1. Product and Company Identification

Material name: BLACK BEAUTY® IRON Abrasive Blend

Version #: 01

Issue date: 13-March-2014

Revision date: -

Supersedes date: -

CAS #: Mixture

Product code: A blend of Iron Silicate and Coal Slag granules

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
717-506-4666

Emergency: 855-393-9889
Access code 13793

2. Hazards Identification

Physical state: Solid.

Appearance: Black, uniform composition glassily solidified.

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>Iron silicate</td>
<td>67711-92-6</td>
<td>50-100</td>
</tr>
<tr>
<td>Coal slag</td>
<td>68476-96-0</td>
<td>0-50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Constituents</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron oxide</td>
<td>1309-37-1</td>
<td>40-60</td>
</tr>
<tr>
<td>Silicon dioxide</td>
<td>7631-86-9</td>
<td>30-45</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>3-15</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>1305-78-8</td>
<td>2-10</td>
</tr>
<tr>
<td>Sulfur trioxide</td>
<td>7446-11-9</td>
<td>0-2</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>1309-48-4</td>
<td>0-2</td>
</tr>
<tr>
<td>Constituents</td>
<td>CAS #</td>
<td>Percent</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>Disodium Oxide</td>
<td>1313-59-3</td>
<td>0-2</td>
</tr>
<tr>
<td>Copper</td>
<td>7440-50-8</td>
<td>0-10</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Potassium Oxide</td>
<td>12136-45-7</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline</td>
<td>14808-60-7</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Manganese</td>
<td>7439-96-5</td>
<td>0-0.05</td>
</tr>
<tr>
<td>Cadmium</td>
<td>7440-43-9</td>
<td>0-0.001</td>
</tr>
<tr>
<td>Lead</td>
<td>7439-92-1</td>
<td>0-0.001</td>
</tr>
<tr>
<td>Beryllium</td>
<td>7440-41-7</td>
<td>0-0.001</td>
</tr>
<tr>
<td>Arsenic</td>
<td>7440-38-2</td>
<td>0-0.1</td>
</tr>
</tbody>
</table>

**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.

**General fire hazards**
The product is non-combustible.

### 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>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.00005 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.02 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Copper (CAS 7440-50-8)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td>10 mg/m³</td>
<td></td>
<td></td>
<td>Fume.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>5 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>

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

<table>
<thead>
<tr>
<th>Constituents</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.005 mg/m³</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>TWA</td>
<td>0.01 mg/m³</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>Copper (CAS 7440-50-8)</td>
<td>PEL</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td>0.1 mg/m³</td>
<td>Fume.</td>
<td></td>
<td></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>Magnesium oxide (CAS 1309-48-4)</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>Total particulate.</td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>Respirable fraction.</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>
<tr>
<td>10 mg/m³</td>
<td>Fume.</td>
<td></td>
<td></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>Cadmium (CAS 7440-43-9)</td>
<td>Ceiling</td>
<td>0.6 mg/m³</td>
<td>Dust.</td>
</tr>
<tr>
<td>0.3 mg/m³</td>
<td>Fume.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>Dust.</td>
<td></td>
</tr>
<tr>
<td>0.1 mg/m³</td>
<td>Fume.</td>
<td></td>
<td></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></td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td></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></td>
<td></td>
<td>0.1 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 millions of particle</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>0.8 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20 mppcf</td>
<td></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>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<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>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>Copper (CAS 7440-50-8)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</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>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></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>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<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>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>Copper (CAS 7440-50-8)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
<td>Fume.</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>Magnesium oxide (CAS 1309-48-4)</td>
<td>STEL</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Respirable dust and/or fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 mg/m³</td>
<td>Respirable dust and/or fume.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³</td>
<td>Inhalable fume.</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>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>4 mg/m³</td>
<td>Total</td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>1.5 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>STEL</td>
<td>1 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10 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>TWA</td>
<td>3 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Total dust.</td>
</tr>
</tbody>
</table>

### Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

<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>0.01 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.00005 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Inhalable fraction.</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline</td>
<td>TWA</td>
<td>0.02 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>(CAS 14808-60-7)</td>
<td></td>
<td>0.025 mg/m³</td>
<td>Respirable fraction.</td>
</tr>
<tr>
<td>Copper (CAS 7440-50-8)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</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>Inhalable fraction.</td>
</tr>
<tr>
<td>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 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>

### 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>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>STEL</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>STEL</td>
<td>0.01 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Respirable.</td>
</tr>
<tr>
<td>(CAS 14808-60-7)</td>
<td></td>
<td>0.2 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Copper (CAS 7440-50-8)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Inhalable fraction.</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>Silicon dioxide (CAS 7631-86-9)</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>Constituents</td>
<td>Type</td>
<td>Value</td>
<td>Form</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>------</td>
<td>-----------</td>
<td>--------------------</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>

**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>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.05 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.00015 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>TWA</td>
<td>1 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>(CAS 14808-60-7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper (CAS 7440-50-8)</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>Fume.</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>Magnesium oxide (CAS 1309-48-4)</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>TWA</td>
<td>6 mg/m³</td>
<td>Respirable 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>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>TWA</td>
<td>10 mg/m³</td>
<td>Total 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>Cadmium (CAS 7440-43-9)</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>Total dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.002 mg/m³</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>TWA</td>
<td>0.15 mg/m³</td>
<td>Dust and fume.</td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>TWA</td>
<td>0.002 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>1 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, crystalline</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>(CAS 14808-60-7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copper (CAS 7440-50-8)</td>
<td>STEL</td>
<td>2 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>Dust and mist.</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>Fume.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>STEL</td>
<td>20 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>Calcium oxide (CAS 1305-78-8)</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td></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>
9. Physical & Chemical Properties

**Appearance**
Black, uniform composition glassily solidified.

**Physical state**
Solid.

**Form**
Uniform composition glassily solidified.

**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 (> 1371.11 °C)

**Solubility (water)**
Negligible.

**Specific gravity**
3.4 - 3.8

**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

**Sensitization**
Not a skin or respiratory 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.
Chronic effects

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

Carcinogenicity

ACGIH Carcinogens

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum oxide (CAS 1344-28-1)</td>
<td>A4 Not classifiable</td>
</tr>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>A1 Confirmed human</td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>A1 Confirmed human</td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>A2 Suspected human</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>A4 Not classifiable</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>A3 Confirmed animal</td>
</tr>
<tr>
<td>Magnesium oxide (CAS 1309-48-4)</td>
<td>A4 Not classifiable</td>
</tr>
<tr>
<td>Manganese (CAS 7439-96-5)</td>
<td>A4 Not classifiable</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>A2 Suspected human</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>A4 Not classifiable</td>
</tr>
</tbody>
</table>

IARC Monographs. Overall Evaluation of Carcinogenicity

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>1 Carcinogenic to humans.</td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>1 Carcinogenic to humans.</td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>1 Carcinogenic to humans.</td>
</tr>
<tr>
<td>Iron oxide (CAS 1309-37-1)</td>
<td>3 Not classifiable as to carcinogenicity to humans.</td>
</tr>
<tr>
<td>Lead (CAS 7439-92-1)</td>
<td>2B Possibly carcinogenic to humans.</td>
</tr>
<tr>
<td>Silicon dioxide (CAS 7631-86-9)</td>
<td>3 Not classifiable as to carcinogenicity to humans.</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>1 Carcinogenic to humans.</td>
</tr>
<tr>
<td>Titanium dioxide (CAS 13463-67-7)</td>
<td>2B Possibly carcinogenic to humans.</td>
</tr>
</tbody>
</table>

US NTP Report on Carcinogens: Known carcinogen

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>Known To Be Human Carcinogen.</td>
</tr>
<tr>
<td>Beryllium (CAS 7440-41-7)</td>
<td>Known To Be Human Carcinogen.</td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>Known To Be Human Carcinogen.</td>
</tr>
<tr>
<td>Silicon dioxide, crystalline (CAS 14808-60-7)</td>
<td>Known To Be Human Carcinogen.</td>
</tr>
</tbody>
</table>

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (CAS 7440-38-2)</td>
<td>Cancer</td>
</tr>
<tr>
<td>Cadmium (CAS 7440-43-9)</td>
<td>Cancer</td>
</tr>
</tbody>
</table>

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.

TDG
Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations
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
Arsenic (CAS 7440-38-2)
Beryllium (CAS 7440-41-7)
Cadmium (CAS 7440-43-9)
Lead (CAS 7439-92-1)
Manganese (CAS 7439-96-5)

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity
Sulfur trioxide (CAS 7446-11-9) 100 lbs

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity
Sulfur trioxide (CAS 7446-11-9) 100 lbs

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration
Aluminum oxide (CAS 1344-28-1) 1.0 %
Arsenic (CAS 7440-38-2) 0.1 %
Beryllium (CAS 7440-41-7) 0.1 %
Cadmium (CAS 7440-43-9) 0.1 %
Copper (CAS 7440-50-8) 1.0 %
Iron silicate (CAS 67711-92-6) 1.0 % N100
Lead (CAS 7439-92-1) 0.1 % Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.
Manganese (CAS 7439-96-5) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold
Lead (CAS 7439-92-1) 100 lbs

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance
Aluminum oxide (CAS 1344-28-1) Listed.
Arsenic (CAS 7440-38-2) Listed.
Beryllium (CAS 7440-41-7) Listed.
Cadmium (CAS 7440-43-9) Listed.
Copper (CAS 7440-50-8) Listed.
Iron silicate (CAS 67711-92-6) N100 Listed.
Lead (CAS 7439-92-1) 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 - No
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>Reportable quantity</th>
<th>Threshold planning quantity, lower value</th>
<th>Threshold planning quantity, upper value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur trioxide</td>
<td>7446-11-9</td>
<td>100</td>
<td>100 lbs</td>
<td></td>
</tr>
</tbody>
</table>

BLACK BEAUTY® IRON Abrasive Blend
CPH MSDS NA
914545 Version #: 01 Revision date: - Issue date: 13-March-2014
Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Priority pollutant
Safe Drinking Water Act (SDWA) 1.3 mg/l
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

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>No</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>No</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>No</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>No</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>No</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory 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) Listed.
- Arsenic (CAS 7440-38-2) Listed.
- Beryllium (CAS 7440-41-7) Listed.
- Cadmium (CAS 7440-43-9) Listed.
- Calcium oxide (CAS 1305-78-8) Listed.
- Copper (CAS 7440-50-8) Listed.
- Iron silicate (CAS 67711-92-6) Listed.
- Lead (CAS 7439-92-1) Listed.
- Magnesium oxide (CAS 1309-48-4) Listed.
- Manganese (CAS 7439-96-5) Listed.
- Silicon dioxide (CAS 7631-86-9) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
- Arsenic (CAS 7440-38-2) Listed.
- Beryllium (CAS 7440-41-7) Listed.
- Cadmium (CAS 7440-43-9) Listed.
- Lead (CAS 7439-92-1) Listed.
- Silicon dioxide, crystalline (CAS 14808-60-7) Listed.
- Titanium dioxide (CAS 13463-67-7) Listed.

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.
Lead (CAS 7439-92-1) Listed: February 27, 1987 Developmental toxin.
US - California Proposition 65 - CRT: Listed date/Female reproductive toxin
Lead (CAS 7439-92-1) Listed: February 27, 1987 Female reproductive toxin.
US - California Proposition 65 - CRT: Listed date/Male reproductive toxin
Cadmium (CAS 7440-43-9) Listed: May 1, 1997 Male reproductive toxin.
Lead (CAS 7439-92-1) Listed: February 27, 1987 Male reproductive toxin.
US. Massachusetts RTK - Substance List
Aluminum oxide (CAS 1344-28-1) Listed.
Arsenic (CAS 7440-38-2) Listed.
Beryllium (CAS 7440-41-7) Listed.
Cadmium (CAS 7440-43-9) Listed.
Calcium oxide (CAS 1305-78-8) Listed.
Copper (CAS 7440-50-8) Listed.
Lead (CAS 7439-92-1) 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.
Sulfur trioxide (CAS 7446-11-9) Listed.
Titanium dioxide (CAS 13463-67-7) Listed.
US. New Jersey Worker and Community Right-to-Know Act
Aluminum oxide (CAS 1344-28-1)
Arsenic (CAS 7440-38-2)
Beryllium (CAS 7440-41-7)
Cadmium (CAS 7440-43-9)
Calcium oxide (CAS 1305-78-8)
Copper (CAS 7440-50-8)
Iron oxide (CAS 1309-37-1)
Iron silicate (CAS 67711-92-6)
Lead (CAS 7439-92-1)
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)
Sulfur trioxide (CAS 7446-11-9)
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Sulfur trioxide (CAS 7446-11-9)
Titanium dioxide (CAS 13463-67-7)
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: 0
Flammability: 0
Physical hazard: 0
NFPA Ratings

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