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## MSDS for Gallium Arsenide

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Gallium Arsenide C.A.S. Number: 1303-00-0  
Chemical Formula: GaAs Mol. Wt. 144.64  
Manufacturer: Wafer Technology Ltd  
Address: 34 Maryland Rd Tel: +44 (0)1908 210444  
Tongwell  
Milton Keynes Fax: +44 (0)1908 210443  
MK15 8HJ  
United Kingdom

### 2. COMPOSITION

Chemical: Pure Compound 51.8 wt% As  
48.2 wt% Ga  
MEL ( 8hr TWA): Ga N/A  
As 0.1mg m<sup>-3</sup>

### 3. HAZARD IDENTIFICATION

Toxic by inhalation and if swallowed.  
Repeated and/or prolonged contact may cause dermatitis.  
Repeated exposure may produce adverse effects on the lung, liver and kidney.  
A possible human carcinogen.

### 4. FIRST AID MEASURES

Inhalation: Remove patient from exposure. Obtain medical attention.  
Skin contact: Wash immediately with water. If symptoms occur, obtain medical attention.  
Eye contact: Irrigate with clean water or eyewash solution for at least 10 mins.  
Ingestion: Wash out mouth with water. Obtain immediate medical attention.

### 5. FIRE FIGHTING MEASURES

Extinguishing Media: Use dry extinguishers suitable for metal fires  
Special Hazards: Product will thermally decompose above 480°C evolving toxic vapours of arsenic and oxides of arsenic. Reaction with acid and/or steam may release toxic arsine gas.  
Protective Equipment: Wear full protective equipment and self-contained breathing apparatus. Take measures appropriate for arsenic.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Wear protective equipment including gloves and appropriate respiratory protection.
Environment:	Prevent any release to drains or water courses or emission of dust or fumes to air.
Spillages:	Collect all material and transfer to closed container for disposal.

## 7. HANDLING AND STORAGE

Handling:	Do not breathe dust. When using do not eat, drink or smoke. Avoid contact with skin and eyes. Atmospheric concentrations should be controlled in compliance with the Maximum Exposure Limit. Use extraction and ventilation for cutting, grinding, polishing or etching operations. Do not allow clothes to become contaminated and use good hygiene practices.
Storage:	Keep container closed in a cool, dry, well ventilated place.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational Exposure Standards:

"Arsenic and Compounds"	UK EH40: MEL 0.1mg/m <sup>3</sup> 8h TWA
Engineering Controls:	Local exhaust ventilation for all mechanical or chemical processing operations. High efficiency dust filtration on extract exhaust outlets. Extract ducting may contain finely divided dust or particles. Maintenance of processing and extract equipment should be carried out using full personal protective equipment.
Respiratory Protection:	All processes should be carried out under extraction. Where high concentrations of dust or decomposition products are likely, air supplied breathing equipment should be used.
Hand Protection:	Rubber or plastic gloves.
Eye protection:	Face shield or safety glasses.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance & Odour:	Dark grey, odourless solid with vitreous lustre
Melting Point (°C):	1238
Density ( kg/m <sup>3</sup> ):	5.31
Vapour Pressure:	Decomposes with As vapour pressure of 1 atmosphere at the melting temperature.
Solubility:	Insoluble in water.

## 10. STABILITY AND REACTIVITY

Stability:	Decomposes to evolve arsenic vapour if heated above 480°C.
Conditions to Avoid:	Excessive heating.
Materials to avoid:	Reacts with strong acid reducing agents to produce highly toxic arsine gas.
Hazardous Decomposition Products:	Arsine and oxides of arsenic.

## 11. TOXICOLOGICAL INFORMATION

Acute:	Acute poisoning from solid GaAs is unlikely. NIOSH #: LW8800000						
	<table><tr><td>Toxicity</td><td>CODEN:</td></tr><tr><td>ipr-mus LD50: 4700mg/kg</td><td>GISAAA</td></tr><tr><td>45(10),13,80</td><td></td></tr></table>	Toxicity	CODEN:	ipr-mus LD50: 4700mg/kg	GISAAA	45(10),13,80	
Toxicity	CODEN:						
ipr-mus LD50: 4700mg/kg	GISAAA						
45(10),13,80							
Exposure Routes:	High atmospheric concentrations may lead to systemic toxic effects of arsenic poisoning. Ingestion may cause nausea, vomiting, diarrhoea or shock. Inhalation of dust, arsine generated by chemical reaction or arsenic oxides formed by heating in air. Ingestion of dust or particles Repeated and /or prolonged skin contact may cause dermatitis.						
Chronic:	May give rise to chronic arsenic poisoning resulting in dermatitis and damage to lung, liver and kidney. Arsenic is a human carcinogen associated with cancer of the respiratory tract.						

## 12. ECOLOGICAL INFORMATION

Mobility:	The product is involatile and insoluble and will accumulate in the ground.
Persistence:	The product is expected to be resistant to biodegradation.
Bio-accumulation:	Arsenic is a cumulative poison.

## 13. DISPOSAL

Product Disposal:	Surplus or waste product should be retained wherever possible for recycling. Solids subject to special disposal to landfill.
Container Disposal:	Materials contaminated by contact with the product or its processing by-products should be dealt with as special wastes according to

local regulatory requirements.

#### 14. TRANSPORT INFORMATION

UN Number: Not restricted.

UN Hazard Class: Acute toxicity below range for classification.

#### 15. REGULATORY INFORMATION

Labelling information:		Toxic
Risk Phrases:	R23	Toxic by inhalation
	R25	Toxic if swallowed
Safety Phrases:	S1/2	Keep locked up/ out of the reach of children
	S20/21	When using do not eat, drink or smoke
	S22	Do not breathe dust.
	S28	After contact with skin wash immediately with plenty of water
	S41	In case of fire and/or explosion do not breathe fumes
	S45	In case of accident or if you feel unwell seek medical advice immediately.(show the label where possible)

#### 16. OTHER INFORMATION

The information contained herein is based on data believed to be accurate. No warranty is expressed or implied regarding the accuracy of this data.

Liability is expressly disclaimed for loss or injury arising out of use of this information or the use of any materials described.

The implementation of proper measures for the use of the material is the responsibility of the user and these should be specifically designed according to circumstance and the relevant legal requirements for Health & Safety.

##### References:

UK HSE Guidance EH40 "Occupational Exposure Limits"  
Note

UK HSE Guidance EH8 "Arsenic toxic hazards and  
precautions"  
Note

UK HSE CHIP96 Approved Supply List

"Dangerous Properties of Industrial Materials"  
N.I. Sax and R.J.Lewis, Van Nostrand Reinhold. New York. 1989.



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