



GMA GARNET GROUP

when your abrasive matters!

SAFETY DATA SHEET

Date of Issuance: March 31, 2016

SECTION I - IDENTIFICATION OF MATERIAL AND SUPPLIER

Date of Issuance: March 31, 2016

Product Name: **GMA Garnet™**

Synonyms: Almandine Garnet, Garnet Sand, SpeedBlast™, PremiumBlast™, NewSteel™, 30/60 Mesh, 80 Mesh, 50 Mesh, 60 Mesh, 90 Mesh, 120 Mesh, 600/250

Relevant Use(s): Industrial Abrasives

Recommended Use: Industrial Abrasive Media, Blast Cleaning, Waterjet Cutting, Water Filtration Media

Supplier: GMA Garnet Pty., Ltd.

Address: 122 Goulds Rd.
Geraldton, Western Australia 6532

Telephone: +61 8 9923 6000 (Australia)
(832) 243-9300 (United States)

Fax Number: + 61 8 9923 3747 (Australia)
(832) 243-9301 (United States)

E-Mail: sales@gmagarnet.com.au

Emergency Telephone Number: +61 8 9923 6000; 24 hours: +61 402 293 603 (Australia)
(832) 243-9300; 24 hours: (713) 301-0354 (United States)





SECTION 2 - HAZARDS IDENTIFICATION

- (a) GHS classification of the substance:

Not classified.

- (b) GHS label elements, including precautionary statements:

The product is dominantly garnet (almandine variety) which is a non-hazardous substance. Traces of dust in the unused product are from calcium carbonate which is also Non-Hazardous.

- (c) Other hazards which do not result in classification:

Do not breathe dust liberated from used product. May have become contaminated by use.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

This material is a natural mixture of almandine garnet and other trace minerals.

Chemical Name	Common Name	CAS Number	Proportion (weight %)
$\text{Fe}_3\text{Al}_2(\text{SiO}_4)_3$	Almandine Garnet	1302-62-1	Greater than 97%
FeTiO_3	Ilmenite	103170-28-1	Less than 2.0%
CaCO_3	Calcium Carbonate	471-34-1	Less than 1.5%
ZrSiO_4	Zircon	149040-68-2	Less than 0.1%
SiO_2	Quartz (Crystalline Silica)	14808-60-7	Less than 0.1%

SECTION 4 - FIRST AID MEASURES

No acute or chronic health effects known in workers arising from short or long term exposure to this product.

- (a) Description of first aid measures:

Ingestion: Non-toxic. There are no known health effects resulting from accidental ingestion of small amounts that may occur during normal handling. Ingestion of larger amounts may cause abdominal discomfort due to abrasiveness. Seek medical attention if symptoms develop.

Eye contact: Particle and dust exposure may cause eye irritation due to abrasiveness. Flush with plenty of clean water for at least 15 minutes or until particles are removed. Seek medical attention if irritation or soreness persists.



GMA GARNET GROUP

when your abrasive matters!

Skin contact: There are no known health effects from skin contact that may occur during normal handling. Seek medical attention if symptoms develop. Contact with material under pressure will damage skin by abrasion. Clean and dress any open wound and seek medical attention.

Inhalation: Exposure to dust created by use as a blast cleaning media may cause throat or lung irritation, coughing or shortness of breath. Move to fresh air and blow nose to remove particulates from nasal passages. Seek medical attention if symptoms persist.

(b) Most important symptoms and effects, both acute and delayed:

- Ingestion: No specific symptoms noted.
- Eye contact: No specific symptoms noted.
- Skin contact: No specific symptoms noted.
- Inhalation: No specific symptoms noted.

(c) Indication of immediate medical attention and special treatment needed, if necessary:

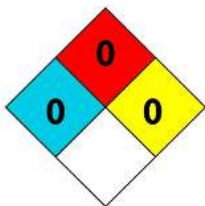
It is recommended that eyewash facilities are available in the workplace.

SECTION 5 - FIRE FIGHTING MEASURES

This product is non-flammable and does not support combustion.

- | | |
|--|---|
| a) Extinguishing media: | Non-flammable. Use media suitable for the surrounding materials. |
| b) Specific hazards arising from the chemical: | None known. |
| c) Special protective equipment and precautions: | No specific procedures given. Use protective equipment and precautions suitable for surrounding fire. |

NFPA





SECTION 6 - ACCIDENTAL RELEASE MEASURES

- (a) **Personal precautions, protective equipment and emergency procedures:**
Do not walk through spilled material. Wear appropriate Personal Protective Equipment (PPE)
- (b) **Environmental Precautions:**
This material should not be dumped in nature but collected and disposed of in accordance with local, state or federal guidelines. Avoid run off to waterways and sewers.
- (c) **Methods and materials for containment and cleaning up:**
Avoid generating unnecessary dust. Sweep or vacuum up material for disposal or recovery.

SECTION 7 - HANDLING AND STORAGE

- (a) **Precautions for safe handling:**
No special precautions necessary for normal handling of the material. Use only with adequate ventilation. Wear appropriate personal protective equipment.
- (b) **Conditions of safe storage, including any incompatibilities:**
No special precautions necessary for normal storage of the material. Keep container/package tightly closed and in a well-ventilated place. Practice good housekeeping practices to keep nuisance dust to a minimum.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

- (a) **Control Parameters/Exposure Standards:**
OELs (respirable fraction) in air for dust containing crystalline silica (quartz).

Standard	Exposure Limits
ACGIH TLV** (8-Hour Time-Weighted Average)	0.025 mg/m ³
NIOSH REL** (10-Hour Time-Weighted Average, 40-hour work week)	0.05 mg/m ³
MSHA/OSHA PEL* (8-Hour Time-Weighted Average)	10 mg/m ³ / (% SiO ₂ +2)
AIOH	0.1 mg/m ³

* Crystalline silica is normally measured as respirable dust. The OSHA/MSHA standard also presents a formula for calculation of the PEL based on total dust: 30 mg/m³ / (% SiO₂ +2). The OSHA/MSHA PEL for dust containing crystalline silica (quartz) is based on the silica content of the respirable dust sample. The OSHA/MSHA PEL for crystalline silica as tridymite and cristobalite is one-half the PEL for crystalline silica (quartz).

** The ACGIH and NIOSH limits are for crystalline silica (quartz), independent of the dust concentration. The ACGIH TLV for crystalline silica as cristobalite is equal to the TLV for crystalline silica as quartz. In 2005, ACGIH withdrew the TLV for crystalline silica as tridymite.



GMA GARNET GROUP

when your abrasive matters!

OELs in air for inert/nuisance dust

Standard	Respirable Dust	Total Dust
MSHA/OSHA PEL (as Inert or Nuisance Dust)	5 mg/m ³	15 mg/m ³
ACGIH TLV (as Particles Not Otherwise Specified)	3 mg/m ³	*10 mg/m ³

Note: The limits for Inert Dust are provided as guidelines. Nuisance dust is limited to particulates not known to cause systemic injury or illness. *The TLV provided is for inhalable particles not otherwise specified.

California/OSHA's Permissible Exposure Levels over an 8-hour average basis.

Respirable crystalline silica (quartz, fused, tripoli), 0.1 mg/m³ - 0.1 milligrams of Silica in 1 cubic meter of air.

Total crystalline silica (quartz), 0.3 mg/m³, Respirable cristobalite and tridymite, 0.05 mg/m³.

Canadian OEL:

Canada Labor Code (Canadian Centre Occupational Health & Safety [OHS]): 0.025 mg/m³ (respirable)

Alberta, British Columbia: 0.025 mg/m³ (respirable quartz and cristobalite)

Saskatchewan: 0.05 mg/m³ (respirable, cristobalite); 0.05 mg/m³ (respirable, quartz); 0.1 mg/m³ (respirable, Tripoli, as quartz)

Manitoba, Newfoundland, Prince Edward Island: 0.025 mg/m³ (respirable, crystalline silica)

Ontario: 0.05 mg/m³ (respirable cristobalite); 0.1 mg/m³ (quartz, tripoli)

Quebec: 0.05 mg/m³ (respirable, cristobalite, tridymite); 0.1 mg/m³ (quartz, tripoli)

New Brunswick: 0.1 mg/m³ (quartz); 0.05 mg/m³ (cristobalite)

Nova Scotia: 0.025 mg/m³ (quartz, cristobalite)

Yukon: 300 particles/ml measured with a konimeter (quartz, and tripoli); 150 particles/ML measured with a konimeter (cristobalite and tridymite)

Northwest Territories, Nunavut: 0.05 mg/m³ (respirable, cristobalite, tridymite); 0.1 mg/m³ (respirable)

Austria OEL: - Maximum allowable concentration 0.15 mg/m³

Australia: (AIOH) (OEL) – 0.1 mg/m³

Mexico: 0.1 mg/m³ (quartz, tripoli containing respirable quartz powder, inhalable), 0.05 mg/m³ (cristobalite, tridymite inhalable) (Also refer to ACGIH)

Argentina: 0.05 mg/m³ (quartz, cristobalite, tridymite respirable) 0.1 mg/m³ (tripoli, respirable)

United Kingdom OEL: 0.1 mg/m³ (quartz, cristobalite, tridymite)





GMA GARNET GROUP

when your abrasive matters!

Japan OEL: Japan Society of Occupational Health Respirable crystalline silica 0.03 mg/m³

Poland OEL TWA: 2 mg/m³ (total inhalable dust, containing >50% free crystalline silica);

0.3 mg/m³ (respirable dust, containing >50% free crystalline silica);

4.0 mg/m³ (total inhalable dust, containing 2% to 50% free crystalline silica);

1.0 mg/m³ (respirable dust, containing 2% to 50% free crystalline silica); and

10.0 mg/m³ (total inhalable dust, containing < 2% free crystalline silica)

If your Country or Territory is not listed, stricter regulations (ACGIH) apply where the materials are being used.

Key to abbreviations

PEL = Permissible Exposure Level determined by the Occupational Safety and Health Administration (OSHA)

ACGIH = American Conference of Governmental Industrial Hygiene

AIOH = Australian Institute of Occupational Hygienists

OSHA = Occupational Safety and Health Administration

NIOSH = National Institute of Occupational Safety and Health

TLV = Threshold Limit Value determined by the American Conference of Governmental Industrial Hygienists (ACGIH)

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

(b) Engineering Measures and Controls:

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable use process enclosures, exhaust ventilation or dust collectors to maintain airborne levels below recommended exposure limits. Operate and maintain dust collectors per manufacture recommendations.

(c) Personal Protective Equipment:

For limited exposure use an N95 dust mask or equivalent. For prolonged exposure follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Wear safety glasses

Wear protective clothing and gloves

Follow local, state or federal guidelines for the use of personal protection equipment. Blast cleaning operations should use an air fed abrasive blast hood conforming to relevant standards such as Australian Standards 1715, 1716 and European Standard EN 14594:2005 such as a Nova 2000, as well as leather (or equivalent) gloves and apron when in use. Hearing protection should also be worn when blast cleaning.

Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways. Follow best practice for site management and disposal of waste.



SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

(a)	Appearance	: Pink to red colored free flowing sand
(b)	Odor	: Odorless
(c)	Odor threshold	: Not applicable
(d)	pH	: 8.0 to 9.0
(e)	Melting point	: Approximately 1250°C (2282°F)
(f)	Flash point	: Non-combustible
(g)	Evaporation rate	: Not applicable
(h)	Flammability (solid, gas)	: Non-flammable
(i)	Upper/lower flammability or explosive limits	: Non-combustible
(j)	Vapor pressure	: Not applicable
(k)	Vapor density	: Not applicable
(l)	Specific gravity	: 4.1
(m)	Solubility	: Insoluble
(n)	Radioactivity	: Not detectable above background levels.
(o)	Hardness	: 7.5 – 8.0 Mohs
(p)	Particle size	: Average range between 0.1 – .06mm (150 mesh – 30 mesh), depending on grade
(q)	Particle shape	: Sub-angular
(r)	Bulk density	: Approximately 2.3 t/m ³ (145 lbs/ft ³)
(s)	Volatile organic compounds content	: Below detectable limits
(t)	Partition coefficient: n-octanol/water	: Not applicable
(u)	Auto-ignition temperature	: Not applicable
(v)	Decomposition temperature	: Not applicable
(w)	Viscosity	: Not applicable

SECTION 10 - STABILITY REACTIVITY

(a)	Reactivity	: Inert solid, no dangerous reaction known under conditions of normal use
(b)	Chemical stability	: Stable
(c)	Possibility of hazardous reactions	: None known
(d)	Conditions to avoid	: None known
(e)	Incompatible materials	: None known
(f)	Hazardous decomposition products	: None known



SECTION 11 - TOXICOLOGICAL INFORMATION

Ingestion is unlikely through normal use, however; swallowing any amount of this product may cause immediate or delayed abdominal discomfort due to abrasion. It is not recommended to swallow this material.

In the event that dust or any dose of this material comes into contact with the eyes it may have an immediate or delayed irritating effect resulting in redness & watering or an infection. It is not recommended to repeatedly allow this material to come in contact with the eyes.

Inhalation of large amounts of dust from this product may have an immediate or delayed effect to irritate, inflame the nose, throat & lungs.

SECTION 12 - ECOLOGICAL INFORMATION

This material is a naturally occurring mineral with no known Eco-Toxicity. It is insoluble in water and unlikely to contaminate waterways or food chains. GMA garnet does not contain rubber or plastic materials.

Independent laboratory Toxicity Characteristic Leaching Procedure (TCLP) testing for leachates has shown that this material is not a hazardous or toxic substance.

- | | | |
|-----|-------------------------------|----------------|
| (a) | Persistence and degradability | : Data Lacking |
| (b) | Bioaccumulative potential | : Data Lacking |
| (c) | Mobility in soil | : Data Lacking |
| (d) | Other adverse effects | : None known |

SECTION 13 - DISPOSAL CONSIDERATIONS

- (a) Disposal methods: Dispose of content and packaging waste in accordance with local, state, or federal guidelines for disposal of inert solid waste, e.g. landfill disposal.

MATERIAL CONTAMINATED OR REDUCED TO DUST IN USE MAY NEED SPECIAL HANDLING AND DISPOSAL. IT IS THE RESPONSIBILITY OF THE USER TO UNDERTAKE ANY EVALUATION, CLASSIFICATION AND DISPOSAL OF MATERIAL AFTER USE.



SECTION 14 - TRANSPORT INFORMATION

No special precautions necessary. It is recommended to keep bags closed and dry bulk loads covered to prevent dust generation and moisture incursion.

- a) UN number : None allocated.
- b) UN proper shipping name: : Not classified for transportation.
- c) Transport hazard class(es) : Not classed as Dangerous under the ADG Code.
- d) Packing group : Not classified for transportation.
- e) Environmental hazards : Not classified as a marine pollutant. Does not meet the criteria of 2.9.3.3.1 “environmentally hazardous substances (aquatic environment)”.
- f) Special precautions for user : None necessary. It is recommended to keep bags closed and dry bulk loads covered to prevent dust generation and moisture incursion.
- g) Hazchem code : None allocated.
- h) Harmonized System code : 251320

SECTION 15 - REGULATORY INFORMATION

- (a) Safety, health and environmental regulations/ legislation specific for the substance mixture:

GMA Garnet™ is exempt from the obligation to register under REACH legislation (EC 1907/2006) Annex V 7.

This product is an inorganic substance and does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH.

No known additional regulations for this product.

SECTION 16 - OTHER INFORMATION

This SDS has been prepared by GMA Garnet USA Corporation and complies with the Safe Work Australia Code of Practice on the Preparation of Safety Data Sheets for Hazardous Chemicals December 2011 and follows the Globally Harmonized System of Classification and Labeling of Chemicals (the GHS).

As per Worksafe Guidance Note NOHSC 3017, each user should review the information in the specific context of the intended application.

Disclaimer: The information in this SDS was obtained from sources that are believed to be reliable; however, the information is provided without any representation or warranty, express or implied, regarding its accuracy or correctness. The conditions or methods of handling, storage, use, and disposal of this product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage, or expense arising out of, or in any way connected with, the handling, storage, use or disposal of this product.