



5N PLUS

This Safety Data Sheet complies with EC Directives 91/155 and 1272/2008

SECTION 1. IDENTIFICATION OF THE SUBSTANCE AND THE COMPANY

Product name	Gallium antimonide
Chemical formula	GaSb
Synonym	Antimoniure de gallium (French), Galliumantimonid, (German)
EC # (European Chemical Substance)	235-058-8
CAS # (Chemical Abstracts Service)	12064-03-8
Use of the substance	Electronic and semiconductor application
Supplier/manufacturer	Firebird Technologies Inc., a division of 5N Plus Inc. 9200 Industrial Road Trail, British-Columbia Canada V1R 4X7
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Website	www.5nplus.com

SECTION 2. HAZARDS IDENTIFICATION

Physical state	Solid
Colour	Gray-purple colorcast
Risk status	Harmful, toxic to aquatic life
Emergency overview	Harmful by inhalation or ingestion
Routes of entry	Inhalation, ingestion
Potential acute health effects	
Eyes	None known
Skin	None known
Inhalation	Coughing, vomiting, abdominal pain, burning sensation, diarrhea.
Ingestion	Irritation of the digestive tract, abdominal pain, burning sensation, diarrhea, vomiting.
Potential chronic health effects	Prolonged or repetitive contact with skin may cause dermatitis, especially when exposed to fumes.

For toxicological information, see Section 11

SECTION 3. COMPOSITION OF/INFORMATION REGARDING CONSTITUENTS

Name	Symbol	CAS #	EC #	IUPAC Name	Percentage (%)	Classification
Gallium antimonide	GaSb	12064-03-8	235-058-8	Gallium(III) antimonide	100	H332, H302, H411

SECTION 4. FIRST AID

Eye contact	Check for and remove any contact lenses. In the event of contact with eyes, rinse immediately with plenty of water. Get medical attention.
Skin contact	In case of contact, wash affected area with soap and large amounts of water. Remove and wash any contaminated clothing. Dust may provoke skin irritation.
Inhalation	If inhaled, move to fresh air. Get immediate medical attention.
Ingestion	Rare in industry. If the person is unconscious, do not give anything to drink or induce vomiting. Get immediate medical attention.
Note to attending physician	There is no specific antidote. Please contact poison center.

SECTION 5. FIRE FIGHTING MEASURES

Flammability of the product	Moderate fire hazard in the forms of dust and vapor, when exposed to heat or flame.
Products of combustion	May evolve metal oxides (indium oxides, antimony oxides) fumes above melting point.
Extinguishing media	
Suitable	Use "alcohol" foam, dry chemical or carbon dioxide.
Not suitable	None known - Apply water from as far a distance as possible.
Special exposure hazards	Toxic metal or irritating/toxic gases can form in the event of fire.
Special protective equipment for firefighters	Firefighters should wear self-contained breathing apparatus (SCBA).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Safety glasses and impervious gloves. Wear at least a P2 type particle filter respirator if the airborne concentrations are above the exposure limit. If the airborne concentrations are unknown, wear approved self-contained breathing apparatus.

Environmental precautions

Avoid dispersal of spilled material. Prevent runoff and contact with soil, waterways, drains or sewers.

Methods for cleaning-up

Vacuum the spilled material with an appropriate Class H Vacuum and place in an appropriate container for disposal in a safe place. Avoid creating dusty conditions and prevent wind dispersal.

SECTION 7. HANDLING AND STORAGE

Handling

Avoid contact with skin. Wear protective eyewear and, in the event of insufficient ventilation, a suitable breathing apparatus. Do not eat, drink, or smoke during work. Wash hands, forearms and face thoroughly after handling this product and before eating, smoking or using the lavatory.

Storage

Keep in tightly closed containers. Keep in a dry and well ventilated area. Keep away from acids, oxidizers, bases and halogens.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits values

Product Name	8-hour total weight average (TWA) permissible exposure limit (PEL)	Short Term Exposure Limits (STELs)
Gallium antimonide	<p>AUSTRIA : 0.5 mg/m³ inhalable aerosol (as Sb)</p> <p>CANADA-QUEBEC: 0.5 mg/m³ (as Sb)</p> <p>DENMARK : 0.5 mg/m³ (as Sb)</p> <p>FRANCE : 0.5 mg/m³ (as Sb)</p> <p>GERMANY: 0.5 mg/m³ (as Sb)</p> <p>HUNGARY: 0.5 mg/m³ (as Sb)</p> <p>The NETHERLANDS : 0.5 mg/m³ (as Sb)</p> <p>POLAND : 0.5mg/m³ (as Sb)</p> <p>SWEDEN : 0.5 mg/m³ (as Sb)</p> <p>SWITZERLAND : 0.5 mg/m³ inhalable aerosol (as Sb)</p> <p>UNITED KINGDOM : 0.5 mg/m³ inhalable aerosol (as Sb)</p> <p>USA – NIOSH : 0.5 mg/m³ inhalable aerosol (as Sb)</p> <p>USA - OSHA : 0.5 mg/m³ (as Sb)</p>	<p>AUSTRIA : 1.5 mg/m³ inhalable aerosol (as Sb)</p> <p>DENMARK : 1.0 mg/m³ (as Sb)</p> <p>HUNGARY: 1.5 mg/m³ (as Sb)</p> <p>POLAND: 2 mg/m³ (as Sb)</p>

Occupational exposure controls

Environmental exposure controls

Use only in well ventilated areas. If handling generates dust, fumes, gases, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Eye protection

Safety glasses

Skin protection

Lab coat. The choice of skin protection gear will depend on the nature of the work to perform.

Respiratory protection

If there is a risk of exceeding exposure limits, use at least a P2 type particle filter respirator.

Hand protection

Natural rubber (latex)

Personal safety equipment pictograms



SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Brittle, silvery solid

Odor

Odorless

Color

Gray-purple colorcast

Molecular weight

191.483 g/mol

Molecular formula

GaSb

Melting point

706°C

pH

Not applicable

Boiling point

Not applicable

Flash point

Not applicable

Flammability

Not flammable

Oxidizing properties

Not applicable

Vapor pressure

> 1 mm/Hg @ 25°C

Relative density	5.614 g/cm ³ (Water : 1)
Solubility	
Water solubility	Insoluble
Fat solubility	Insoluble
Partition coefficient	Not available
Viscosity	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	Keep away from strong acids, bases, oxidizers and halogens.
Materials to avoid	Strong acids, bases, oxidizers and halogens.
Hazardous decomposition products	Emits toxic fumes of antimony hydride (stibine) in contact with acids.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological data

Product/ingredient name	Test	Result	Route/Species
Gallium antimonide	Not available	Not available	Not available

Acute effects

Eyes	None known
Skin	None known
Ingestion	Coughing, vomiting, abdominal pain, burning sensation, diarrhea.
Inhalation	Irritation of the digestive tract, abdominal pain, burning sensation, diarrhea, vomiting.

Potential chronic health effects

Carcinogenicity	Not applicable
Mutagenicity	Not applicable
Teratogenic effects	Not applicable

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity data

Product/ingredient name	Species	Period	Test (LC50)
Gallium antimonide	Not available		

Environmental precautions	Classified as toxic to aquatic life with long lasting effects (antimony compounds classification)
Breakdown products	This product is insoluble in water
Toxicity of biodegradation products	Not available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal	The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and prevent runoff and contact with soil, waterways, drains or sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.
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SECTION 14. TRANSPORTATION INFORMATION

Regulatory information	Proper shipping name	Class	UN Number	PG	Labeling
UN/IMDG/IATA Class	Not classified	Not classified	Not classified	Not classified	Not classified
ADR/RID Class	Not classified	Not classified	Not classified	Not classified	Not classified
GGVSE	Not classified	Not classified	Not classified	Not classified	Not classified

SECTION 15. REGULATORY INFORMATION

EU Regulation *This chemical substance is classified as follow according to the criteria of the EC Directive 1272/2008*

Hazard Statements	H332	Harmful if inhaled.
	H302	Harmful if swallowed.
	H411	Toxic to aquatic life with long lasting effects.

Warning!



SECTION 16. OTHER INFORMATION

References	Directive 91/155/EEC
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European Commission's Joint Research Centre Databases
EPA Ecotox Databases

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