SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier Garnet Sand IG
Other Identification Garnet Andradite

Supplier Northern Filter Media Inc.
2509 Pettibone Ave
Muscatine, Iowa 52761

Recommended Use Water filtration
SDS No. 0010071
Emergency Phone No. 563-263-2711

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification: Carcinogenicity - Category 1A; Specific target organ toxicity (repeated exposure) - Category 1

GHS Label Elements:

Danger
May cause cancer or damage to respiratory system through prolonged or repeated exposure by inhalation.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>%</th>
<th>Other Identifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, amorphous</td>
<td>61790-53-2</td>
<td>30-40</td>
<td>SiO2</td>
</tr>
<tr>
<td>Iron Oxide</td>
<td>1309-37-1</td>
<td>25-35</td>
<td>Fe2O3</td>
</tr>
<tr>
<td>Calcium oxide, reacted</td>
<td>1305-78-8</td>
<td>20-30</td>
<td>CaO</td>
</tr>
<tr>
<td>Andradite</td>
<td>15078-96-3</td>
<td>&gt;99</td>
<td></td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>1-5</td>
<td>Al2O3</td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>1317-35-7</td>
<td>1-3</td>
<td>MnO</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>1309-48-4</td>
<td>1-3</td>
<td>MgO</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>13463-67-7</td>
<td>1-3</td>
<td>TiO2</td>
</tr>
<tr>
<td>Zirconium oxide</td>
<td>1314-23-4</td>
<td>1-3</td>
<td>ZrO2</td>
</tr>
<tr>
<td>Silica, crystalline quartz</td>
<td>14808-60-7</td>
<td>&lt;1</td>
<td>SiO2</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST-AID MEASURES

First-aid Measures:

**Inhalation**
Move to fresh air. If experiencing respiratory symptoms (e.g. coughing, shortness of breath, wheezing), call a Poison Center or doctor.

**Skin Contact**
Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes.

**Eye Contact**
Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open.
If eye irritation persists, get medical advice/attention.

**Ingestion**
Never give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting. Call a Poison Center or doctor if you feel ill.

**Most Important Symptoms and Effects, Acute and Delayed**
May irritate or cause inflammation or pulmonary fibrosis of the respiratory system.

**Immediate Medical Attention and Special Treatment**

**Target Organs**
Respiratory system
SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media
   Suitable Extinguishing Media
   Not combustible. Use extinguishing agent suitable for surrounding fire.

   Unsuitable Extinguishing Media
   Not applicable

Specific Hazards Arising from the Chemical
   Does not burn.
   This product presents no unusual hazards in a fire situation.
   Not known to generate any hazardous decomposition products in a fire.

Special Protective Equipment and Precautions for Fire-fighters
   Wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures
Use the personal protective equipment recommended in Section 8 of this safety data sheet. Review Section 7 (Handling) of this safety data sheet before proceeding with clean-up.

Environmental Precautions
Although this product is not classified as an environmentally hazardous material, large or frequent spills may cause potential problems.

Methods and Materials for Containment and Cleaning Up
Avoid generating dust. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid generating dusts. Wear personal protective equipment to avoid direct contact with this chemical.

Conditions for Safe Storage
Store in an area that is: dry.
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV® TWA</th>
<th>ACGIH TLV® STEL</th>
<th>OSHA PEL TWA</th>
<th>Ceiling 8-hr TWA</th>
<th>AIHA WEEL TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, amorphous</td>
<td></td>
<td></td>
<td>6 mg/m3*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron Oxide</td>
<td>5 mg/m3* A4</td>
<td></td>
<td>10 mg/m3*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcium oxide, reacted</td>
<td>2 mg/m3</td>
<td></td>
<td>5 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1 mg/m3* A4</td>
<td></td>
<td>5 mg/m3*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>0.2 mg/m3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>10 mg/m3* A4</td>
<td></td>
<td>15 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>10 mg/m3</td>
<td></td>
<td>15 mg/m3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zirconium oxide</td>
<td>10 mg/m3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silica, crystalline quartz</td>
<td>0.025 mg/m3* A2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andradite</td>
<td>5 mg/m3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Respirable total dust, OSHA (PEL) = 15 mg/m3 crystalline Silica, ACGIH, TWA, 0.10 mg/m 3 (ACGIH), 0.025 mg/m3, respirable.

Appropriate Engineering Controls
Do not allow product to accumulate in the air in work or storage areas, or in confined spaces. Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air.

Individual Protection Measures

Eye/Face Protection
Wear chemical safety goggles and face shield when contact is possible. Do not get in eyes.

Skin Protection
Avoid repeated or prolonged skin contact. Always wear insulated protective clothing, if contact is possible.

Respiratory Protection
Wear a NIOSH approved air-purifying respirator with N95 or higher rating filter(s). In conditions where the levels of airborne dust exceed the capabilities of the above referenced respirators, a supplied-air respirator may be necessary.
SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties
Appearance                     Grey - brown crystalline.
Odor                           Faint
Odor Threshold                 Not applicable
pH                             Not applicable
Melting Point/Freezing Point   Not applicable (freezing)
Initial Boiling Point/Range    Not applicable
Flash Point                    Not applicable
Evaporation Rate               Not applicable
Upper/Lower Flammability or    Not applicable (upper)
Explosive Limit                Not applicable (lower)
Vapor Pressure                 Not applicable
Vapor Density (air = 1)        Not applicable
Relative Density (water = 1)   Not available
Solubility                     Not applicable in water
Auto-ignition Temperature      Not applicable

Other Information
Physical State                 Solid

SECTION 10. STABILITY AND REACTIVITY

Reactivity                     Not reactive under normal conditions of use.
Chemical Stability             Normally stable.
Possibility of Hazardous Reactions Not applicable.
Conditions to Avoid            Generation of dust.
Incompatible Materials         Strong acids (e.g. hydrochloric acid).
                                Strong oxidizing agents (e.g. perchloric acid).
Hazardous Decomposition Products Not applicable.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure      Inhalation.
Acute Toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LC50</th>
<th>LD50 (oral)</th>
<th>LD50 (dermal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, amorphous</td>
<td>Not available</td>
<td>3,160 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Iron Oxide</td>
<td>Not available</td>
<td>&gt; 10,000 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Calcium oxide, reacted</td>
<td>Not available</td>
<td>&gt; 2,000 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>Not available</td>
<td>&gt; 5,000 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>Not available</td>
<td>810 mg/kg (mouse)</td>
<td>Not available</td>
</tr>
<tr>
<td>Titanium Dioxide</td>
<td>&gt; 6,820 mg/m3 (rat)</td>
<td>&gt; 25,000 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Zirconium oxide</td>
<td>Not available</td>
<td>&gt; 8,800 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Silica, crystalline quartz</td>
<td>Not available</td>
<td>22,500 mg/kg (rat)</td>
<td>Not available</td>
</tr>
<tr>
<td>Andradite</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>
Skin Corrosion/Irritation  
May cause irritation.

Serious Eye Damage/Irritation  
May cause irritation or injury due to mechanical abrasion.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation  
May irritate or cause inflammation or pulmonary fibrosis of the respiratory system.

Skin Absorption  
May cause irritation.

Ingestion  
May cause irritation or nausea.

Aspiration Hazard  
May be drawn into the lungs (aspirated) if swallowed or vomited.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Long term inhalation of dusts can attribute to risk of lung diseases. Inhalation of respirable silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Inhalation of silica dust may cause serious health effects which can include the following; Silicosis, Accelerated Silicosis, Acute Silicosis, Cancer, Autoimmune Disease, Tuberculosis and Kidney Disease.

Respiratory and/or Skin Sensitization  
May cause irritation on prolonged contact.

Carcinogenicity  
Crystalline Silica (quartz) has been determined as carcinogen.

Reproductive Toxicity

Development of Offspring  
There is no evidence this product contributes Teratogenicity or Embryotoxicity.

Sexual Function and Fertility  
No ingredients in this product are known to contribute to reproductive toxicity.

Germ Cell Mutagenicity  
Not known to be a mutagen.

Interactive Effects  
None known.

SECTION 12. ECOLOGICAL INFORMATION

Although this product is not classified as an environmentally hazardous material, large or frequent spills may cause potential problems.

Persistence and Degradability  
No ingredient of this product or its degradation products is known to be highly persistent.

Bioaccumulative Potential  
This product or its degradation products are not known to bioaccumulate.

Mobility in Soil  
If released into the environment, this product does not move through the soil.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods  
Contact local environmental authorities for approved disposal or recycling methods in your jurisdiction. The required hazard evaluation of the waste and compliance with the applicable hazardous waste laws are the responsibility of the user.

SECTION 14. TRANSPORT INFORMATION

SECTION 15. REGULATORY INFORMATION

US Safety, Health and Environmental Regulations
California Proposition 65: Crystalline silica (airborne particulates of respirable size) is known by the State of California to cause cancer.
Massachusetts Right to Know: Crystalline silica is listed
New Jersey Right to Know: Crystalline silica is listed
Pennsylvania Right to Know: Crystalline silica is listed
SARA 311/312: Hazard Categories for SARA Section 311/312 Reporting: Crystalline silica (Acute and Chronic Health Hazard)
SARA 313: Product contains no chemicals that are subject to Annual Release Reporting Requirements.

Custom Regulatory 1
IARC: Crystalline silica (quartz) is classified in IARC Group 1 Carcinogen

SECTION 16. OTHER INFORMATION

Key to Abbreviations
ACGIH® = American Conference of Governmental Industrial Hygienists
OSHA = US Occupational Safety and Health Administration
HSDB® = Hazardous Substances Data Bank

References


Disclaimer
To the best of our knowledge, the information contained herein is accurate. Although certain hazards are described herein, we can not guarantee that these are the only hazards that exist. Northern Filter Media, Inc. assumes no liability arising out of the use of this product by others.