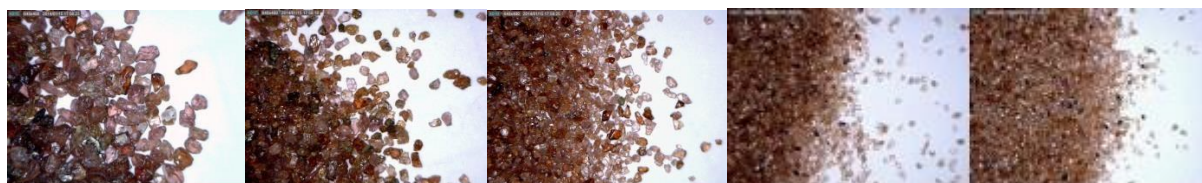


SAFETY DATA SHEET

PRODUCT: GARNET



SECTION 1 - IDENTIFICATION

Product Type:	Garnet
Brand:	IMG Garnet, IMG- SpeedJet, IMG- Golden
Grades:	Mesh 12-20, 16-20, 20-40, 30-60, 80, 120
Application:	Water Filtration, Sand Blasting, Water-jet cutting, etc..
Manufacturer:	IMG Resources Pvt Ltd, Kerala, India
Supplier:	Maxhot Metalcast Solutions Sdn Bhd, No.119-1 (First Floor), Pusat Perniagaan Bestari, Jalan Permata 1/KS09, Taman Perindustrian Air Hitam, Bandar Bestari, Klang 41200, Malaysia

SECTION 2 – HAZARDS INFORMATION

- GHS classification of substance:
2513.20.00
- GHS label elements, including precautionary statements:
The product is dominantly garnet (Almandine assortment) which is non-hazardous substance.
Traces of dust in the unused product are from calcium carbonate which is also non-hazardous
- Other Hazards which do not result in classification:
The product does not contain any asbestos.
Do not breathe dust liberated from used product;
Product may have become contaminated by use.

SECTION 3 – CHEMICAL COMPOSITION /MINERALS

Garnet is a natural mixture of Almandine garnet and is collected inland as well as in seashore areas, Almandine garnet purity and other mixed trace minerals are given below.

Minerals/Chemical Composition	CAS.NO	Proportion by Weight
Almandine Garnet ($\text{Fe}_3\text{Al}_2(\text{SiO}_4)_3$)	1302-62-1	>98.00 %
Ilmenite (FeTiO_3)	103170-28-1	<01.50 %
Shell (CaCO_3)	471-31-1	<00.20 %
Quartz (SiO_2)	149040-68-2	<00.50 %
Zircon (ZrSiO_4)	14808-60-7	< 00.20 %

SECTION 4 – HEALTH HAZARDS & FIRST AID PROCEDURES

Swallowed: Nontoxic. There are no known adverse health effects resulting from minimal accidental ingestion likely to occur during normal handling by workers, Absorption to larger amounts may cause irritation due to abrasiveness, first aid unlikely to be required, but if necessary wash mouth with clean water and ensure it is not swallowed, Contact a qualified medical practitioner immediately if any problem develops.

Skin: There are no known adverse health effects from skin contact that may happen during normal handling. Contact a qualified medical practitioner, if any problem develops. Contact under pressure, during blasting will damage skin. Gently remove the contaminated clothing to avoid dust, and then wash the skin. If irritation persists, contact a qualified medical practitioner immediately.

Inhaled: It is normally regarded as general nuisance dust, but cause lung irritation if inhaled in high concentrations, shift to an area with fresh air and blow nose to remove particulates from nasal passages. Contact qualified medical practitioner immediately if any problems persist.

SECTION 5 – STABILITY & REACTIVITY DATA

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

SECTION 6 – 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 7 – PHYSICAL & CHEMICAL CHARACTERISTICS

a) Physical Characteristics:-

Melting Point	-	1320 °C
Specific Gravity	-	4.0 to 4.5
Bulk Density	-	2.4 g/cm ³
Solubility in Water	-	Insoluble
Acid Solubility	-	< 0.5 %
Appearances & Odor	-	Pink to Red ,Yellow & No odor
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	-	Sub Angular
Grain Size	-	90 micron to 1700 micron

b) Chemical Composition:-

Symbol	IMG Garnet
Fe ₂ O ₃	32 - 34 %
SiO ₂	33 - 35 %
Al ₂ O ₃	20 - 24 %
MgO	09 - 11 %
MnO	0.5 - 0.7 %
CaO	1.5 - 4.0 %
TiO ₂	0.8 - 1.0 %
Cr ₂ O ₃	0.03-0.05%

SECTION 8 – PERSONAL PROTECTION

Free silica	-	No free silica
Repairable dust	-	5 mg/m ³
Nuisance dust	-	15 mg/m ³

If these levels are exceeded 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 to maintain dust level exposure limit. Points of dust generation such as conveyor and hopper discharges should be equipped with an effective extraction system.

SECTION 9 – HANDLING & STORAGE

Adopt good housekeeping 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 10 – 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, caps 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 11 – TRANSPORT

No special precaution although it is advised to keep bags closed and covered using tarpaulin or any sheet while transporting to avoid dust generation.

SECTION 12 – DISPOSAL PROCEDURES

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

SECTION 13 – REGULATORY INFORMATION

This product is a natural and dry mineral and the material is collected from the inland of seashore areas. It is non- hazardous and non-dangerous cargo and dos not require any special precautions.

SECTION 14 – ENVIRONMENTAL INFORMATION

This material is a natural mineral with no known eco-toxicity, it is insoluble in water and very heavy hence should not contaminate waterways and food material. It also does not pose any danger to animal and plant life.

SECTION 15 – TOXIC INFORMATION

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

SECTION 16 – 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 using the product.

Abbreviations

Mg/m ³	-	Milligram per cubic meter
NOHSC	-	National Occupational Health & Safety Commission
OSHA	-	Occupational Safety Health & Administration
TLV	-	threshold Limit Value
mS/m	-	mille Siemens per meter
ppm	-	Parts per million
g/cm ³	-	Gram per cubic centimetre

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