

## Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

### 1.1 Product identifier

**Product Name** FUSION Abrasives

**Trade Names** FUSION

**Synonyms** Almandine and Pyrope Garnet, Staurolite Blend

### 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 453/2010]

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 • Non-Hazardous

### 2.2 Label elements

OSHA HCS 2012

#### WARNING



**Hazard statements** • May cause respiratory irritation – H335

#### Precautionary statements

**Prevention** • Obtain special instructions before use. - P201

Do not handle until all safety precautions have been read and understood. - P202

Wear protective gloves/protective clothing/eye protection/face protection. - P280

**Response** • IF exposed or concerned: Get medical advice/attention. - P308+P313

**Storage/Disposal** • Store locked up. - P405

Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

### 2.3 Other hazards

OSHA HCS 2012

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

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## Canada

According to WHMIS

### 2.1 Classification of the substance or mixture

WHMIS • Non-Hazardous

### 2.2 Label elements

WHMIS



- May cause respiratory irritation

### 2.3 Other hazards

WHMIS

- The mixture contains less than 0.1% of a regulated substance.

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## 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  | Comments |
| Almandine-Ferric Aluminum Silicate           | CAS:1302-62-1                         | 45-55%               | NDA                                    | EU DSD/DPD: Not Classified<br>EU CLP: Not Classified<br>OSHA HCS 2012: Not Classified  | NDA      |
| Staurolite                                   | CAS:12182-56-8                        | 45-55%               | NDA                                    | EU DSD/DPD: Not Classified<br>EU CLP: Not Classified<br>OSHA HCS 2012: Not Classified  | NDA      |
| Iron Oxide                                   | CAS:1309-37-1                         | 0-5%                 | >1000 mg/kg                            | EU DSD/DPD: Not Classified<br>EU CLP: Not Classified<br>OSHA HCS 2012: Not Classified  | NDA      |
| Total Quartz (non-respirable and respirable) | CAS:14808-60-7<br>EC Number:238-878-4 | < 1.0%               | NDA                                    | EU DSD/DPD: Not Classified<br>EU CLP: Not Classified<br>OSHA HCS 2012: Not Classified  | NDA      |
| Respirable Quartz (<10 microns)              | CAS:14808-60-7<br>EC Number:238-878-4 | < 0.1% (trace-0.08%) | NDA                                    | EU DSD/DPD: Self Classified: T; R48/20<br>EU CLP: Self Classified: STOT RE 1, H372<br>OSHA HCS 2012: Carc. 1A; STOT RE 1 (Lungs, Inhl)   | NDA      |
| Iron   | CAS:7439-89-6<br>EC Number:231-096-4  | trace to 0.2%        | Ingestion/Oral-Rat<br>LD50 • 750 mg/kg | EU DSD/DPD: Self Classified: Xn R22 Xi, R37 Xn R48/20<br>EU CLP: Self Classified: STOT SE 3: Resp. Irrit., H335; STOT RE 2 (Lungs, Liver), H373; Acute Tox. 4 (oral), H302<br>OSHA HCS 2012: STOT SE 3: Resp. Irrit.; STOT RE 2 (Lungs, Liver); Acute Tox 4 (oral) | NDA      |
| Hornblende                                   | CAS:12178-42-6                        | trace to 0.2%        | NDA                                    | EU DSD/DPD: Not Classified<br>EU CLP: Not Classified<br>OSHA HCS 2012: Not Classified  | NDA      |
| Feldspars                                    | CAS:68476-25-5<br>EC Number:270-666-7 | trace to 0.2%        | NDA                                    | EU DSD/DPD: Not Classified<br>EU CLP: Not Classified<br>OSHA HCS 2012: Not Classified  | NDA      |

## 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 | OSHA (US)  | ACGIH                                       | Argentina  | Austria   | Belgium                          | Chile  |
|------------------------|--------|--|---|--|---|----------------------------------|--|
| Quartz<br>(14808-60-7) | TWAs   | 0.025 mg/m3<br>Action Level<br>0.05 mg/m3<br>TWA<br>(respirable<br>fraction) | 0.025 mg/m3 TLV<br>(respirable<br>fraction) | 0.05 mg/m3 TWA<br>[CMP] (respirable<br>fraction) | Not established   | 0.1 mg/m3 TWA<br>(alveolar dust) | 0.08 mg/m3 TWA<br>LPP (respirable<br>fraction) |
|                        | MAKs   | Not established  | Not established                             | Not established                                  | 0.15 mg/m3 TWA<br>[TMW] (yearly<br>average, valid till<br>12/31/2013,<br>alveolar dust,<br>respirable fraction) | Not established                  | Not established                                |

**Exposure Limits/Guidelines (Con't.)**

|                        | Result | China   | Czech Republic          | Denmark   | Finland   | France  |
|------------------------|--------|---|-------------------------|---|---|---|
| Quartz<br>(14808-60-7) | STELs  | 2 mg/m3 STEL<br>(10%-50% free SiO <sub>2</sub> ,<br>total dust); 1.4<br>mg/m3 STEL (50%-<br>80% free SiO <sub>2</sub> , total<br>dust); 1 mg/m3 STEL<br>(containing >80%<br>free SiO <sub>2</sub> , total dust);<br>1.4 mg/m3 STEL<br>(10%-50% free SiO <sub>2</sub> ,<br>respirable dust); 0.6<br>mg/m3 STEL (50%-<br>80% free SiO <sub>2</sub> ,<br>respirable dust); 0.4<br>mg/m3 STEL<br>(containing >80%<br>free SiO <sub>2</sub> , respirable<br>dust)                                      | Not established         | Not established   | Not established   | Not established   |
|                        | TWAs   | 0.7 mg/m3 TWA<br>(containing 50-80%<br>free SiO <sub>2</sub> , total dust);<br>0.3 mg/m3 TWA<br>(containing 50-80%<br>free SiO <sub>2</sub> , respirable<br>dust); 1 mg/m3 TWA<br>(containing 10-50%<br>free SiO <sub>2</sub> , total dust);<br>0.7 mg/m3 TWA<br>(containing 10-50%<br>free SiO <sub>2</sub> , respirable<br>dust); 0.5 mg/m3<br>TWA (containing<br>>80% free SiO <sub>2</sub> , total<br>dust); 0.2 mg/m3<br>TWA (containing<br>>80% free SiO <sub>2</sub> ,<br>respirable dust) | 0.1 mg/m3 TWA<br>(dust) | 0.3 mg/m3 TWA<br>(total); 0.1 mg/m3<br>TWA (respirable) | 0.05 mg/m3 TWA<br>(respirable, listed<br>under Silicon dioxide,<br>crystalline) | 0.1 mg/m3 TWA<br>[VME] (restrictive<br>limit, alveolar<br>fraction) |

**Exposure Limits/Guidelines (Con't.)**

|                        | Result | Indonesia                                    | Korea  | Mexico   | Netherlands  | New Zealand                        |
|------------------------|--------|--|--|--|--|------------------------------------|
| Iron<br>(7439-89-6)    | TWAs   | 1 mg/m3 TWA                                  | Not established  | Not established                                    | Not established  | Not established                    |
| Quartz<br>(14808-60-7) | TWAs   | 0.1 mg/m3 TWA<br>(respirable<br>particulate) | 0.05 mg/m3 TWA<br>(respirable fraction,<br>Serial No. 251) | 0.1 mg/m3 TWA<br>LMPE-PPT<br>(respirable fraction) | 0.075 mg/m3 TWA<br>(respirable dust,<br>listed under Silicon<br>dioxide) | 0.2 mg/m3 TWA<br>(respirable dust) |

**Exposure Limits/Guidelines (Con't.)**

|                        | Result | NIOSH                               | Norway                            | Poland                          | Russia                         | Slovak Republic                      |
|------------------------|--------|-------------------------------------|-----------------------------------|---------------------------------|--------------------------------|--------------------------------------|
| Iron<br>(7439-89-6)    | TWAs   | Not established                     | Not established                   | Not established                 | 10 mg/m3 TWA<br>(aerosol)      | 6.0 mg/m3 TWA<br>(total aerosol)     |
| Quartz<br>(14808-60-7) | TWAs   | 0.05 mg/m3 TWA<br>(respirable dust) | 0.3 mg/m3 TWA<br>(Dust containing | 2 mg/m3 TWA [NDS]<br>(>50% free | 1 mg/m3 TWA<br>(disintegration | 0.1 mg/m3 TWA (in<br>Cristobalite or |

|  |       |                 |   |   |   |  |
|--|-------|-----------------|---|---|---|--|
|  |       |                 | alpha.-Quartz, 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, total inhalable dust); 0.3 mg/m3 TWA [NDS] (>50% free crystalline silica, respirable dust); 4.0 mg/m3 TWA [NDS] (2% to 50% free crystalline silica, total inhalable dust); 1.0 mg/m3 TWA [NDS] (2% to 50% free crystalline silica, respirable dust) | aerosol, listed under Silicon dioxide amorphous and vitreous)                                 | Tridymite, total aerosol)<br>0.1 mg/m3 TWA |
|  | STELs | Not established | Not established   | Not established   | 3 mg/m3 STEL (disintegration aerosol, listed under Amorphous and crystalline silicon dioxide) | 0.5 mg/m3 STEL                             |

### Exposure Limits/Guidelines (Con't.)

|                        | Result | Spain   | Sweden                          | Switzerland                       | United Kingdom                          | Venezuela            |
|------------------------|--------|---|---------------------------------|-----------------------------------|---|----------------------|
| Quartz<br>(14808-60-7) | MAKs   | Not established   | Not established                 | 0.15 mg/m3 TWA [MAK] (respirable) | Not established                         | Not established      |
|                        | STELs  | Not established   | Not established                 | Not established                   | 0.3 mg/m3 STEL (calculated, respirable) | Not established      |
|                        | TWAs   | 0.1 mg/m3 TWA [VLA-ED] (reclassified IARC group 2A to group 1, respirable fraction) | 0.1 mg/m3 LLV (respirable dust) | Not established                   | 0.1 mg/m3 TWA (respirable)              | 0.05 mg/m3 TWA [CAP] |

### Exposure Control Notations

#### Switzerland

•Quartz (14808-60-7): **Carcinogens:** (Category C1 carcinogen) | **Developmental Risk Groups:** (Developmental Risk Group C (listed under Silicon dioxide, crystalline))

#### Norway

•Quartz (14808-60-7): **Carcinogens:** (Carcinogen)

#### Argentina

•Quartz (14808-60-7): **Carcinogens:** (A2 - Suspected human carcinogen)

#### Venezuela

•Quartz (14808-60-7): **Ceilings:** (A2 - Alleged Carcinogen in Humans)

#### Germany DFG

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

### Exposure Limits Supplemental

#### Spain

•Quartz (14808-60-7): **Under Review:** (0.05 mg/m3 VLA-ED; reclassified by IARC from group 2A possible human carcinogen to group 1 human carcinogen; (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

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

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

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

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

STEV = Short Term Exposure Value

MAC = Maximum Allowable Concentration

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

NIOSH = National Institute of Occupational Safety and Health

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

OSHA = Occupational Safety and Health Administration

**Section 9: Physical and Chemical Properties****9.1 Information on Physical and Chemical Properties**

| <b>Material Description</b>         |                             |                        |  |
|-------------------------------------|-----------------------------|------------------------|--|
| 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                               |
| <b>General Properties</b>           |                             |                        |  |
| Boiling Point                       | Data lacking                | Melting 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 <sup>3</sup>                      |
| Water Solubility                    | Insoluble                   | Viscosity              | Data lacking                               |
| Explosive Properties                | Non-explosive               | Oxidizing Properties:  | Data lacking                               |
| <b>Volatility</b>                   |                             |                        |  |
| Vapor Pressure                      | Not relevant                | Vapor Density          | Not relevant                               |
| Evaporation Rate                    | Not relevant                | VOC (Wt.)              | Not relevant                               |
| <b>Flammability</b>                 |                             |                        |  |
| Flash Point                         | Not relevant                | UEL                    | Not relevant                               |
| LEL                                 | Not relevant                | Autoignition           | Data lacking                               |
| Flammability (solid, gas)           | Non-flammable               |                        |  |
| <b>Environmental</b>                |                             |                        |  |
| 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  | <b>Acute Toxicity:</b> Ingestion/Oral-Rat LD50 • 750 mg/kg; <b>Blood:Changes in serum composition (e.g., TP, bilirubin cholesterol); Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels:Transaminases</b>  |
| Respirable Quartz (< 0.1%) | 14808-60-7 | <b>Acute Toxicity:</b> 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><br><b>Multi-dose Toxicity:</b> Inhalation-Hamster TClO • 3 mg/m <sup>3</sup> 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 <sup>3</sup> 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 <sup>3</sup> 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><br><b>Tumorigen / Carcinogen:</b> Inhalation-Rat TClO • 50 mg/m <sup>3</sup> 6 Hour(s) 71 Week(s)-Intermittent; <i>Tumorigenic:Carcinogenic by RTECS criteria; Liver:Tumors</i> |

| GHS Properties            | Classification  |
|---------------------------|---|
| Acute toxicity            | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| Aspiration Hazard         | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| Carcinogenicity           | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Carcinogenicity 1A |
| Germ Cell Mutagenicity    | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| Skin corrosion/Irritation | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| Skin sensitization        | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| STOT-RE                   | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| STOT-SE                   | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |
| Toxicity for Reproduction | <b>EU/CLP</b> •Data lacking<br><b>OSHA HCS 2012</b> •Data lacking       |



|                               |   |
|-------------------------------|---|
| Respiratory sensitization     | EU/CLP•Data lacking<br>OSHA HCS 2012•Data lacking |
| Serious eye damage/Irritation | EU/CLP•Data lacking<br>OSHA HCS 2012•Data lacking |

## Potential Health Effects

### Inhalation

#### Acute (Immediate)

- Exposure to dust may cause 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

- This product may contain <0.1% quantity of respirable crystalline silica as 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                    |
| Respirable Quartz    | 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 73/78 and the IBC Code** • Data lacking.

## Section 15: Regulatory Information

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

**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        |
| 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        |
| Quartz                             | 14808-60-7 | 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        |           |
| Feldspars                          | 68476-25-5 | Yes        |             | Yes         | Yes       |           |
| Hornblende                         | 12178-42-6 | No         |             | No          | No        |           |
| Iron                               | 7439-89-6  | Yes        |             | Yes         | Yes       |           |
| Quartz                             | 14808-60-7 | Yes        |             | Yes         | Yes       |           |

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

### 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 |
| •Quartz                             | 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 |
| •Quartz                             | 14808-60-7 |            |
| •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   |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |

|             |            |            |
|-------------|------------|------------|
| •Quartz     | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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  
•Quartz 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  
•Quartz 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  
•Quartz 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  
•Quartz 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  
•Quartz 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  
•Quartz 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  
•Quartz 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  
•Quartz 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  
•Quartz 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                                       |
| •Quartz  | 14808-60-7 | Not Listed                                       |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - TA Luft - Emission Limits for Inorganic Dusts</b>                 |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 14808-60-7 | Not Listed                                       |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - TA Luft - Emission Limits for Inorganic Gases</b>                 |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 14808-60-7 | Not Listed                                       |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - TA Luft - Emission Limits for Organic Substances</b>              |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 14808-60-7 | Not Listed                                       |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - Water Classification (VwVwS) - Annex 1</b>                        |            |  |
| •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                                       |
| •Quartz  | 14808-60-7 | ID Number 849, not considered hazardous to water |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes</b> |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 14808-60-7 | Not Listed                                       |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - Water Classification (VwVwS) - Annex 3</b>                        |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 14808-60-7 | ID Number 849, not considered hazardous to water |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Other</b>   |            |  |
| <b>Germany - Specifically Regulated Chemicals in TRGS</b>                      |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 14808-60-7 | Not Listed                                       |
| •Hornblende  | 12178-42-6 | Not Listed                                       |
| <b>Germany - GUT - Substances Banned from Carpeting</b>                        |            |  |
| •Iron  | 7439-89-6  | Not Listed                                       |
| •Feldspars   | 68476-25-5 | Not Listed                                       |
| •Almandine-Ferric Aluminum Silicate  | 1302-62-1  | Not Listed                                       |
| •Quartz  | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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);<br>15.0 mg/L ELV (total, rivers);<br>20.0 mg/L ELV (total, coastal waters) |
| •Feldspars                          | 68476-25-5 | Not Listed   |
| •Almandine-Ferric Aluminum Silicate | 1302-62-1  | Not Listed   |
| •Quartz                             | 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);<br>7.5 mg/L ELV (total, rivers);<br>10.0 mg/L ELV (total, coastal waters) |
| •Feldspars                          | 68476-25-5 | Not Listed   |
| •Almandine-Ferric Aluminum Silicate | 1302-62-1  | Not Listed   |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 14808-60-7 | Not Listed |

|  |            |            |
|--|------------|------------|
| •Hornblende  | 12178-42-6 | Not Listed |
| <b>Greece - Marketing and Use Restrictions - Azodyes</b> |            |            |
| •Iron  | 7439-89-6  | Not Listed |
| •Feldspars   | 68476-25-5 | Not Listed |
| •Almandine-Ferric Aluminum Silicate                      | 1302-62-1  | Not Listed |
| •Quartz  | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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                                     |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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                     |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |

|             |            |            |
|-------------|------------|------------|
| •Quartz     | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |

|             |            |            |
|-------------|------------|------------|
| •Quartz     | 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   |
| •Quartz                             | 14808-60-7 | carcinogen, initial date<br>10/1/88 (airborne particles of<br>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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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 |
| •Quartz                             | 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.

**Last Revision Date**

- 28/December/2018

**Preparation Date**

- 19/August/2014

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**Key to abbreviations**

NDA = No Data Available

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