

## Material Safety Data Sheet

### **Section: I – IDENTIFICATION**

Garnet Name : Almandine  
Product Name : Garnet Abrasive Grit  
Grade Name & Use : Grade : # 80 Water Jet Cutting  
Manufacture's Name : MCS RESOURCES  
320 Serangoon Road,  
# 16-02, Centrium Square,  
Singapore 218108.

E.Mail : [info@mcs.global](mailto:info@mcs.global)

### **Section: II – MINERALS COMPOSITION**

Garuda garnet is a natural mixture of Almandine garnet and it was collected from Inland and sea shore area. Almandine garnet purity and other mixed trace minerals

| Minerals / Chemical composition                                                      | CAS. NO.    | Proportion By weight |
|--------------------------------------------------------------------------------------|-------------|----------------------|
| Almandine Garnet (Fe <sub>3</sub> Al <sub>2</sub> (SiO <sub>4</sub> ) <sub>3</sub> ) | 1302-62-1   | > 98.00 %            |
| Ilmenite (FeTiO <sub>3</sub> )                                                       | 103170-28-1 | < 01.50 %            |
| Shell (CaCO <sub>3</sub> )                                                           | 471-31-1    | < 00.20 %            |
| Quartz (SiO <sub>2</sub> )                                                           | 14808-60-7  | < 00.50 %            |
| Zircon (ZrSiO <sub>4</sub> )                                                         | 14940-68-2  | < 00.20 %            |

### **Section: III - HAZARDS INFORMATION**

Non-Hazardous and Non-Dangerous cargo according to criterion NOHSC : 1008(2004). Because it is natural minerals.

### **Section: IV - HEALTH HAZARDS & FIRST AID PROCEDURES**

Swallowed: Non toxic. There are no known health hazard effects resulting from accidental ingestion as that may occur while the workers normal handling. Absorb the larger amounts may cause irritation due to abrasiveness. First aid is unlikely to be required, but if necessary wash mouth with water ensuring the mouthwash is not swallowed. Contact medical consultant, if any problems develop.

Eye: Materials and dust contact can cause eye irritation due to abrasiveness. Normal force with lot of clean water for at least 10 minutes or until the abrasive is removed. Also can contact medical consultant, if any problems develop.

Skin: There are no known health effects from skin contact that may happen during normal handling. Contact medical consultant, if any problems develop. Also while blasting the material contact with skin under pressure will damage skin. Gently remove the contamination clothing to avoid dust, then wash the skin. If the irritation is resists, Contact medical advice.

Inhaled: Normally regarded as general nuisance dust, but can be irritating it inhaled in high concentration may cause lung irritation. Shift to fresh air and blow nose to remove particulates from nasal passages. Contact medical consultant, if any problems found.

#### **SECTION - V - STABILITY & REACTIVITY DATA**

|                     |   |                |
|---------------------|---|----------------|
| Stability           | - | Stable         |
| Polymerization      | - | Cannot occur   |
| Incompatibility     | - | None Known     |
| Hazardous Reactions | - | None Known     |
| Decomposition       | - | Not applicable |

#### **SECTION -VI - FIRE AND EXPLOSION HAZARD DATA**

|                     |   |                                                               |
|---------------------|---|---------------------------------------------------------------|
| Flammability        | - | Non-flammable solid                                           |
| Flash Point         | - | Not applicable                                                |
| General Hazard      | - | Non-flammable and does not support burning                    |
| LEL                 | - | Not applicable                                                |
| UEL                 | - | Not applicable                                                |
| Extinguishing Media | - | Use appropriate extinguishing media for the surrounding fire. |

#### **SECTION – VII – PHYSICAL & CHEMICAL CHARACTERISTICS**

##### **a) Physical Characteristics: -**

|                        |   |                          |
|------------------------|---|--------------------------|
| Melting point          | - | 1320 °C                  |
| Specific gravity       | - | 4.0 to 4.5               |
| Bulk density           | - | 2.4                      |
| Solubility in water    | - | Insoluble                |
| Acid solubility        | - | < 0.5 %                  |
| Appearances & Odour    | - | Dark red & No odour      |
| Physical state         | - | Solid                    |
| Viscosity              | - | Not Applicable           |
| Boiling point          | - | Not Applicable           |
| Vapour Pressure        | - | Not Applicable           |
| PH                     | - | Neutral                  |
| Hardness               | - | > 7 Moh scale            |
| Free metal             | - | < 0.01 %                 |
| Water soluble Chloride | - | < 25 ppm                 |
| Conductivity           | - | <15 mS/m                 |
| Moisture               | - | < 0.20 % (Dry solid)     |
| Grade Shape            | - | Spheroid                 |
| Grain Size             | - | 90 micron to 1700 micron |

#### **b) Composition :-**

|                                |   |         |
|--------------------------------|---|---------|
| SiO <sub>2</sub>               | - | 35.00 % |
| Fe <sub>2</sub> O <sub>3</sub> | - | 33.00 % |
| Al <sub>2</sub> O <sub>3</sub> | - | 21.00 % |
| MgO                            | - | 07.30 % |
| CaO                            | - | 01.50 % |
| TiO <sub>2</sub>               | - | 01.00 % |
| Cr <sub>2</sub> O <sub>3</sub> | - | 00.05 % |
| MnO                            | - | 00.50 % |
| P <sub>2</sub> O <sub>5</sub>  | - | 00.04 % |

#### **SECTION – VIII – PERSONAL PROTECTION**

|                    |   |                        |
|--------------------|---|------------------------|
| Crystalline silica | - | 0.10 mg/m <sup>3</sup> |
| Repairable dust    | - | 5 mg/m <sup>3</sup>    |
| Nuisance dust      | - | 15 mg/m <sup>3</sup>   |

If these levels are exceed respiratory protection must be applied

**Personal Protection:** Safety glasses, Gloves and nose mask. Maintain a clean and safe work place and monitor effectiveness.

**Engineering controls:** Dust collector and ventilation requirements will depend on handling methods and the amount in use, but should be sufficient maintain dust levels exposure limit. Points of dust generation such as conveyor and hopper discharges should be equipped with an effective extraction system.

#### **SECTION – IX – HANDLING AND STORAGE**

Adopt good house keeping practices to reduce dust. Use approved hand, eye and respiratory protection devices while the material handling. No special safety measures required. Storage place should be ventilated and dust generation minimized when handling.

#### **SECTION – X – CONTROL MEASURES**

Respiratory Protection (Specify type)

NIOSH / MSHA – Approved filters and air supplied goods for blasters

| Ventilation | Local Exhaust           | Special |
|-------------|-------------------------|---------|
| Yes         | Use when blast cleaning | None    |
|             | Mechanical (General)    | Other   |
|             | Meet dust TLV           | None    |

Protection Gloves: Leather gloves, cabs and paper mask.

Eye Protection: Safety glasses with side shields approved by central.

Other Protective clothing or Equipment: Normal safety protection is adopted.

Work / Hygienic Practices: keep a clean and safe work place and monitor work practices.

#### **SECTION – XI – TRANSPORT**

ICAO / IATA NOT REGULATED

#### **SECTION – XII – DISPOSAL PROCEDURES**

As per the local, state and central rules for the disposal of inert solid waste. Material contaminated in use may require special handling and disposal.

#### **SECTION – XIII - REGULATORY INFORMATION**

This product is natural and dry mineral and the material collected from inland and sea shore. It is non- hazardous and non-dangerous cargo and does not require any special precautions.

#### **SECTION – XIV – ENVIRONMENTAL INFORMATION**

This material is a natural mineral with no known ecotoxicity. It is insoluble in water, because it is very heavy material and it should not contaminate waterways and food materials. Also it does not dangerous to animals and plants.

#### **SECTION – XV – TOXIC INFORMATION**

This product is non-toxic with no known sensitive health effects relating to human exposure.

#### **SECTION – XVI – SPECIAL COMMENTS & PRECAUTIONS**

The above said information is believed to be accurate, but is not warranted with respect to the accuracy of the information or recommendations. As per the work safety rule, each and every user should reconsider the above information while product using.