

MATERIAL SAFETY DATA SHEET (MSDS)

I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer/Supplier:	MAXWORTH MINERAL TRADING PVT LTD Suite No- 48-14-116 / 6, Lakshmi Royal Plaza Fourth Floor, Resapuvanipalem, Visakhapatnam
Trade Names:	Rock garnet, Red River Garnet
Product/Chemical Name:	Garnet Abrasive Grains
Chemical Formula:	Fe ₃ Al ₂ (SiO ₂) with Mg & Mn in partial substitution for Fe in the formula
Other Designations:	Almandite, Pyrope and Spessartine Garnet
General Use:	Industrial; not limited to abrasives, non-skid components, water filtration

II. HAZARDOUS INGREDIENTS / IDENTITY INFORMATION

This material is a natural mixture of almandine garnet - Fe₃Al₂(SiO₂) with Mg and Mn in partial substitution for Fe in the formula, and other trace minerals. The following substances are present and regulated by OSHA or ACGIH limits:

Substance	WT. %	ACGIH TLV	CAS NUMBER
		TWA	
Nuisance Dust	n/a	15 mg/m ³	n/a
Respirable Dust	n/a	5 mg/m ³	n/a
Crystalline Silica	<0.5%	0.10 mg/m ³	n/a

III. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Reddish brown to pink grains	Avg. Bulk Density:	2.4g/cm ³ (150 lbs/ft ³)
Particle Shape:	Sub-rounded to angular	Specific Gravity:	4.1 g/cm ³ (H ₂ O = 1.0)
Odor:	Not applicable	Melting Point:	1,250°C (2,282°F)
Water Solubility:	Insoluble	Reactivity:	Inert
Hardness:			7.5 – 8.0 Mohs

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IV. SECTION 4 – FIRE AND EXPLOSION HAZARD	
Flash Point:	Material is a non-flammable solid
Flash Point Method:	Not applicable
Flammable Limits:	Not applicable
LEL:	Not applicable
UEL:	Not applicable
Flammability Classification:	Not applicable
Extinguishing Media:	Use extinguishing media appropriate for the surrounding fire.
Special Fire Fighting Procedures: As appropriate to surrounding, fire fighters should be protected from nuisance dust.	
Unusual Fire and Explosion Hazards:	
None	

V. STABILITY AND REACTIVITY

Stability:	Stable	Almandine garnet is an inert, stable solid needing no special handling in normal use.
Polymerization:	Will not occur	
Chemical Incompatibilities:	None known	
Hazardous Decomposition products:	None known	

VI. HEALTH HAZARD INFORMATION

Health Hazards (acute and chronic)	None known. Use care to limit possible exposure to nuisance dust during blast cleaning.
Carcinogenicity	Crystalline silica (quartz) – contains less than 0.5%
Inhalation	Dust may cause irritation of the nasal and respiratory tract
Skin	May cause abrasions
Ingestion	None known; however, ingestion is not recommended
Medical Conditions Generally Aggravated by Exposure	Chronic bronchitis, emphysema and other lung diseases may be aggravated by exposure to nuisance dust
EMERGENCY FIRST AID PROCEDURES Inhalation	Chronic bronchitis, emphysema and other lung diseases may be aggravated by exposure to nuisance dust.
Inhalation	Remove to fresh air; administer oxygen if breathing is difficult.
Eye Contact	Wash eyes with water to flush out dust particles; obtain medical assistance if needed
Skin Contact	Wash affected area with soap and water.
Ingestion	Obtain first aid or medical assistance, if needed

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VII. PRECAUTIONS FOR SAFE HANDLING AND USE

SPILL / LEAK PROCEDURES

Spills : Sweep or vacuum material for disposal or recovery
 Disposal : Follow local, state and federal guidelines for disposal of inert solid waste. **MATERIAL CONTAMINATED IN USE MAY REQUIRE SPECIAL HANDLING.**

Handling / Storage Precautions : None – use good housekeeping practices to reduce dust; use approved hand, eye and respiratory protection when handling.

Other Precautions : Use materials only for the purposes intended and incorporate methods of dust Control to maintain airborne dust within federal or local TLV limits.

VIII. CONTROL MEASURES

Ventilation : Provide sufficient local exhaust or mechanical (general) ventilation to maintain dust exposure limit below threshold limit value (TLV).

Respiratory Protection : NIOSH/MSHA approved filters and air supplied hoods / helmets for blasters.

Eye Protection : Safety glasses with side shields, goggles or face shield

Protective Gloves : Leather or equivalent – in use.

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

Work / Hygienic Practices: Maintain a clean and safe work environment and monitor work practices.

TECHNICAL DATA & PHYSICAL CHARACTERISTICS FOR GARNET ABRASIVES

Average Chemical Composition (wt %)

SiO ₂ 36%	TiO ₂ 2%
Al ₂ O ₃ 23%	MnO 2%
FeO 27%	CaO 2%
Fe ₂ O ₃ 2%	MgO 6%

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Recommended Blasting Conditions	
Nozzle pressure	90+ psi
Material flow	400-600 lbs/hr
Nozzle size	6/8/10 MM or larger
Work distance	18-24 inches
Mineral Composition (Warranted Limit)	
Garnet	+97.0%
Ilmenite	<0.25%
Zircon	<0.2%
Quartz	<0.1%
Others	<0.25%

Physical Characteristics:	
Bulk density	140-150 lbs/ft ³
Specific gravity	4.1
Hardness (Mohs)	7.5—8.5
Melting point	1,250°C
Particle shape	Sub-rounded to sub-angular

Other Characteristics:	
Conductivity	10-15ms/m (max 25 ms/m)
Radioactivity	Not detectable above background
Moisture Absorption	Non-hygroscopic
Free Iron	Less than 0.01%
Copper	Less than 0.01%
Other Heavy Metals	Less than 0.01%

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