fatal if inhaled.

Fatal if swallowed.

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

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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.

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.

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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.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Ecotoxicological 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, ADR, IMDG, IATA

UN1557

UN proper shipping name

DOT

Arsenic compounds, solid, n.o.s. (Gallium arsenide)

ADR

1557 Arsenic compounds, solid, n.o.s. (Gallium arsenide)

IMDG, IATA

ARSENIC COMPOUND, SOLID, N.O.S. (Gallium arsenide)

Transport hazard class(es)

DOT



Class

6.1 Toxic substances.

Label

6.1

ADR



Class

6.1 (T5) Toxic substances

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Label IMDG, IATA	6.1
	
Class Label	6.1 Toxic substances. 6.1
Packing group DOT, ADR, IMDG, IATA	II
Environmental hazards:	Environmentally hazardous substance, solid
Special precautions for user Danger code (Kemler):	Warning: Toxic substances 60
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT Marine Pollutant (DOT):	No
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

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)

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California Proposition 65

Prop 65 - Chemicals known to cause cancer Substance is listed.

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.

Substances of very high concern (SVHC) according to REACH, Article 57

Substance is not listed.

REACH - Pre-registered substances Substance is 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: Health, Safety and Environmental Department.

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

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

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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

USA