

## MATERIAL SAFETY DATA SHEET

### GARNET

#### 1. PRODUCT AND COMPANY IDENTIFICATION

##### Product identification

Product names : Garnet  
Other names : Garnet (Almandine)

##### Company Identification

Company : Maxworth Minerals India Pvt Ltd.  
Address : No: 48-14-116\6, Lakshmi Royal Plaza, 4th Floor,  
Resapuvanipalem, Visakhapatnam-530003, India.  
Telephone Number : +91-891-2566263  
E-mail address : enquiry@maxworthgroup.com.au

#### 2. COMPOSITION /INFORMATION INGREDIENTS

POISON SCHEDULE	: None Allocated	HAZ CODE	: None Allocated
UN NO.	: None Allocated	CLASS	: None Allocated

##### Typical Analysis – Mineralogical

Garnet	: 94.0 %
Ilmenite	: 2.3 %
Monazite	: 0.3 %
Rutile	: 0.2 % (approx.)
Zircon	: 0.2 %
Sillimanite	: 0.4%
Quartz	: 0.2%
Others	: 2.4%

##### Typical Analysis – Chemical

Chemical name	CAS number	Proportion (%)
Al <sub>2</sub> O <sub>3</sub>	1344-28-1	19.8
FeO	1345-25-1	27.9
fe <sub>2</sub> O <sub>3</sub>	1309-37-1	3.5
SiO <sub>2</sub>	14808-60-7	0.3
TiO <sub>2</sub>	13463-67-7	1.3
CaO	1305-78-8	2.8
MgO	1309-48-4	6.8
Cr <sub>2</sub> O <sub>3</sub>	1333-82-0	0.02
ZrO <sub>2</sub>	1314-23-4	-
P <sub>2</sub> O <sub>5</sub>	1314-56-3	-
Th+U	7440-29-1 & 7440-61-1	-

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### 3. HAZARDS IDENTIFICATION

Eye	Solid or dust is moderate eye irritant due to its abrasive action.
Inhalation	May be regarded as nuisance dust but can be irritating if inhaled at high concentrations and may cause symptoms such as coughing and sneezing. The TLV (TWA) for occupational exposure nominate 10 mg/ m <sup>3</sup> as total dust and 5 mg/ m <sup>3</sup> as a respirable dust.
Skin	Non hazardous.
Ingestion	There are no known hazards caused by accidental ingestion of small amount such as might occur during normal handling. Ingestion of larger quantities might cause irritation of the gastro-intestinal system as a result of abrasive action.
Radiation	Garnet contains trace (ppm level) amount of the naturally occurring radioactive substances such as Uranium & Thorium. However the concentration of the Uranium and Thorium are not sufficient for garnet to be classified as a radioactive substance under International Atomic Energy Agency (IAEA) Regulation for the safe transport of radioactive material.

### 4. FIRST AID MEASURES

Eye	Hold eye as open and rinse continuously with a gentle stream of clean running water for at least 15 minutes. Seek medical attention if any irritation or soreness of eye persist.
Inhalation	Remove from source of exposure into fresh air and seek medical attention if any symptoms persist.
Skin	No specific first aid is required for skin contact. Remove clothing & wash skin with soap and /or water. Seek medical attention if any irritation or soreness of the skin develops.
Ingestion	First aid is unlikely to be required but if necessary rinse mouth with water ensuring that mouth wash is not swallowed and seek medical attention as a precautionary measure if large amounts have been ingested.

### 5. FIRE FIGHTING MEASURES

This is a non-combustible material. Use whatever protective equipment and extinguishing agent that are suitable for the primary cause of fire.

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## 6. ACCIDENTAL RELEASE MEASURES:

Wear safety equipment for normal handling, avoid generating dust, sweep or vacuum up, recycle/reuse or dispose to landfill subject to local regulations. Transport is not regulated and no specific storage requirements.

## 7. HANDLING AND STORAGE

Storage	Transport is not regulated and there is no specific storage requirement but storage should be designed to minimize creation of the dust.
Spillage	Wear protective equipment as specified for handling. Sweep or vacuum up and reuse or dispose. Avoid generation of dust.
Waste disposal	Disposal to land fill such a way as to prevent generation of dust and subjected to local regulations.
Fire explosion	Incombustible
Fire extinguishing	Use whatever protective equipment and extinguishing agent that are suitable for primary cause of fire.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation	Ventilation requirement will depend upon handling methods and amount in use but extraction or make up air may be required to minimise dust layers/levels below exposure limits.
Protective equipment	Safety goggles or glasses. A dust type respirator may be required to prevent ingestion.
TLV ( TWA )	10 mg/m <sup>3</sup> as total dust.
TLV ( TWA )	5 mg/ m <sup>3</sup> as respirable dust.

## 9. PHYSICAL AND CHEMICAL PROPERTIES:

Chemical formula	Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub>	Flash point	None
LOI	Not available	Explosion limit	Not pertinent
Colour	Rose Red	Solubility ( water)	Insoluble
Odour	Odourless	Vapour pressure	Not pertinent
Melting point	1315 <sup>0</sup> C	Vapour density	Not Applicable
Evaporation rate	Not Pertinent	Hardness	6- 7 in Mohr's Scale
Specific gravity	4.25	Crystal system	Orthorhombic
Bulk density	1950 - 2050 kg/m <sup>3</sup>	% Volatiles	None
pH	6.0 – 7.0	flammability	Non combustible
Grain size	-48 to +200		

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## 10. STABILITY AND REACTIVITY

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Chemical stability : Stable  
Reactivity : Inert  
Incompatibilities : None in normal or expected use.  
Decomposition : Decomposition will not occur

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## 11. TOXICOLOGICAL INFORMATION

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Non toxic

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## 12. ECOLOGICAL INFORMATION

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The matter is unlikely to cause any environmental damage if handled, used and disposed off in the approved manner. It is insoluble in water and unlikely to contaminate waterways or enter the food chains.

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## 13. DISPOSAL CONSIDERATIONS

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This is a Non hazardous material, disposal must be in accordance with federal, state and local regulations. Consult and comply with current regulations. If approved, may be transferred to an approved landfill site.

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## 14. TRANSPORT INFORMATION

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Transport is not regulated & may be transported as a non-hazardous material. Trucks transporting/carrying bulk material should be covered to prevent dust generation.

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## 15. REGULATORY INFORMATION

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**Labelling:** May be required in the USA if quartz exceeds 0.10 %.

**Radiological protection:** The regulations pertaining to radiological protection vary from country to country. It is the responsibility of the buyer to ensure that those are met in accordance with his/her country law.

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## 16. OTHER INFORMATION

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MSDS data issued Maxworth Minerals India Pvt Ltd.  
+91-891-2566263  
Garnet Date of Issue: October 2010

### Disclaimer

The above information is intended to give general health and safety guidance on the storage and transport of the substance or product to which it relates. The requirement or recommendation of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product shall take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given. The information provided in this safety data sheet is accurate at the date of publication, and will be undated as and when appropriate.

For further information on product, please contact Maxworth Minerals India Pvt. Ltd.

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