**Section 1 - IDENTIFICATION**

Material Name: Iron Silicate
Trade Name: Black Diamond

**Recommended Use**
Abrasives, Roofing Granules and other aggregate uses.

**Restrictions on Use**
None known.

**Manufacturer Information**
US Minerals, Inc.
2105 North Winds Drive
Dyer, IN 46311

Phone: (219) 864-0909
Fax: 219-864-4675

Emergency # (800) 803-2803; (800) 424-9300 (ChemTrec)

**Section 2 - HAZARDS IDENTIFICATION**

**Classification in accordance with 29 CFR 1910.1200**
- Acute Toxicity (Oral), Category 4 (47% unknown)
- Skin Corrosion / Irritation, Category 3
- Eye Damage / Irritation, Category 2A
- Carcinogenicity, Category 2
- Specific Target Organ Toxicity - Single Exposure, Category 2 (respiratory system)
- Specific Target Organ Toxicity - Single Exposure, Category 2 (digestive system and/or systemic toxicity)
- Specific Target Organ Toxicity - Repeated Exposure, Category 2 (respiratory system, lungs)

**GHS LABEL ELEMENTS**

**Signal Word**
WARNING

**Hazard Statement(s)**
- Harmful if swallowed.
- Can cause skin irritation.
- May cause damage to respiratory system, lungs through prolonged or repeated exposure.
Precautionary Statement(s)

Prevention
Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/clothing and eye/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.

Response
IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth

Storage
Store locked up. Store in a secure, controlled area

Disposal
Dispose in accordance with all applicable regulations.

* * *Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS* * *

<table>
<thead>
<tr>
<th>CAS</th>
<th>Component</th>
<th>Percent</th>
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<tbody>
<tr>
<td>1309-37-1</td>
<td>Iron oxide (Fe2O3)</td>
<td>40-50</td>
</tr>
<tr>
<td>7631-86-9</td>
<td>Amorphous Silicon Dioxide</td>
<td>35-40</td>
</tr>
<tr>
<td>1305-78-8</td>
<td>Calcium oxide</td>
<td>0-5</td>
</tr>
<tr>
<td>1344-28-1</td>
<td>Aluminum oxide</td>
<td>0-6</td>
</tr>
<tr>
<td>7440-66-6</td>
<td>Zinc</td>
<td>0-5</td>
</tr>
<tr>
<td>7440-50-8</td>
<td>Copper</td>
<td>0-0.25</td>
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<tr>
<td>14808-60-7</td>
<td>Quartz</td>
<td>0-0.1</td>
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<tr>
<td>14464-46-1</td>
<td>Cristobalite</td>
<td>0-0.05</td>
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<tr>
<td>7440-41-7</td>
<td>Beryllium</td>
<td>0-0.0005</td>
</tr>
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</table>

Others
Evidence may exist to indicate that components present in this material in concentrations of less than one percent (or in the case of carcinogens, less than 0.1 percent) could be released in concentrations which would exceed an established OSHA permissible exposure limit or ACGIH Threshold Limit Value, or could present a health risk to employees in those concentrations.

Employee exposure monitoring should be performed to determine exposure levels.

* * *Section 4 - FIRST AID MEASURES* * *

Description of Necessary Measures

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

Skin
If adverse effects occur, wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse. Wash work clothes separately from other household clothing.
Eyes
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.

Ingestion
If swallowed, get immediate medical attention. Rinse mouth.

Most Important Symptoms/Effects

Acute
Respiratory tract irritation, skin irritation, eye irritation.

Delayed
Respiratory system damage, lung damage.

**Section 5 - FIRE FIGHTING MEASURES**

Suitable Extinguishing Media
Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media
None known.

Specific Hazards Arising from the Chemical
Negligible fire hazard.

Hazardous Combustion Products
Combustion: oxides of zinc

Fire Fighting Measures
Use extinguishing agents appropriate for surrounding fire. Stay upwind and keep out of low areas. Avoid inhalation of material or combustion by-products.

Special Protective Equipment and Precautions for Firefighters
Wear full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.

**Section 6 - ACCIDENTAL RELEASE MEASURES**

Personal Precautions, Protective Equipment and Emergency Procedures
Wear personal protective clothing and equipment, see Section 8. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up
Collect spilled material in appropriate container for disposal. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). If sweeping of a contaminated area is necessary, use a dust suppressant agent. Move containers away from spill to a safe area. Wet down area with water.
**Section 7 - HANDLING AND STORAGE**

Precautions for Safe Handling

Wash thoroughly after handling. Do not breathe dust. Do not eat, drink or smoke when using this product. Wear protective gloves/clothing and eye/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.

Conditions for Safe Storage, including any Incompatibilities

Store and handle in accordance with all current regulations and standards. Protect from physical damage.

**Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

Component Exposure Limits

Iron oxide (Fe2O3) (1309-37-1)

- ACGIH: 5 mg/m3 TWA (respirable fraction)
- NIOSH: 5 mg/m3 TWA (as Fe, dust and fume)
- OSHA (US): 10 mg/m3 TWA (fume); 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
- Mexico: 5 mg/m3 TWA LMPE-PPT
- IDLH (as Fe): 2500 mg/m3 (IDLH (as Fe, dust and fume))

Silicon Dioxide (7631-86-9)

- NIOSH: 6 mg/m3 TWA
- OSHA (US): 20 mcppf TWA; (80)/(% SiO2) mg/m3 TWA
- Mexico: 20 mg/m3 TWA LMPE-PPT

Calcium oxide (1305-78-8)

- ACGIH: 2 mg/m3 TWA
- NIOSH: 2 mg/m3 TWA
- OSHA (US): 5 mg/m3 TWA
- Mexico: 2 mg/m3 TWA LMPE-PPT

Aluminum oxide (1344-28-1)

- OSHA (US): 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
- Mexico: 10 mg/m3 TWA LMPE-PPT

Copper (7440-50-8)

- ACGIH: 0.2 mg/m3 TWA (fume)
- NIOSH: 1 mg/m3 TWA (dust and mist); 0.1 mg/m3 TWA (fume)
- OSHA (US): 0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)
- Mexico: 0.2 mg/m3 TWA LMPE-PPT (as Cu, fume); 1 mg/m3 TWA LMPE-PPT (as Cu, dust and mist)
- STEL [LMPE-CT] (as Cu, fume); 2 mg/m3 STEL [LMPE-CT] (as Cu, dust and mist)

Appropriate Engineering Controls

Provide local exhaust or process enclosure ventilation system. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Individual Protection Measures, such as Personal Protective Equipment

Eyes/Face Protection

Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
**Skin Protection**
Wear appropriate chemical resistant clothing.

**Glove Recommendations**
Wear appropriate chemical resistant gloves.

**Respiratory Protection**
Where dust or vapor concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator is required.

---

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

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<thead>
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<th>Physical State:</th>
<th>Solid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color:</td>
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<tr>
<td>Odor:</td>
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<tr>
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</tr>
<tr>
<td>Boiling Point:</td>
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<tr>
<td>Decomposition:</td>
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<td>OSHA Flammability Class:</td>
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<tr>
<td>UEL:</td>
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</tr>
<tr>
<td>Vapor Density (air = 1):</td>
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<tr>
<td>Specific Gravity (water = 1):</td>
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</tr>
<tr>
<td>Log KOW:</td>
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</tr>
<tr>
<td>Viscosity:</td>
<td>Not available</td>
</tr>
</tbody>
</table>

**Appearance:** black shiny solid

**Physical Form:** Solid

**Odor Threshold:** Not available

**Melting Point:** Not available

**Flash Point:** Non-flammable; non-explosive

**Evaporation Rate:** Not available

**Vapor Pressure:** Not applicable

**Density:** Not available

**Water Solubility:** Marginal

**Coeff. Water/Oil Dist:** Not available

---

**Other Property Information**
No additional information is available.

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**Section 10 - STABILITY AND REACTIVITY**

**Reactivity**
No reactivity hazard is expected.

**Chemical Stability**
Stable at normal temperatures and pressure.

**Possibility of Hazardous Reactions**
Will not polymerize.

**Conditions to Avoid**
Avoid accumulation of airborne dusts.

**Incompatible Materials**
none

**Hazardous Decomposition**
Combustion: miscellaneous decomposition products.

---

**Section 11 - TOXICOLOGICAL INFORMATION**

**Acute and Chronic Toxicity**

**Component Analysis - LD50/LC50**
The components of this material have been reviewed in various sources and the following endpoints are published:
- Iron oxide (Fe2O3) (1309-37-1)
  Oral LD50 Rat >10000 mg/kg
- Silicon Dioxide (7631-86-9)
  Oral LD50 Rat >5000 mg/kg; Dermal LD50 Rabbit >2000 mg/kg
Material Name: Iron Silicate

Calcium oxide (1305-78-8)
Oral LD50 Rat 500 mg/kg
Aluminum oxide (1344-28-1)
Oral LD50 Rat >5000 mg/kg

Information on Likely Routes of Exposure

Inhalation
Throat irritation, difficulty breathing.

Ingestion
Diarrhea, stomach pain, difficulty breathing

Skin Contact
Skin irritant

Eye Contact
Eye irritant

Immediate Effects
Eye and Skin Irritant, Shortness of Breath

Delayed Effects
Respiratory system damage

Medical Conditions Aggravated by Exposure
respiratory disorders, eye disorders, skin disorders

Irritation/Corrosivity Data
respiratory tract irritant, skin irritant, eye irritant,

Local Effects
Calcium oxide (1305-78-8)
Corrosive: inhalation, skin, eye, ingestion
Zinc (7440-66-6)
Irritant: inhalation, skin, eye

Respiratory Sensitization
No data available.

Dermal Sensitization
No data available.

Carcinogenicity
Available data characterizes components of this product as possible carcinogen hazards.

Component Carcinogenicity
Iron oxide (Fe2O3) (1309-37-1)
ACGIH: A4 - Not Classifiable as a Human Carcinogen
IARC: Supplement 7 [1987]; Monograph 1 [1972] (Group 3 (not classifiable))
DFG: Category 3B (could be carcinogenic for man, with the exception of non-bioavailable ferrous oxides)

Silicon Dioxide (7631-86-9)
IARC: Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable))

Mutagenic Data
No data available.

Reproductive Effects Data
No data available.

Tumorigenic Data
No data available.
Specific Target Organ Toxicity - Single Exposure
respiratory system, digestive system

Specific Target Organ Toxicity - Repeated Exposure
respiratory system, lungs

Aspiration Hazard
No data available.

**Section 12 - ECOLOGICAL INFORMATION**

Ecotoxicity

Component Analysis - Aquatic Toxicity

**Silicon Dioxide (7631-86-9)**
- Fish: 96 Hr LC50 Brachydanio rerio: 5000 mg/L [static]
- Algae: 72 Hr EC50 Pseudokirchneriella subcapitata: 440 mg/L
- Invertebrate: 48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L

**Calcium oxide (1305-78-8)**
- Fish: 96 Hr LC50 Cyprinus carpio: 1070 mg/L [static]

**Zinc (7440-66-6)**
- Fish: 96 Hr LC50 Pimephales promelas: 2.16 - 3.05 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 0.211 - 0.269 mg/L [semi-static]; 96 Hr LC50 Pimephales promelas: 2.66 mg/L [static]; 96 Hr LC50 Cyprinus carpio: 30 mg/L; 96 Hr LC50 Cyprinus carpio: 0.45 mg/L [semi-static]; 96 Hr LC50 Cyprinus carpio: 7.8 mg/L [static]; 96 Hr LC50 Lepomis macrochirus: 3.5 mg/L [static]; 96 Hr LC50 Oncorhynchus mykiss: 0.24 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 0.59 mg/L [semi-static]; 96 Hr LC50 Oncorhynchus mykiss: 0.41 mg/L [static]
- Algae: 96 Hr EC50 Pseudokirchneriella subcapitata: 0.11 - 0.271 mg/L [static]; 72 Hr EC50 Pseudokirchneriella subcapitata: 0.09 - 0.125 mg/L [static]
- Invertebrate: 48 Hr EC50 Daphnia magna: 0.139 - 0.908 mg/L [Static]

**Copper (7440-50-8)**
- Fish: 96 Hr LC50 Pimephales promelas: 0.0068 - 0.0156 mg/L; 96 Hr LC50 Pimephales promelas: <0.3 mg/L [static]; 96 Hr LC50 Pimephales promelas: 0.2 mg/L [flow-through]; 96 Hr LC50 Oncorhynchus mykiss: 0.052 mg/L [flow-through]; 96 Hr LC50 Lepomis macrochirus: 1.25 mg/L [static]; 96 Hr LC50 Cyprinus carpio: 0.3 mg/L [semi-static]; 96 Hr LC50 Cyprinus carpio: 0.8 mg/L [static]; 96 Hr LC50 Poecilia reticulata: 0.112 mg/L [flow-through]
- Algae: 72 Hr EC50 Pseudokirchneriella subcapitata: 0.0426 - 0.0535 mg/L [static]; 96 Hr EC50 Pseudokirchneriella subcapitata: 0.031 - 0.054 mg/L [static]
- Invertebrate: 48 Hr EC50 Daphnia magna: 0.03 mg/L [Static]

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

**Section 13 - DISPOSAL CONSIDERATIONS**

Disposal Methods
Dispose in accordance with all applicable regulations.
**Section 14 - TRANSPORT INFORMATION**

US DOT Information  
**Shipping Name:** Not Regulated

IMDG Information  
**Shipping Name:** Not Regulated

**Section 15 - REGULATORY INFORMATION**

Component Analysis

U.S. Federal Regulations  
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 311/312 (40 CFR 370.21), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

- **Aluminum oxide (1344-28-1)**  
  - **SARA 313:** 1.0 % de minimis concentration (fibrous forms)
  - **CERCLA:** 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

- **Zinc (7440-66-6)**  
  - **SARA 313:** 1.0 % de minimis concentration (dust or fume only)
  - **CERCLA:** 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

**SARA 311/312 Hazardous Categories**

- **Acute Health:** Yes  
  - **Chronic Health:** Yes  
  - **Fire:** No  
  - **Pressure:** No  
  - **Reactive:** No

U.S. State Regulations  
The following components appear on one or more of the following state hazardous substances lists:

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<thead>
<tr>
<th>Component</th>
<th>CAS</th>
<th>CA</th>
<th>MA</th>
<th>MN</th>
<th>NJ</th>
<th>PA</th>
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<tr>
<td>Iron oxide (Fe2O3)</td>
<td>1309-37-1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Silicon Dioxide</td>
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<td>Copper</td>
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Component Analysis - Inventory

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</tbody>
</table>
Safety Data Sheet

Material Name: Iron Silicate

* * *Section 16 - OTHER INFORMATION* * *

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Other Information
Disclaimer: Supplier gives no warranty whatsoever, including the warranties of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser shall determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental, consequential or any other damages arising out of the use or misuse of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights.

End of Sheet M-001