MSDS FOR GMA GARNET™ MEDIA

SECTION 1 : PRODUCTION IDENTIFICATION AND SUPPLIER

PRODUCT NAME :	GMA Garnet™
OTHER NAMES :	Almandine Garnet, Garnet Sand, 80, 30/40 mesh
CHEMICAL FAMILY :	Nesosilicate ($Fe_3Al_2(SiO_4)3$
MAT'L DESCRIPTION PROPER SHIPPING NAME:	Bag 55 LB, Superbag 2000 lb, pallet 40 bags
USES	Abrasive Blasting, Waterjet Cutting, Recycling
SUPPLIER'S NAME :	**INDUSTRIAL SURFACE TECHNOLOGIES**

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T 877 629-8202
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SECTION 2 : HAZARD IDENTIFICATION

HAZARDS CLASSIFICATION	According to OSHA 29 CFR 1910.1200 HCS
OSHA HCS 2012	Carcinogenicity 1A -H350
Label elements:	OSHA HCS 2012
	**Prolonged inhalation exposure may cause cancer. - H350**

Precautionary Statements:

Prevention	Obtain special instructions before use - P201. Do not handle until all safety precautions have been read and understood. - P202.
Response	If exposed or concerned: Get medical advice/attention. - P308+P313.
Disposal	Store locked up. - P405. Dispose of content and/or container in accordance with local, regional, national, and/or International regulations - P501.

OTHER HAZARDS

OSHA HCS 2012	Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.
CLP	According to Regulation (EC) No. 1272/2008 (CLP) this material is not considered hazardous.
DSD/DPD	According to European Directive 1999/45/EC this material is not considered dangerous.

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 %)
$(Fe,Ca)_3Al_2(SiO_4)_3$	Garnet *	1302-62-1	Greater than 93 %
$(Ca,Fe_2)(Si,Al)_2\ O_6$ $(Mg,Mn)(Si,Al)_2\ O_6$ $(Mg,Mn_2)(Si,Al)_2\ O_6$	Pyroxene Group	12174-37-7	Less than 4 %
$FeTiO_3$	Ilmenite	103170-28-1	Less than 1 %
SiO_2	Quartz (Crystalline Silica)	14808-60-7	Less than 0,4 %
Fe_2O_3	Hematite	1317-60-8	Less than 1 %
$ZrSiO_4$	Zircon	149040-68-2	Less than 1 %
TiO_2	Rutile	1317-80-2	Less than 1 %

(*) Predominantly Almandine Garnet along with minor amounts of Grossular Garnet and Spessartine Garnet

SECTION 4 : FIRST AID MEASURES

INGESTION	May cause abdominal discomfort due to abrasiveness; get medical attention if symptoms develop.
EYE CONTACT	In case of eye contact, immediately flush eyes with running water with plenty of clean water for at least 20. If eye irritation persists; seek medical advice/attention.
SKIN CONTACT	There are no known health effects from skin contact that may occur during normal handling. Contact with material under pressure will damage skin by abrasion. Clean and dress any open wound and seek medical advice/ attention.
INHALATION	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. If breathing difficulties persist, seek medical attention immediately.

Most important symptoms and effects, both acute and delayed:

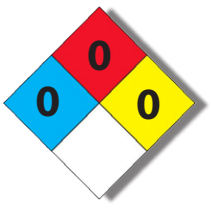
Refer to Section 11 - Toxicological Information.

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

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

SECTION 5 : FIRE FIGHTING MEASURES

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

EXTINGUISHING MEDIA	Non-flammable. Use media suitable for the surrounding materials·
SPECIFIC HAZARDS ARISING FROM THE CHEMICAL	None known.
SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS	No specific procedures given. Use protective equipmentand precautions suitable for surrounding fire.
NFPA	

SECTION 6 : ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES	Do not walk through spilled material. Wear appropriate Personal Protective Equipment (PPE)
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.
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

HANDLING PRECAUTIONS	No special precautions necessary for normal handling of the material. Use only with adequate ventilation. Wear appropriate personal protective equipment.
CONDITIONS FOR 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

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/m3
"NIOSH REL** (10-Hour Time-Weighted Average, 40-hour work week)"	0.05 mg/m3
"MSHA/OSHA PEL* (8-Hour Time-Weighted Average)"	10 mg/m3 / % SiO2+2)
AIOH	0.1 mg/m3
OHS	0.025 mg/m3

** 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*

OELS IN AIR FOR INERT/NUISANCE DUST

STANDARD	EXPOSURE LIMITS	TOTAL DUST
"MSHA/OSHA PEL (as Inert or Nuisance Dust)"	5 mg/m3	15 mg/m3
"ACGIH TLV* (as Particles Not Otherwise Specified)"	3 mg/m3	*10 mg/m3

*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.*

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

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 cristobolite and tridymite, 0.05 mg/m3.

LIST OF OEL BY COUNTRIES

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	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	0.1 mg/m3 (quartz, cristobalite, tridymite)
JAPAN OEL	Japan Society of Occupational Health Respirable crystalline silica 0.03 mg/m3
POLAND OEL TWA	2mg/m3 (total inhalable dust, containing >50% free crystalline silica); 0.3 mg/ mg/m3 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

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION (CONT'D)

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.
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 EN14594:2005 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

APPEARANCE	Pink to red colored free flowing sand
ODOR	Odorless
ODOR THRESHOLD	Not applicable
PH	7.5
MELTING POINT	Approximately 1315˚C (2399˚F)
FLASH POINT	Non-combustible
EVAPORATION RATE	Not applicable
FLAMMABILITY (SOLID, GAS)	Non-flammable
UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS	Non-combustible
VAPOR PRESSURE	Not applicable
VAPOR DENSITY	Not applicable
SPECIFIC GRAVITY	4.1-4.25
SOLUBILITY	Insoluble
HARDNESS	7.5 – 8.0 Mohs
PARTICLE SIZE	Average range between 0.1 – 1.2mm (150
PARTICLE SHAPE	Sub-angular to Angular
BULK DENSITY	Approximately 2.3 t/m3 (145 lbs/ft3)
VOLATILE ORGANIC COMPOUNDS CONTENT	Below detectable limits
PARTITION COEFFICIENT: N-OCTANOL/WATER	Not applicable
AUTO-IGNITION TEMPERATURE	Not applicable

SECTION 10 : STABILITY AND REACTIVITY

REACTIVITY	Inert solid, no dangerous reaction known under conditions of normal use.
CHEMICAL STABILITY	Stable
POSSIBILITY OF HAZARDOUS REACTIONS	None known
CONDITIONS TO AVOID	None known
INCOMPATIBLE MATERIALS	None known
HAZARDOUS DECOMPOSITION PRODUCTS	None known

SECTION 11 : TOXICOLOGICAL INFORMATION

Information on toxicological effects

CRYSTALLINE SILICA (SIO_2)	**14808-60-7**	**Acute Toxicity: Inhalation-Human TCLo** • **16 mppcf 8 Hour(s) 17.9 Year(s)**- Intermittent; Lungs, Thorax, or Respiration: Fibrosis, focal (pneumoconiosis); Lungs,Thorax, or Respiration:Cough; Lungs, Thorax, or Respiration:Dyspnea; Inhalation-Rat TCLo • **200 mg/kg:** Lungs, Thorax, or Respiration: Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration.

GHS PROPERTIES	CLASSIFICATION
ACUTE TOXICITY	"**EU/CLP :** Data lacking **OSHA HCS 2012** : Data lacking"
ASPIRATION HAZARD	
CARCINOGENICITY	"**EU/CLP :** Data lacking **OSHA HCS 2012** : Carcinogenicity 1A
GERM CELL MUTAGENICITY	"**EU/CLP :** Data lacking **OSHA HCS 2012** : Data lacking"
SKIN CORROSION /IRRITATION	"**EU/CLP :** Data lacking **OSHA HCS 2012** : Data lacking"
SKIN SENSITIZATION	
STOT--RE	
STOT--SE	
TOXICITY FOR REPRODUCTION	
RESPIRATORY SENSITIZATION	
SERIOUS EYE DAMAGE/IRRITATION	

Potential Health Effects Inhalation

ACUTE (IMMEDIATE)	Exposure to dust may cause irritation.
CHRONIC (DELAYED)	Inhalation of respirable dusts containing crystalline silica may cause lung injury or disease silicosis and/or cancer.
SKIN ACUTE (IMMEDIATE)	May cause abrasions.
CHRONIC (DELAYED)	No data available.
EYE ACUTE (IMMEDIATE)	Exposure to dust may cause irritation.

SECTION 11 : TOXICOLOGICAL INFORMATION (CONT'D)

Potential Health Effects Inhalation (cont'd)

CHRONIC (DELAYED)	No data available.
INGESTION ACUTE (IMMEDIATE)	No known effects, however ingestion not recommended.
CHRONIC (DELAYED)	No data available.
CARCINOGENIC EFFECTS	This product contains crystalline silica and/or quartz. IARC Monographs on Evaluation of Carcinogenic Risk of Chemicals to Humans (Monograph 68, 1997) concludes that there is sufficient evidence for the carcinogenicity of crystalline silica to humans (IARC Group I). Crystalline Silica is classified as a Known Carcinogen according to NTP.

CARCINOGENIC EFFECTS			
	CAS	IARC	NTP
Crystalline Silica (SiO2)	14808--60--7	Group 1--Carcinogenic	Known Human Carcinogen

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.

PERSISTENCE AND DEGRADABILITY	Data lacking
BIOACCUMULATIVE POTENTIAL	
MOBILITY IN SOIL	
OTHER ADVERSE EFFECTS	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

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.

UN NUMBER	None allocated.
UN PROPER SHIPPING NAME	Not classified for transportation.
TRANSPORT HAZARD CLASS(ES)	Not classed as Dangerous under the ADG Code.
PACKING GROUP	Not classified for transportation.
ENVIRONMENTAL HAZARDS	Not classified as a marine pollutant. Does not meet the criteria of 2.9.3.3.1 "environmentally hazardous substances (aquatic environment)".
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.
HAZCHEM CODE	None allocated.
HARMONIZED SYSTEM CODE	251320

SECTION 15: REGULATORY INFORMATION

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: OTHERS INFORMATIONS

This SDS has been prepared by International Surface Technologies and complies with the 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.

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