

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking**1.1 Product identifier**

- Product Name** • **Garnet Abrasive Grains and Powders**
- Synonyms** • Almandine and Pyrope Garnet
• Trade Names: 30x40, 30x60PLUS, 30/60, CG, HPA, HPX, MG, MicroGarnet

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Industrial Abrasives

1.3 Details of the supplier of the safety data sheet

Manufacturer • Barton International
Six Warren Street
Glens Falls, NY 12801
United States
www.barton.com
info@barton.com

Telephone (General) • (800) 741 7756

Telephone (General) • (518) 798 5462

1.4 Emergency telephone number

Manufacturer • (518) 798 5462

Section 2: Hazards Identification**EU/EEC**

According to: Regulation (EC) No 1272/2008 (CLP)/REACH 1907/2006 [amended by 2015/830]

According to: EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Not classified

DSD/DPD • Not classified

2.2 Label Elements

CLP

Hazard statements • No label element(s) required

DSD/DPD

Risk phrases • No label element(s) required

2.3 Other Hazards

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.

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation

2.2 Label elements

OSHA HCS 2012

WARNING



Hazard statements • May cause respiratory irritation

Precautionary statements

Prevention • Avoid breathing dust.
Use only outdoors or in a well-ventilated area.

Response • IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER/doctor/ if you feel unwell.

Storage/Disposal • Store locked up.
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 Other hazards

OSHA HCS 2012 • Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS 2015

2.1 Classification of the substance or mixture

WHMIS 2015 • Not classified

2.2 Label elements

WHMIS 2015

Hazard statements • No label element(s) required

Precautionary statements

2.3 Other hazards

WHMIS 2015 • In Canada, the product mentioned above is not considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

3.1 Substances

- Material does not meet the criteria of a substance in accordance with Regulation (EC) No 1272/2008.

3.2 Mixtures

Composition				
Chemical Name	Identifiers	%	LD50/LC50	Classifications According to Regulation/Directive
Almandine-Ferric Aluminum Silicate	CAS:1302-62-1	94% TO 99.6%	NDA	EU CLP: Not Classified OSHA HCS 2012: Not Classified WHMIS 2015:
Total Quartz (non-respirable and respirable)	CAS:14808-60-7 EC Number:238-878-4	< 1%	NDA	EU CLP: Not Classified OSHA HCS 2012: Not Classified WHMIS 2015: Not Classified
Iron	CAS:7439-89-6 EC Number:231-096-4	0.01% TO 0.2%	Ingestion/Oral-Rat LD50 • 750 mg/kg	EU CLP: Self Classified: STOT SE 3: Resp. Irrit., H335; STOT RE 2 (Lungs, Liver), H373; Acute Tox. 4 (oral), H302 OSHA HCS 2012: STOT SE 3: Resp. Irrit.; STOT RE 2 (Lungs, Liver); Acute Tox 4 (oral) WHMIS 2015:
Hornblende	CAS:12178-42-6	0.01% TO 0.2%	NDA	EU CLP: Not Classified OSHA HCS 2012: Not Classified WHMIS 2015:
Feldspars	CAS:68476-25-5 EC Number:270-666-7	0.01% TO 0.2%	NDA	EU CLP: Not Classified OSHA HCS 2012: Not Classified WHMIS 2015:
Respirable Quartz (<10 microns)	CAS:14808-60-7 EC Number:238-878-4	< 0.1%	NDA	EU CLP: Self Classified: STOT RE 1, H372 OSHA HCS 2012: Carc. 1A; STOT RE 1 (Lungs, Inhl) WHMIS 2015:

Section 4 - First Aid Measures

4.1 Description of first aid measures

- Inhalation** • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Get medical attention immediately.
- Skin** • In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Wash skin with soap and water.
- Eye** • In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion** • Get medical attention if symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to Physician** • 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 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- In case of fire use media as appropriate for surrounding fire.

Unsuitable Extinguishing Media

- No data available.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- None

Hazardous Combustion Products

- No data available.

5.3 Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA).
Structural firefighters' protective clothing will only provide limited protection.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not walk through spilled material. Wear appropriate Personal Protective Equipment (PPE)

Emergency Procedures

- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions.

6.2 Environmental precautions

- Avoid run off to waterways and sewers.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Avoid generating dust.
Use wet-methods or vacuum up material for disposal or recovery.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

- Handling** • No special precautions necessary for normal handling of the material. Use only with adequate ventilation. Do not breathe dust. Wear appropriate personal protective equipment, avoid direct contact.

7.2 Conditions for safe storage, including any incompatibilities

- Storage** • No special precautions necessary for normal storage of the material. Keep container/package tightly closed and in a well-ventilated place. Store locked up.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

		Exposure Limits/Guidelines					
	Result	ACGIH	OSHA	Argentina	Austria	Belgium	Chile
Respirable Quartz (<10 microns) (14808-60-7)	TWAs	0.025 mg/m3 TWA (respirable fraction)	0.025 mg/m3 Action Level (respirable fraction)	0.05 mg/m3 TWA [CMP] (respirable fraction)	Not established	0.1 mg/m3 TWA (alveolar dust)	0.08 mg/m3 TWA LPP (respirable fraction)
		0.025 mg/m3 TWA (respirable fraction)	0.050 mg/m3 PEL	0.05 mg/m3 TWA [CMP] (respirable fraction)		0.1 mg/m3 TWA (alveolar dust)	0.08 mg/m3 TWA LPP (respirable fraction)

			(respirable fraction)				
	MAKs	Not established	Not established	Not established	0.15 mg/m3 TWA [TMW] (yearly average, valid till 12/31/2013, the assessment period is one year, alveolar dust, respirable fraction) 0.15 mg/m3 TWA [TMW] (yearly average, valid till 12/31/2013, the assessment period is one year, alveolar dust, respirable fraction)	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	China	Czech Republic	Denmark	Finland	France
Respirable Quartz (<10 microns) (14808-60-7)	STELs	2 mg/m3 STEL (containing 10 - 50% free SiO2, total dust); 1.4 mg/m3 STEL (containing 50 - 80% free SiO2, total dust); 1 mg/m3 STEL (containing >80% free SiO2, total dust); 1.4 mg/m3 STEL (containing 10 - 50% free SiO2, respirable dust); 0.6 mg/m3 STEL (containing 50 - 80% free SiO2, respirable dust); 0.4 mg/m3 STEL (containing >80% free SiO2, respirable dust)	Not established	Not established	Not established	Not established
	TWAs	0.7 mg/m3 TWA (containing 50 - 80% free SiO2, total dust); 0.3 mg/m3 TWA (containing 50 - 80% free SiO2, respirable dust); 1 mg/m3 TWA	0.1 mg/m3 TWA (dust) 0.1 mg/m3 TWA (dust)	0.3 mg/m3 TWA (total); 0.1 mg/m3 TWA (respirable) 0.3 mg/m3 TWA (total); 0.1 mg/m3 TWA (respirable)	0.05 mg/m3 TWA (respirable, listed under Silicon dioxide, crystalline) 0.05 mg/m3 TWA (respirable, listed	0.1 mg/m3 TWA [VME] (restrictive limit, alveolar fraction) 0.1 mg/m3 TWA [VME] (restrictive

		(containing 10 - 50% free SiO ₂ , total dust); 0.7 mg/m ³ TWA (containing 10 - 50% free SiO ₂ , respirable dust); 0.5 mg/m ³ TWA (containing >80% free SiO ₂ , total dust); 0.2 mg/m ³ TWA (containing >80% free SiO ₂ , respirable dust)			under Silicon dioxide, crystalline)	limit, alveolar fraction)
		0.7 mg/m ³ TWA (containing 50 - 80% free SiO ₂ , total dust); 0.3 mg/m ³ TWA (containing 50 - 80% free SiO ₂ , respirable dust); 1 mg/m ³ TWA (containing 10 - 50% free SiO ₂ , total dust); 0.7 mg/m ³ TWA (containing 10 - 50% free SiO ₂ , respirable dust); 0.5 mg/m ³ TWA (containing >80% free SiO ₂ , total dust); 0.2 mg/m ³ TWA (containing >80% free SiO ₂ , respirable dust)				
Exposure Limits/Guidelines (Con't.)						
	Result	Indonesia	Korea	Mexico	Netherlands	New Zealand
Iron (7439-89-6)	TWAs	1 mg/m ³ TWA	Not established	Not established	Not established	Not established
Respirable Quartz (<10 microns) (14808-60-7)	TWAs	0.1 mg/m ³ TWA (respirable particulate) 0.1 mg/m ³ TWA (respirable particulate)	0.05 mg/m ³ TWA (respirable fraction, Serial No. 264) 0.05 mg/m ³ TWA (respirable fraction, Serial No. 264)	0.1 mg/m ³ TWA LMPE-PPT (respirable fraction) 0.1 mg/m ³ TWA LMPE-PPT (respirable fraction)	0.075 mg/m ³ TWA (respirable dust, listed under Silicon dioxide) 0.075 mg/m ³ TWA (respirable dust, listed under Silicon dioxide)	0.2 mg/m ³ TWA (respirable dust) 0.2 mg/m ³ TWA (respirable dust)
Exposure Limits/Guidelines (Con't.)						
	Result	NIOSH	Norway	Poland	Russia	Slovak Republic
Iron (7439-89-6)	TWAs	Not established	Not established	Not established	10 mg/m ³ TWA (aerosol)	6.0 mg/m ³ TWA (total aerosol)
Respirable Quartz (<10 microns) (14808-60-7)	TWAs	0.05 mg/m ³ TWA (respirable dust) 0.05 mg/m ³ TWA (respirable dust)	0.3 mg/m ³ TWA (Dust containing .alpha.-Quartz, Cristobalite and/or Tridymite is evaluated by summation formula, total dust); 0.1 mg/m ³ TWA (Dust containing .alpha.-Quartz, Cristobalite and/or Tridymite is evaluated by summation formula, respirable dust) 0.3 mg/m ³ TWA (Dust containing .alpha.-Quartz,	2 mg/m ³ TWA [NDS] (>50% free crystalline silica, inhalable fraction); 0.3 mg/m ³ TWA [NDS] (>50% free crystalline silica, respirable fraction); 4.0 mg/m ³ TWA [NDS] (2% to 50% free crystalline silica, inhalable fraction); 1.0 mg/m ³ TWA [NDS] (2% to 50% free crystalline silica, respirable fraction) 2 mg/m ³ TWA [NDS] (>50% free	1 mg/m ³ TWA (glass, disintegration aerosol, total mass of aerosols, listed under Silicon dioxide amorphous and vitreous); 1 mg/m ³ TWA (total mass of aerosols, listed under Crystalline silicon dioxide) 1 mg/m ³ TWA (glass, disintegration aerosol, total mass of aerosols, listed under Silicon dioxide	0.1 mg/m ³ TWA (in Cristobalite or Tridymite, total aerosol) 0.1 mg/m ³ TWA (in Cristobalite or Tridymite, total aerosol) 0.1 mg/m ³ TWA

			Cristobalite and/or Tridymite is evaluated by summation formula, total dust); 0.1 mg/m3 TWA (Dust containing .alpha.-Quartz, Cristobalite and/or Tridymite is evaluated by summation formula, respirable dust)	crystalline silica, inhalable fraction); 0.3 mg/m3 TWA [NDS] (>50% free crystalline silica, respirable fraction); 4.0 mg/m3 TWA [NDS] (2% to 50% free crystalline silica, inhalable fraction); 1.0 mg/m3 TWA [NDS] (2% to 50% free crystalline silica, respirable fraction)	TWA (total mass of aerosols, listed under Crystalline silicon dioxide)	
	STELs	Not established	Not established	Not established	3 mg/m3 STEL (glass, disintegration aerosol, total mass of aerosols, listed under Silicon dioxide amorphous and vitreous); 3 mg/m3 STEL (regulated under Quartz, total mass of aerosols, listed under Silicon dioxide crystalline)	0.5 mg/m3 STEL
					3 mg/m3 STEL (glass, disintegration aerosol, total mass of aerosols, listed under Silicon dioxide amorphous and vitreous); 3 mg/m3 STEL (regulated under Quartz, total mass of aerosols, listed under Silicon dioxide crystalline)	0.5 mg/m3 STEL

Exposure Limits/Guidelines (Con't.)

	Result	Spain	Sweden	Switzerland	Venezuela
Respirable Quartz (<10 microns) (14808-60-7)	MAKs	Not established	Not established	0.15 mg/m3 TWA [MAK] (respirable dust) 0.15 mg/m3 TWA [MAK] (respirable dust)	Not established
	TWAs	0.05 mg/m3 TWA [VLA-ED] (reclassified IARC group 2A to group 1, respirable fraction) 0.05 mg/m3 TWA [VLA-ED] (reclassified IARC group 2A to group 1, respirable fraction)	0.1 mg/m3 LLV (respirable dust) 0.1 mg/m3 LLV (respirable dust)	Not established	0.025 mg/m3 TWA [VTRE-L-8/40 (respirable fraction) 0.025 mg/m3 TWA [VTRE-L-8/40 (respirable fraction)

Exposure Control Notations

Switzerland

•Respirable Quartz (<10 microns) (14808-60-7): **Carcinogens:** (Category C1A carcinogen) | **Carcinogens:** (Category C1A carcinogen) | **Developmental Risk Groups:** (Developmental Risk Group C) | **Developmental Risk Groups:** (Developmental Risk Group C)

Norway

•Respirable Quartz (<10 microns) (14808-60-7): **Carcinogens:** (Carcinogen) | **Carcinogens:** (Carcinogen)

Argentina

•Respirable Quartz (<10 microns) (14808-60-7): **Carcinogens:** (A2 - Suspected human carcinogen) | **Carcinogens:** (A2 - Suspected human carcinogen)

Chile

•Respirable Quartz (<10 microns) (14808-60-7): **Carcinogens:** (A1 - Confirmed Human Carcinogen) | **Carcinogens:** (A1 - Confirmed Human Carcinogen)

Sweden

•Respirable Quartz (<10 microns) (14808-60-7): **Carcinogens:** (Carcinogen) | **Carcinogens:** (Carcinogen)

Venezuela

•Respirable Quartz (<10 microns) (14808-60-7): **Ceilings:** (Present) | **Ceilings:** (Present)

Germany DFG

•Respirable Quartz (<10 microns) (14808-60-7): **Carcinogens:** (Category 1 (causes cancer in man, alveola fraction)) | **Carcinogens:** (Category 1 (causes cancer in man, alveola fraction))

Exposure Limits Supplemental

OSHA

•Respirable Quartz (<10 microns) (14808-60-7): **Mineral Dusts:** ((30)/(%SiO₂ + 2) mg/m³ TWA, total dust; (250)/(%SiO₂ + 5) mppcf TWA, respirable fraction; (10)/(%SiO₂ + 2) mg/m³ TWA, respirable fraction) | **Mineral Dusts:** ((30)/(%SiO₂ + 2) mg/m³ TWA, total dust; (250)/(%SiO₂ + 5) mppcf TWA, respirable fraction; (10)/(%SiO₂ + 2) mg/m³ TWA, respirable fraction)

8.2 Exposure controls

Engineering

Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Maintain good housekeeping standards and do not allow this material to accumulate in areas where it can be re-suspended in air. Clean up spills and dispose of properly.

Personal Protective Equipment

Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear protective clothing and gloves.

Environmental

Exposure Controls

- 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.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

LLV = Limit Level Value is the exposure limit for 8-hour work day

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

MAC = Maximum Allowable Concentration

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

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

STEL = Short Term Exposure Limits are based on 15-minute exposures

STEV = Short Term Exposure Value

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 9 - Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Reddish brown to pink grains with no odor.
Color	Reddish brown to pink.	Odor	Odorless
Particulate Size	Varies upon customer demand	Odor Threshold	Data lacking
General Properties			
Boiling Point	Data lacking	Melting Point/Freezing Point	1315 °C(2399 °F)
Decomposition Temperature	> 750 °C(> 1382 °F)	pH	Not relevant
Specific Gravity/Relative Density	= 4.1 Water=1	Bulk Density	2.4 g/cm ³

Water Solubility	Insoluble	Viscosity	Data lacking
Explosive Properties	Non-explosive	Oxidizing Properties:	Data lacking
Volatility			
Vapor Pressure	Not relevant	Vapor Density	Not relevant
Evaporation Rate	Not relevant	VOC (Wt.)	Not relevant
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Data lacking
Flammability (solid, gas)	Non-flammable		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- No data available.

10.5 Incompatible materials

- None known.

10.6 Hazardous decomposition products

- None known.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

		Components
Iron (0.01% TO 0.2%)	7439-89-6	Acute Toxicity: Ingestion/Oral-Rat LD50 • 750 mg/kg; Blood:Changes in serum composition (e.g., TP, bilirubin cholesterol); Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Transaminases
Respirable Quartz (<10 microns) (< 0.1%)	14808-60-7	Acute Toxicity: Inhalation-Human TCLo • 16 mppcf 8 Hour(s) 17.9 Year(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration:Cough; Lungs, Thorax, or Respiration:Dyspnea</i> ; Inhalation-Rat TCLo • 200 mg/kg; <i>Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Lungs, Thorax, or Respiration:Other changes; Nutritional and Gross Metabolic:Changes in Chemistry or Temperature:Fe;</i> Multi-dose Toxicity: Inhalation-Hamster TCLo • 3 mg/m ³ 6 Hour(s) 78 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Fibrosis (interstitial); Lungs, Thorax, or Respiration:Changes in lung weight</i> ; Inhalation-Rat TCLo • 6.2 mg/m ³ 6 Hour(s) 6 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Other changes; Blood:Changes in spleen; Immunological Including Allergic:Increase in cellular immune response</i> ; Inhalation-Rat TCLo • 80 mg/m ³ 26 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration:Fibrosis, focal (pneumoconiosis); Blood:Changes in spleen; Immunological Including Allergic:Decrease in cellular immune response;</i> Tumorigen / Carcinogen: Inhalation-Rat TCLo • 50 mg/m ³ 6 Hour(s) 71 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria; Liver:Tumors</i>

GHS Properties	Classification
Skin sensitization	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Toxicity for Reproduction	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Germ Cell Mutagenicity	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Aspiration Hazard	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Respiratory sensitization	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Carcinogenicity	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
STOT-RE	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
STOT-SE	EU/CLP•Data lacking OSHA HCS 2012•Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation WHMIS 2015•Data lacking
Acute toxicity	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Serious eye damage/Irritation	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking
Skin corrosion/Irritation	EU/CLP•Data lacking OSHA HCS 2012•Data lacking WHMIS 2015•Data lacking

Potential Health Effects

Inhalation

Acute (Immediate)

- May cause respiratory irritation.

Chronic (Delayed)

- Inhalation of respirable dusts containing crystalline silica above applicable regulatory PEL's may cause lung injury or disease including silicosis and/or cancer.

Skin

Acute (Immediate)

- May cause abrasions.

Chronic (Delayed)

- No data available

Eye

- Acute (Immediate)** • Exposure to dust may cause irritation.
- Chronic (Delayed)** • No data available
- Ingestion**
- Acute (Immediate)** • No known effects, however ingestion not recommended.
- Chronic (Delayed)** • No data available
- Carcinogenic Effects** • Carcinogen classification does not apply to the material due to the low amount of respirable quartz.

Carcinogenic Effects			
	CAS	IARC	NTP
Respirable Quartz (<10 microns)	14808-60-7	Group 1-Carcinogenic	Known Human Carcinogen

Key to abbreviations

LD = Lethal Dose

TC = Toxic Concentration

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

- No PBT and vPvB assessment has been conducted.

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IMO/IMDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

14.6 Special precautions for user

• None specified.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

• Data lacking.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

• Note: Almandine-Ferric Aluminum Silicate (Garnet) and minor constituents are a naturally occurring minerals and therefore are exempted from TSCA regulations in accordance with 710.4(b)(1).

SARA Hazard Classifications

• Chronic

Inventory						
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
Almandine-Ferric Aluminum Silicate	1302-62-1	No	No	No	No	No
Respirable Quartz (<10 microns)	14808-60-7	Yes	No	Yes	Yes	No
Feldspars	68476-25-5	No	Yes	Yes	Yes	No
Hornblende	12178-42-6	No	No	No	No	No
Iron	7439-89-6	Yes	No	Yes	Yes	No
Inventory (Con't.)						
Component	CAS	Korea KECL	New Zealand	TSCA		
Almandine-Ferric Aluminum Silicate	1302-62-1	No	Yes	No		
Respirable Quartz (<10 microns)	14808-60-7	Yes	Yes	Yes		
Feldspars	68476-25-5	Yes	Yes	Yes		
Hornblende	12178-42-6	No	No	No		
Iron	7439-89-6	Yes	Yes	Yes		

Belgium

Labor

Belgium - Substances and Preparations - Carcinogens and Mutagens

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Belgium - Substances and Preparations - Suspected Carcinogens and Mutagens

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Canada

Labor

Canada - WHMIS - Classifications of Substances

•Iron	7439-89-6	Uncontrolled product according to WHMIS classification criteria
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	D2A (In certain cases, this classification does not apply. For more information, consult the section Substance Specific Issues - Silica, crystalline, encapsulated on Health Canada's WHMIS Division website.)
•Hornblende	12178-42-6	Not Listed

Canada - WHMIS - Ingredient Disclosure List

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	1 %
•Hornblende	12178-42-6	Not Listed

Environment

Canada - CEPA - Priority Substances List

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

China - Ozone Depleting Substances - Second Schedule

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

China - Ozone Depleting Substances - Third Schedule

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

China - Catalog of Hypertoxic Chemicals

•Iron	7439-89-6	Not Listed
-------	-----------	------------

•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
China - Dangerous Goods List		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
China - Export Control List - Part I Chemicals		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Denmark

Environment

Denmark - Advisory List for Self-Classification of Dangerous Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Denmark - List of Undesirable Substances - Product Groups/Function

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Denmark - List of Undesirable Substances - Reason for Selection

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Europe

Environment

EU - Air Pollution (2001/379/EC) - Heavy Metal Pollutants

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

EU - Substances Depleting the Ozone layer (1005/2009) - Annex I Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Other

EU - Export and Import Restrictions (689/2008) - Chemicals and Articles Subject to Export Ban

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

EU - Export and Import Restrictions (689/2008) - Chemicals Qualifying for PIC Notification

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed

•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
EU - Water Framework Directive (2000/60/EC) - List of Priority Substances - Annex X		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany

Labor

Germany - Immission Control - Qualifying Quantities for Major Accident Prevention

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - Immission Control - Qualifying Quantities for Safety Reporting

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - TRGS 505 - Specific Lead Regulations

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - TRGS 511 - Specific Ammonium Nitrate Regulations

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Environment

Germany - TA Luft - Types and Classes

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - TA Luft - Emission Limits for Carcinogenic Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - TA Luft - Emission Limits for Fibers

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - TA Luft - Emission Limits for Inorganic Dusts

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Germany - TA Luft - Emission Limits for Inorganic Gases

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Germany - TA Luft - Emission Limits for Organic Substances		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Germany - Water Classification (VwVwS) - Annex 1		
•Iron	7439-89-6	ID Number 748, not considered hazardous to water
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	ID Number 849, not considered hazardous to water
•Hornblende	12178-42-6	Not Listed
Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Germany - Water Classification (VwVwS) - Annex 3		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	ID Number 849, not considered hazardous to water
•Hornblende	12178-42-6	Not Listed
Other		
Germany - Specifically Regulated Chemicals in TRGS		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Germany - GUT - Substances Banned from Carpeting		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece		
Labor		
Greece - Substances Prohibited from Use in the Workplace		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Environment		
Greece - Air Quality Guidelines - 1 Hour		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed

•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Air Quality Guidelines - 24 Hour		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Air Quality Guidelines - Annual		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Surface Water Quality Standards		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Water Quality - Industrial Emission Limit Values (ELVs) - Daily		
•Iron	7439-89-6	15.0 mg/L ELV (total, lakes); 15.0 mg/L ELV (total, rivers); 20.0 mg/L ELV (total, coastal waters)
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Water Quality - Industrial Emission Limit Values (ELVs) - Monthly		
•Iron	7439-89-6	7.5 mg/L ELV (total, lakes); 7.5 mg/L ELV (total, rivers); 10.0 mg/L ELV (total, coastal waters)
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Other		
Greece - Major Accidents - Threshold Quantities for Accident Prevention		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Major Accidents - Threshold Quantities for Safety Reporting		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Greece - Marketing and Use Restrictions - Azodyes		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Indonesia

Environment

Indonesia - Hazardous Waste from Non-Specific Sources

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed

•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Indonesia - Hazardous Waste from Specific Sources		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
Indonesia - Hazardous Waste from Overdue Chemicals		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Japan

Labor

Japan - ISHL Dangerous Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Japan - ISHL Designated Carcinogens

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Other

Japan - Drinking Water Quality Standards - Supplied Water Quality Standard Values

•Iron	7439-89-6	0.3 mg/L (listed under Iron and its compounds)
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Japan - Drinking Water Quality Standards - Quality Control Guideline Values

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Japan - Fire Service Law - Hazardous Materials

•Iron	7439-89-6	Group 2 - Flammable solids III (powder, listed under Iron powder)
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Korea

Labor

Korea - ISHA - Harmful Substances Prohibited for Manufacturing, Importing, Transferring, or Supplying

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Korea - ISHA - Harmful Substances Requiring Permission

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Korea - ISHA - Name, Toxicity and Protective Measures of New Chemical Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Environment

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Observational Chemicals

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Other

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Prohibited Chemicals

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Restricted Chemicals

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Korea - MOE - Toxic Chemicals Control Act (TCCA) - Toxic Chemicals

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Mexico

Environment

Mexico - Ecological Criteria for Water Quality - Agricultural Irrigation

•Iron	7439-89-6	5.0 mg/L
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Mexico - Ecological Criteria for Water Quality - Drinking Water Supply Source

•Iron	7439-89-6	0.3 mg/L
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Mexico - Ecological Criteria for Water Quality - Protection of Fresh Water Aquatic Life

•Iron	7439-89-6	1.0 mg/L
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Mexico - Ecological Criteria for Water Quality - Protection of Marine Water Aquatic Life

•Iron	7439-89-6	0.05 mg/L
•Feldspars	68476-25-5	Not Listed

•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Netherlands

Other

Netherlands - List of Carcinogens

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	(respirable dust, crystalline)
•Hornblende	12178-42-6	Not Listed

Netherlands - Major Accidents - Qualifying Quantities for Accident Prevention

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Netherlands - Major Accidents - Qualifying Quantities for Safety Reporting

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

New Zealand

Other

New Zealand - Ozone Depleting Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Norway

Environment

Norway - Restricted Substances and Preparations

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Russia

Labor

Russia - Limiting Quantities of Hazardous Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Slovak Republic

Labor

Slovak Republic - Selected Chemical Agents and Usages Which are Not Permitted

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Environment

Slovak Republic - Waste Regulations - List of Harmful Substances

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Taiwan

Environment

Taiwan - Effluent Standards - Maximum Effluent Limitations

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Taiwan - Toxic Chemical Substances Control Act - Threshold Regulated Quantities

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Taiwan - Toxic Chemical Substances Control Act - Classification and Control Levels

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Other

United Kingdom - Major Accidents - International Toxic Equivalent Factors (ITEF)

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

United Kingdom - Major Accidents - Qualifying Quantities for Accident Prevention

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

United Kingdom - Major Accidents - Qualifying Quantities for Safety Reporting

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed

•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
U.S. - OSHA - Specifically Regulated Chemicals		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	carcinogen, initial date 10/1/88 (airborne particles of respirable size)

•Hornblende	12178-42-6	Not Listed
U.S. - California - Proposition 65 - Developmental Toxicity		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
•Iron	7439-89-6	Not Listed
•Feldspars	68476-25-5	Not Listed
•Almandine-Ferric Aluminum Silicate	1302-62-1	Not Listed
•Respirable Quartz (<10 microns)	14808-60-7	Not Listed
•Hornblende	12178-42-6	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H335 - May cause respiratory irritation
- H302 - Harmful if swallowed
- H372 - Causes damage to organs through prolonged or repeated exposure.
- H373 - May cause damage to organs through prolonged or repeated exposure.
- R22 - Harmful if swallowed.
- R37 - Irritating to respiratory system.
- R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Revision Date • 07/September/2016

Last Revision Date • 26/August/2016

Preparation Date • 19/August/2014

Disclaimer/Statement of Liability • The information in this MSDS 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.

Key to abbreviations

NDA = No Data Available