1. Identification

Product identifier

Iron chips and powder

Substance name: Iron, powder
CAS No: 7439-89-6

Recommended use of the chemical and restrictions on use

Use of the substance/mixture

Test dust

Details of the supplier of the safety data sheet

Company name: Powder Technology Inc.
Street: 1300 Grey Fox Road
Place: USA-55112 Arden Hills, MN
Telephone: +1 952 894 -8737
e-mail: sales@powdertechnologyinc.com
Internet: http://www.powdertechnologyinc.com

Emergency phone number: +1 952 894 -8737

2. Hazard(s) identification

Classification of the chemical

29 CFR Part 1910.1200
Flammable solids: Flam. Sol. 2
Combustible Dust: Comb. Dust

Label elements

29 CFR Part 1910.1200
Signal word: Warning

Pictograms:

Hazard statements
Flammable solid

Precautionary statements
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Wear protective gloves/protective clothing/eye protection/face protection.
In case of fire: Use D -powder to extinguish.

Special labelling of certain mixtures
May form combustible dust concentrations in air.

Hazards not otherwise classified
No information available.

3. Composition/information on ingredients

Substances
Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Components</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>Iron, powder</td>
<td>100 %</td>
</tr>
</tbody>
</table>

4. First-aid measures

Description of first aid measures

General information
The powder is ferro-magnetic. A magnet may be used in the removal of powder residues from the eyes or on the skin. In all cases of doubt, or when symptoms persist, seek medical advice.

After inhalation
Provide fresh air. In case of irregular breathing or respiratory arrest provide artificial respiration. If experiencing respiratory symptoms: Call a doctor.

After contact with skin
Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.

After contact with eyes
Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. In case of eye irritation consult an ophthalmologist.

After ingestion
Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person or a person with cramps. Call a physician immediately.

Most important symptoms and effects, both acute and delayed
No information available.

Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Carbon dioxide (CO2), Foam, Extinguishing powder.
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media
Water.

Specific hazards arising from the chemical
Flammable. Dust can form an explosive mixture with air.
In case of fire: Metal oxide smoke, toxic.

Special protective equipment and precautions for fire-fighters
Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information
Knock down dust with water spray jet. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep away from sources of ignition - No smoking. Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety.
Environmental precautions
Avoid release to the environment.

Methods and material for containment and cleaning up
Take up mechanically. Take up dust-free and set down dust-free. Treat the recovered material as prescribed in the section on waste disposal.

Reference to other sections
Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

7. Handling and storage

Precautions for safe handling

Advice on safe handling
Provide adequate ventilation. Avoid dust formation. Do not breathe dust. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Remove persons to safety.

Advice on protection against fire and explosion
Avoid dust formation. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges. May form combustible dust concentrations in air.

Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels
Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Hints on joint storage
Do not store together with: Strong acid. Oxidising agent. Pyrophoric or self-heating substances.

Further information on storage conditions
Protect against: Humidity, Heat.

8. Exposure controls/personal protection

Control parameters

Exposure limits

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>f/cc</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Particles (insoluble or poorly soluble) not otherwise specified (inhalable fraction)</td>
<td></td>
<td></td>
<td></td>
<td>TWA (8 h)</td>
<td>ACGIH-2019</td>
</tr>
<tr>
<td>-</td>
<td>Particles (insoluble or poorly soluble) not otherwise specified (respirable fraction)</td>
<td></td>
<td></td>
<td></td>
<td>TWA (8 h)</td>
<td>ACGIH-2019</td>
</tr>
<tr>
<td>-</td>
<td>Particulates not Otherwise regulated (PNOR) Respirable fraction</td>
<td>529.5</td>
<td>5</td>
<td>TWA (8 h)</td>
<td>PEL</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Particulates not Otherwise regulated (PNOR) Total dust</td>
<td>1765</td>
<td>15</td>
<td>TWA (8 h)</td>
<td>PEL</td>
<td></td>
</tr>
</tbody>
</table>

Exposure controls

Appropriate engineering controls
Provide adequate ventilation as well as local exhaust at critical locations.

Protective and hygiene measures
Do not breathe dust. Avoid dust formation. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Avoid contact with skin, eyes and clothes.

Eye/face protection
Wear eye protection/face protection.
Suitable eye protection: Dust protection goggles.

**Hand protection**
Wear suitable gloves.
The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

**Skin protection**
Flame-retardant protective clothing. Wear anti-static footwear and clothing.

**Respiratory protection**
In case of inadequate ventilation wear respiratory protection. Respiratory protection necessary at:
Generation/formation of dust.
Suitable respiratory protective equipment: particulates filter device (DIN EN 143). Filtering device (full mask or mouthpiece) with filter: P 2 / P 3 , white.

**Environmental exposure controls**
Avoid release to the environment.

### 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state:</td>
</tr>
<tr>
<td>Color:</td>
</tr>
<tr>
<td>Odor:</td>
</tr>
<tr>
<td>pH-Value:</td>
</tr>
</tbody>
</table>

**Changes in the physical state**

| Melting point/freezing point: | not determined |
| Initial boiling point and boiling range: | 2861 °C |
| Flash point: | > 700 °C |

**Flammability**

| Solid: | not determined |
| Gas: | not applicable |

**Explosive properties**

Dust explosive, Dust explosion category: ST 1

| Lower explosion limits: | 125 g/m³ |
| Upper explosion limits: | not determined |
| Ignition temperature: | 370 °C |

**Auto-ignition temperature**

| Solid: | >700 °C |
| Gas: | not applicable |

**Decomposition temperature:**
not determined

**Oxidizing properties**
Not oxidising.

| Vapor pressure: | not determined |
| Density: | 7.86 g/cm³ |
| Water solubility: | practically insoluble |

**Solubility in other solvents**
not determined

| Partition coefficient: | not determined |
Safety Data Sheet
according to 29 CFR 1910.1200(g)
Iron chips and powder
Revision date: 06.04.2020

Viscosity / dynamic: not applicable
Viscosity / kinematic: not applicable
Vapor density: not determined
Evaporation rate: not determined

Other information
Solid content: 100,00 %
Odour threshold: not applicable

10. Stability and reactivity

Reactivity
Flammable, Ignition hazard.

Chemical stability
Stability: Stable
The product is stable under storage at normal ambient temperatures.

Possibility of hazardous reactions
Hazardous reactions: May occur
Dust can form an explosive mixture with air.

Conditions to avoid
Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Humidity, Heat.

Incompatible materials

Hazardous decomposition products
In case of fire: Metal oxide smoke, toxic.

11. Toxicological information

Information on toxicological effects

Route(s) of Entry
Inhalation, oral, Eye contact.

Acute toxicity
Based on available data, the classification criteria are not met.

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Components</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>7439-89-6</td>
<td>Iron, powder</td>
<td>oral</td>
<td>LD50 30000 mg/kg</td>
<td>Rat</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity
Based on available data, the classification criteria are not met.
Inhalation of dust may cause irritation of the respiratory system.

Sensitizing effects
Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.

Specific target organ toxicity (STOT) - single exposure
Based on available data, the classification criteria are not met.
Specific target organ toxicity (STOT) - repeated exposure
Based on available data, the classification criteria are not met.
Carcinogenicity (OSHA): Not listed.
Carcinogenicity (IARC): Not listed.
Carcinogenicity (NTP): Not listed.

Aspiration hazard
Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity
The product is not: Ecotoxic.

Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential
The product has not been tested.

Mobility in soil
The product has not been tested.

Other adverse effects
No information available.

Further information
Avoid release to the environment.

13. Disposal considerations

Waste treatment methods
Disposal recommendations
Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Contaminated packaging
Wash with plenty of water. Completely emptied packages can be recycled.

14. Transport information

US DOT 49 CFR 172.101

UN/ID number: UN 3089
Proper shipping name: Metal powders, flammable, n.o.s. (Iron, powder)
Transport hazard class(es): 4.1
Packing group: II
Hazard label: 4.1

Marine transport (IMDG)

UN number: UN 3089
UN proper shipping name: METAL POWDER, FLAMMABLE, N.O.S. (Iron, powder)
Transport hazard class(es): 4.1
Packing group: II
Hazard label: 4.1
Special Provisions: -
Limited quantity: 1 kg
Excepted quantity: E2
EmS: F-G, S-G
Segregation group: powdered metals
Air transport (ICAO-TI/IATA-DGR)

| UN number: | UN 3089 |
| UN proper shipping name: | METAL POWDER, FLAMMABLE, N.O.S. (Iron, powder) |
| Transport hazard class(es): | 4.1 |
| Packing group: | II |
| Hazard label: | 4.1 |
| Special Provisions: | A3 A803 |
| Limited quantity Passenger: | 5 kg |
| Passenger LQ: | Y441 |
| Excepted quantity: | E2 |

Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

Special precautions for user

Warning: flammable solids!

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code  
not applicable

15. Regulatory information

U.S. Regulations

National Inventory TSCA  
CAS No. 7439-89-6: Yes.

National regulatory information  
SARA Section 311/312 Hazards:  
Iron, powder (7439-89-6): Fire hazard

State Regulations

Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65, State of California)  
This product can not expose you to chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

16. Other information

Hazardous Materials Information Label (HMIS)

Health: 1  
Flammability: 2  
Physical Hazard: 2

NFPA Hazard Ratings

Health: 1  
Flammability: 2  
Reactivity: 2  
Unique Hazard: W  
Revision date: 06.04.2020  
Revision No: 1,00

Abbreviations and acronyms

ACGIH: American Conference of Governmental Industrial Hygienists
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.