SAFETY DATA SHEET
ZERO VALENT IRON

Revision Date 2/24/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name
Zero valent iron

Brand
Compass Remediation Chemicals

CAS-No.
7439-89-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses
Environmental remediation, water treatment, various

1.3 Details of the supplier of the safety data sheet

Company: Compass Remediation Chemicals
2028 East Ben White Blvd
#240-1974
Austin, TX 78741

Telephone
(866) 221-9167

1.4 Emergency telephone number

Emergency Phone #: CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Not classified as hazardous

2.2 GHS Label elements, including precautionary statements

Signal Word: not applicable
Hazard Statements: not applicable
Precautionary Statements: not applicable

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS –

Compass currently knows no risk to people or the environment from this class of product.

If dust is generated during the use of handling of these materials, extra precaution for eye protection (eye
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glasses or goggles), skin (gloves and long sleeves) and respiration (particle dust mask) are recommended. Spills of these materials may present a slip / fall hazard.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.70 – 2.5%</td>
</tr>
<tr>
<td>Si</td>
<td>&lt;2.0%</td>
</tr>
<tr>
<td>Mn</td>
<td>&lt;0.60%</td>
</tr>
<tr>
<td>S</td>
<td>&lt;0.12%</td>
</tr>
<tr>
<td>P</td>
<td>&lt;0.14%</td>
</tr>
<tr>
<td>Fe</td>
<td>Balance</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

4.1 Description of first aid measures

**General advice**
Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact**
Flush eyes with water as a precaution.

**If swallowed**
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
No data available

4.3 Indication of any immediate medical attention and special treatment needed
No data available
5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use Class D or other metal extinguishing agent.

5.2 Special hazards arising from the substance or mixture
These materials, as coarse particles, are non-flammable and do not react with water or other materials used for extinguishing fire. Fine metal dust may pose a risk of fire or explosion if accumulated, mixed and confined with an ignition source. When handling fine particles generated from this material, avoid creating dust clouds and ignition sources. May release iron oxide fume if involved in a fire.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge.
7.2  Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated
place. Store under inert gas. Moisture sensitive.
Keep in a dry place.

7.3  Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSOAL PROTECTION

8.1  Control parameters
Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2  Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Impermeable gloves, protective work clothing as necessary.

Respiratory Protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1  Information on basic physical and chemical properties
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Solid metallic particles</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Very low - may form rust</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>2.4 to 4.8 tonne/m$^3$</td>
</tr>
<tr>
<td>Specific Density</td>
<td>6.8 to 7.8 tonne/m$^3$</td>
</tr>
<tr>
<td>Color</td>
<td>Various - grey, lustrous metallic, black</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Very low at room temperature</td>
</tr>
<tr>
<td>Melting Temperature</td>
<td>1200$^\circ$C to 1500$^\circ$C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Acids, Oxygen, Strong oxidizing agents, Halogens, Phosphorus

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
No known severe toxicity. No known local effects. Nuisance dust exposure may cause eye and/or throat irritation.

12. ECOLOGICAL INFORMATION
Non-hazardous

13. DISPOSAL CONSIDERATIONS
Waste Disposal Method:

May be disposed as non-hazardous solid waste in compliance with local regulations. Special conditions may apply if mixed with other material.

14. TRANSPORT INFORMATION

Shipping Regulations: Not regulated
UN Number: N/A
UN Proper Shipping Name: N/A
Transport Hazard Class: N/A
Packing Group: N/A
Marine Pollutant: No

15. REGULATORY INFORMATION

None apply

16. OTHER INFORMATION

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Compass Remediation Chemicals and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

Version: 1.1 Revision Date: 2/4/2017