1. **Product and Company Identification**

Company
Chemical Store Inc.
1059 Main Avenue
Clifton, NJ 07011, USA

24 Hour Emergency Response Information. CHEMTREC: 1-800-424-9300

Molecular formula: FE (TRACES OF C, N, AND O)
Chemical family: metal powder
Synonyms: CARBONYL IRON POWDER, Zero Valent Iron Microspheres
Also applies to iron powders finer than 325 mesh

2. **Hazards Identification**

**Emergency overview**

CAUTION:
INHALATION OF DUSTS MAY CAUSE PNEUMOCONIOSIS.
MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
CAUSES SKIN URNS. CAUSES EYE BURNS.
Use with local exhaust ventilation.
Wear a NIOSH-certified (or equivalent) particulate respirator. Wear NIOSH-certified chemical goggles.
Wear protective clothing.

**Potential health effects**

**Primary routes of exposure:**
Routes of entry for solids and liquids include eye and skin contact, ingestion and inhalation.
Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

**Irritation / corrosion:** Irritating to eyes and skin.

3. **Composition / Information on Ingredients**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Content (W/W)</th>
<th>Chemical name</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>&gt;= 97.8 %</td>
<td>Carbonyl iron powder</td>
</tr>
<tr>
<td>7782-44-7</td>
<td>&lt;= 0.9 %</td>
<td>Oxygen</td>
</tr>
<tr>
<td>7631-86-9</td>
<td>0.1 %</td>
<td>Silicon dioxide</td>
</tr>
<tr>
<td>7727-37-9</td>
<td>&lt;=0.9%</td>
<td>Nitrogen</td>
</tr>
<tr>
<td>7440-44-0</td>
<td>&lt;=0.9%</td>
<td>Carbon</td>
</tr>
</tbody>
</table>

4. **First-Aid Measures**

**If inhaled:** Keep patient calm, remove to fresh air. Assist in breathing if necessary. Consult a physician.

**If on skin:** Wash thoroughly with soap and water. If irritation develops, seek medical attention.

**If in eyes:** Wash affected eyes for at least 15 minutes under running water with eyelids held open. If irritation develops, seek medical attention.

**If swallowed:** Rinse mouth and then drink plenty of water. Seek medical attention.
5. Fire-Fighting Measures

Flash point: not applicable
Autoignition: > 150 °C
Lower explosion limit: (20 °C, 1 bar)

Suitable extinguishing media: water spray

Unsuitable extinguishing media for safety reasons: carbon dioxide

Additional information:
Avoid whirling up the material/product because of the danger of dust explosion.

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions: Avoid dust formation. Use personal protective clothing.

Environmental precautions:
This product is not regulated by RCRA. This product is not regulated by CERCLA ('Superfund').

Cleanup:
Do not vacuum up powder.
For large amounts: Dampen, pick up mechanically and dispose of. For residues: Dampen, pick up mechanically and dispose of.

7. Handling and Storage

Handling

General advice:
Handle in accordance with good industrial hygiene and safety practice. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:
Fine dust of the product is capable of dust explosion. Avoid all sources of ignition: heat, sparks, open flame. Electrostatic discharge may cause ignition. Ground all transfer equipment properly to prevent electrostatic discharge.

Storage

Storage incompatibility:
General advice: Segregate from acids. Segregate from oxidants.

Storage stability:
Protect against moisture.
8. Exposure Controls and Personal Protection

**Advice on system design:** Provide local exhaust ventilation to maintain recommended P.E.L.

**Personal protective equipment**

**Respiratory protection:** Wear a NIOSH-certified (or equivalent) particulate respirator. Do not exceed the maximum use concentration for the respirator facepiece/cartridge combination.

**Hand protection:** Chemical resistant protective gloves

**Eye protection:** Tightly fitting safety goggles (chemical goggles).

**General safety and hygiene measures:** Handle in accordance with good industrial hygiene and safety practice. Wearing of closed work clothing is recommended.

9. Physical and Chemical Properties

- **Form:** Powder
- **Density:** 7.8 g/cm³
- **Odor:** Odorless
- **Bulk Density:** 2,000 – 3,000 kg/m³
- **Color:** Gray
- **Solubility in water:** insoluble
- **Vapor Pressure:** N/A
- **Molar Mass:** 55.85 g/mol

10. Stability and Reactivity

- **Minimum ignition energy:** 1 - 3 mJ, 1 bar, 20 °C, Inductivity: 1 mH (VDI 2263, sheet 1, 2.5)

- **Conditions to avoid:** Avoid all sources of ignition: heat, sparks, open flame. Avoid electro-static charge. Avoid dust formation.

- **Substances to avoid:** No data available.

- **Hazardous reactions:** Dust explosion hazard. Contact with acids liberates hydrogen gas.

- **Decomposition products:** No hazardous decomposition products known.

- **Thermal decomposition:** No data available.

- **Corrosion to metals:** No corrosive effect on metal.

11. Toxicological information

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th>Information on: Carbonyl iron powder Assessment of acute toxicity: Virtually nontoxic after a single ingestion.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Information on: Carbonyl iron powder Type of value: LD50 Species: rat (male) Value: 9,860 mg/kg (OECD Guideline 401)</td>
</tr>
<tr>
<td>Repeated dose toxicity</td>
<td>Information on: Iron Information on: Iron Oxide</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Information on: Carbonyl iron powder No data available concerning carcinogenic effects.</td>
</tr>
</tbody>
</table>
12. Ecological Information

Aquatic toxicity
Information on: Carbonyl iron powder
Assessment of aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Fish
Information on: Carbonyl iron powder
Acute:
Study scientifically not justified.

13. Disposal considerations

Waste disposal of substance:
Dispose of in a licensed facility. Dispose of in accordance with national, state and local regulations.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
USDOT
Not classified as a dangerous good under transport regulations

Sea transport
IMDG
Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO
Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

OSHA hazard category: Skin and/or eye irritant; Chronic target organ effects reported

EPCRA 311/312 (Hazard categories): Chronic; Acute

State regulations

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<tr>
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<td>7631-86-9</td>
<td>Silicon dioxide</td>
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</tbody>
</table>
16. Other Information

NFPA Hazard codes:
Health: 1     Fire: 2     Reactivity: 0     Special:

HMIS III rating
Health: 1     Flammability: 2     Physical hazard: 0

NFPA and HMIS use a numbering scale ranging from 0 to 4 to indicate the degree of hazard. A value of zero means that the substance possesses essentially no hazard; a rating of four indicates extreme danger. Although similar, the two rating systems are intended for different purposes, and use different criteria. The NFPA system was developed to provide an on-the-spot alert to the hazards of a material, and their severity, to emergency responders. The HMIS system was designed to communicate workplace hazard information to employees who handle hazardous chemicals.

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Creation Date:
10/14/2013

Disclaimer/ Additional information:

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END OF DATA SHEET