MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name: THE ORIGINAL BLACK BEAUTY®
Version #: 01
Issue date: 11-30-2012
Revision date: -
Supersedes date: -
CAS #: 68476-96-0
Product code: Slag, coal
Product use: Abrasives and Roofing Products and Other Aggregate Uses.
Manufacturer/Supplier: Harsco
P.O. Box 0515, Camp Hill, PA 17001-0515
reedcs@harsco.com
Contact Person: Steve Stanislawczyk
717-506-4666
Emergency: 855-393-9889
Access code 13793

2. Hazards Identification

Physical state: Solid.
Appearance: Black granular solid.
Emergency overview: WARNING
Abrasive blasting agents may cause inflammation and pulmonary fibrosis. Dust may irritate the respiratory tract, skin and eyes.

OSHA regulatory status: This product is hazardous according to OSHA 29 CFR 1910.1200.

Potential health effects

Routes of exposure: Inhalation. Eye contact. Skin contact.
Eyes: Dust in the eyes will cause irritation. May cause redness and pain.
Skin: Dust may irritate skin.
Inhalation: Abrasive blasting agents may cause inflammation and pulmonary fibrosis. Dust may irritate throat and respiratory system and cause coughing.
Ingestion: Ingestion of dusts generated during working operations may cause nausea and vomiting.

Target organs: Eyes. Respiratory system.
Chronic effects: Frequent inhalation of fume/dust over a long period of time increases the risk of developing lung diseases.

Signs and symptoms: Irritation of nose and throat. Irritation of eyes and mucous membranes.

Potential environmental effects: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal, slag</td>
<td>68476-96-0</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constituents</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon dioxide</td>
<td>7631-86-9</td>
<td>41-53</td>
</tr>
<tr>
<td>Iron oxide</td>
<td>1309-37-1</td>
<td>7-31</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>17-25</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>3-15</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>1309-48-4</td>
<td>0-4</td>
</tr>
<tr>
<td>Potassium Oxide</td>
<td>12136-45-7</td>
<td>0-3</td>
</tr>
</tbody>
</table>
Constituents | CAS #  | Percent
--- | --- | ---
Titanium dioxide | 13463-67-7 | 0-2
Silicon dioxide, crystalline | 14808-60-7 | <0.1
Manganese | 7439-96-5 | 0-0.05
Beryllium | 7440-41-7 | 0-0.001
Cadmium | 7440-43-9 | 0-0.001

Composition comments
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures
- **Eye contact**: Do not rub eyes. Remove any contact lenses. Flush eyes thoroughly with water, taking care to rinse under eyelids. If irritation persists, continue flushing for 15 minutes, rinsing from time to time under eyelids. If discomfort continues, consult a physician.
- **Skin contact**: Contact with dust: Wash with soap and water. Get medical attention if irritation develops or persists.
- **Inhalation**: Move to fresh air. Get medical attention if discomfort persists.
- **Ingestion**: Rinse mouth thoroughly if dust is ingested. Do not induce vomiting. Get medical attention if any discomfort continues.

Notes to physician
Treat symptomatically.

General advice
Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties
The product is non-combustible.

Extinguishing media
- Suitable extinguishing media
  Use fire-extinguishing media appropriate for surrounding materials.
- Unsuitable extinguishing media
  None known.

Protection of firefighters
- Specific hazards arising from the chemical
  None known.
- Protective equipment and precautions for firefighters
  Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Move container from fire area if it can be done without risk. Cool containers with flooding quantities of water until well after fire is out.

6. Accidental Release Measures

Personal precautions
Avoid generation and spreading of dust. Avoid inhalation of dust and contact with skin and eyes. Wear suitable protective clothing. Use personal protection recommended in Section 8 of the MSDS.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for containment
Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

Methods for cleaning up
Collect dust using a vacuum cleaner equipped with HEPA filter. If not possible, gently moisten dust with water fog before it is collected with shovel, broom or the like. Avoid dust formation. After removal flush contaminated area thoroughly with water.

Other information
Never return spills to original containers for re-use.

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling
Avoid inhalation of dust and contact with skin and eyes. Use only with adequate ventilation. Use work methods which minimize dust production. Keep the workplace clean. Observe good industrial hygiene practices.

Storage
Keep container tightly closed. Store away from incompatible materials.
### 8. Exposure Controls / Personal Protection

#### Occupational exposure limits

**US. ACGIH Threshold Limit Values**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.00005 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.002 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.005 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>Ceiling</td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Total particulate.</td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total particulate.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

**US. OSHA Table Z-2 (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>Ceiling</td>
<td>0.005 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>Ceiling</td>
<td>0.6 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.3 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Fume.</td>
</tr>
</tbody>
</table>

**US. OSHA Table Z-3 (29 CFR 1910.1000)**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.3 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>0.8 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 mppcf</td>
<td>Respirable.</td>
</tr>
</tbody>
</table>
### Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>STEL</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable particles.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable.</td>
</tr>
</tbody>
</table>

### Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>STEL</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>STEL</td>
<td>10 mg/m³</td>
<td>Respirable dust and/or fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>Respirable dust and/or fume.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Inhalable fume.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>3 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>4 mg/m³</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.5 mg/m³</td>
<td>Respirable.</td>
</tr>
</tbody>
</table>

### Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>STEL</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>
### Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

### Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.00015 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Dust and fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>6 mg/m³</td>
<td>Respirable dust.</td>
</tr>
</tbody>
</table>

### Mexico. Occupational Exposure Limit Values

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>STEL</td>
<td>3 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>STEL</td>
<td>20 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>STEL</td>
<td>10 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

### Engineering controls

Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

### Personal protective equipment

#### Eye / face protection

Wear safety glasses with side shields. Use tight fitting goggles if dust is generated.

#### Skin protection

Use protective gloves. Wear suitable protective clothing.
Respiratory protection
Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

General hygiene considerations
Wash hands after handling. Routinely wash work clothing and protective equipment to remove contaminants. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

**Appearance**
Black granular solid.

**Physical state**
Solid.

**Form**
Solid.

**Color**
Black.

**Odor**
Odorless.

**Odor threshold**
Not available.

**pH**
Not available.

**Vapor pressure**
Not available.

**Vapor density**
Not available.

**Boiling point**
Not available.

**Melting point/Freezing point**
> 2500 °F (> 1371.1 °C)

**Solubility (water)**
Negligible.

**Specific gravity**
2.7

**Flash point**
Not available.

**Flammability limits in air, upper, % by volume**
Not available.

**Flammability limits in air, lower, % by volume**
Not available.

**Auto-ignition temperature**
Not available.

10. Chemical Stability & Reactivity Information

**Chemical stability**
The product is stable and non reactive under normal conditions of use, storage and transport.

**Conditions to avoid**
None known.

**Incompatible materials**
Strong acids.

**Hazardous decomposition products**
None known.

**Possibility of hazardous reactions**
Hazardous polymerization does not occur.

11. Toxicological Information

**Toxicological data**

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>Rat</td>
<td>0.025 mg/l, 900 Days</td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rat</td>
<td>225 mg/kg</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Mouse</td>
<td>&gt; 15000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Rat</td>
<td>&gt; 22500 mg/kg</td>
</tr>
</tbody>
</table>

**Sensitization**
Not a skin or respiratory sensitizer.

**ACGIH Sensitizer**
Beryllium (CAS 7440-41-7)
Sensitizer.
Acute effects
Abrasive blasting agents may cause inflammation and pulmonary fibrosis. Ingestion of dusts generated during working operations may cause nausea and vomiting.

Local effects
May cause eye, skin and respiratory tract irritation.

US. ACGIH Threshold Limit Values
Beryllium (CAS 7440-41-7) Can be absorbed through the skin.

Chronic effects
Frequent inhalation of fume/dust over a long period of time increases the risk of developing lung diseases.

Carcinogenicity

ACGIH Carcinogens
- Aluminum oxide (CAS 1344-28-1) A4 Not classifiable as a human carcinogen.
- Cadmium (CAS 7440-43-9) A2 Suspected human carcinogen.
- Silicon dioxide, crystalline (CAS 14808-60-7) A2 Suspected human carcinogen.
- Titanium dioxide (CAS 13463-67-7) A4 Not classifiable as a human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity
- Beryllium (CAS 7440-41-7) 1 Carcinogenic to humans.
- Cadmium (CAS 7440-43-9) 1 Carcinogenic to humans.
- Iron oxide (CAS 1309-37-1) 3 Not classifiable as to carcinogenicity to humans.
- Silicon dioxide (CAS 7631-86-9) 3 Not classifiable as to carcinogenicity to humans.
- Silicon dioxide, crystalline (CAS 14808-60-7) 1 Carcinogenic to humans.
- Titanium dioxide (CAS 13463-67-7) 2B Possibly carcinogenic to humans.

US NTP Report on Carcinogens: Known carcinogen
- Beryllium (CAS 7440-41-7) Known To Be Human Carcinogen.
- Cadmium (CAS 7440-43-9) Known To Be Human Carcinogen.
- Silicon dioxide, crystalline (CAS 14808-60-7) Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
- Cadmium (CAS 7440-43-9) Cancer hazard.

Mutagenicity
No data available.

Reproductive effects
No data available.

Symptoms and target organs
Irritation of nose and throat. Irritation of eyes and mucous membranes. May cause respiratory tract irritation. Shortness of breath.

12. Ecological Information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Environmental effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence and degradability
The product is not biodegradable.

Bioaccumulation / Accumulation
The product is not bioaccumulating.

13. Disposal Considerations

Waste codes
The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal instructions
Dispose in accordance with all applicable regulations.

Waste from residues / unused products
Dispose in accordance with all applicable regulations.

Contaminated packaging
Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT
Not regulated as a hazardous material by DOT.

IATA
Not regulated as dangerous goods.

IMDG
Not regulated as dangerous goods.
15. Regulatory Information

US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Beryllium (CAS 7440-41-7)
Cadmium (CAS 7440-43-9)
Manganese (CAS 7439-96-5)

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Aluminum oxide (CAS 1344-28-1) 1.0 %
Beryllium (CAS 7440-41-7) 0.1 %
Cadmium (CAS 7440-43-9) 0.1 %
Manganese (CAS 7439-96-5) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Aluminum oxide (CAS 1344-28-1) Listed.
Beryllium (CAS 7440-41-7) Listed.
Cadmium (CAS 7440-43-9) Listed.
Manganese (CAS 7439-96-5) Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)
None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)
No

Section 311/312 (40 CFR 370)
Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)
Not controlled

Canadian regulations
This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS status
Non-controlled

Inventory status
Country(s) or region
Australian Inventory of Chemical Substances (AICS)
Domestic Substances List (DSL)
Non-Domestic Substances List (NDSL)
Inventory of Existing Chemical Substances in China (IECSC)
European Inventory of Existing Commercial Chemical Substances (EINECS)
European List of Notified Chemical Substances (ELINCS)
Inventory of Existing and New Chemical Substances (ENCS)
Existing Chemicals List (ECL)
New Zealand Inventory

On inventory (yes/no)*
No
Yes
No
No
Yes
No
No
Yes
No
No
Country(s) or region | Inventory name | On inventory (yes/no)*
--- | --- | ---
Philippines | Philippine Inventory of Chemicals and Chemical Substances (PICCS) | Yes
United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes

* A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

State regulations

WARNING: This product contains chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

**US** - California Hazardous Substances (Director's): Listed substance
- Aluminum oxide (CAS 1344-28-1)
- Beryllium (CAS 7440-41-7)
- Cadmium (CAS 7440-43-9)
- Calcium oxide (CAS 1305-78-8)
- Iron oxide (CAS 1309-37-1)
- Magnesium oxide (CAS 1309-48-4)
- Manganese (CAS 7439-96-5)
- Silicon dioxide (CAS 7631-86-9)

**US** - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
- Beryllium (CAS 7440-41-7)
- Cadmium (CAS 7440-43-9)
- Silicon dioxide, crystalline (CAS 14808-60-7)
- Titanium dioxide (CAS 13463-67-7)

**US** - California Proposition 65 - CRT: Listed date/Carcinogenic substance
- Silicon dioxide, crystalline (CAS 14808-60-7) Listed: October 1, 1988 Carcinogenic.

**US** - California Proposition 65 - CRT: Listed date/Developmental toxin
- Cadmium (CAS 7440-43-9) Listed: May 1, 1997 Developmental toxin.

**US** - California Proposition 65 - CRT: Listed date/Male reproductive toxin
- Cadmium (CAS 7440-43-9) Listed: May 1, 1997 Male reproductive toxin.

**US** - New Jersey RTK - Substances: Listed substance
- Aluminum oxide (CAS 1344-28-1)
- Beryllium (CAS 7440-41-7)
- Cadmium (CAS 7440-43-9)
- Calcium oxide (CAS 1305-78-8)
- Iron oxide (CAS 1309-37-1)
- Magnesium oxide (CAS 1309-48-4)
- Manganese (CAS 7439-96-5)
- Potassium Oxide (CAS 12136-45-7)
- Silicon dioxide (CAS 7631-86-9)
- Silicon dioxide, crystalline (CAS 14808-60-7)
- Titanium dioxide (CAS 13463-67-7)

**US** - Pennsylvania RTK - Hazardous Substances: All compounds of this substance are considered environmental hazards
- Beryllium (CAS 7440-41-7) LISTED
- Cadmium (CAS 7440-43-9) LISTED
- Manganese (CAS 7439-96-5) LISTED

**US** - Pennsylvania RTK - Hazardous Substances: Special hazard
- Beryllium (CAS 7440-41-7) Special hazard.
- Cadmium (CAS 7440-43-9) Special hazard.

**US. Massachusetts RTK - Substance List**
- Aluminum oxide (CAS 1344-28-1) Listed.
- Beryllium (CAS 7440-41-7) Listed.
- Cadmium (CAS 7440-43-9) Listed.
- Calcium oxide (CAS 1305-78-8) Listed.
- Magnesium oxide (CAS 1309-48-4) Listed.
- Manganese (CAS 7439-96-5) Listed.
- Silicon dioxide (CAS 7631-86-9) Listed.
- Silicon dioxide, crystalline (CAS 14808-60-7) Listed.
- Titanium dioxide (CAS 13463-67-7) Listed.
US. New Jersey Worker and Community Right-to-Know Act

- Aluminum oxide (CAS 1344-28-1)  500 LBS
- Beryllium (CAS 7440-41-7)  500 LBS
- Cadmium (CAS 7440-43-9)  500 LBS
- Manganese (CAS 7439-96-5)  500 LBS

US. Pennsylvania RTK - Hazardous Substances

- Aluminum oxide (CAS 1344-28-1)  Listed
- Beryllium (CAS 7440-41-7)  Listed
- Cadmium (CAS 7440-43-9)  Listed
- Calcium oxide (CAS 1305-78-8)  Listed
- Iron oxide (CAS 1309-37-1)  Listed
- Magnesium oxide (CAS 1309-48-4)  Listed
- Manganese (CAS 7439-96-5)  Listed
- Silicon dioxide (CAS 7631-86-9)  Listed
- Silicon dioxide, crystalline (CAS 14808-60-7)  Listed
- Titanium dioxide (CAS 13463-67-7)  Listed

Mexico regulations

This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

Further information

HMIS® is a registered trade and service mark of the NPCA.
A HMIS® Health rating including an * indicates a chronic hazard.

HMIS® ratings

Health: 2*
Flammability: 0
Physical hazard: 0

NFPA ratings

Health: 1
Flammability: 0
Instability: 0

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available.