SAFETY DATA SHEET

1. Identification

Product Name: Iron, powder

Cat No.: AC197810000; AC197810020; AC197810050; AC197810100; AC197811000; AC197815000

Synonyms: No information available

Recommended Use: Laboratory chemicals.

Uses advised against: No information available

Details of the supplier of the safety data sheet

Company: Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name: Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information US call: 001-800-ACROS-01
Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100 /
Europe: +32 14 57 52 99
CHEMTREC Tel. No.US: 001-800-424-9300 /
Europe: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Self-heating substances and mixtures
Combustible dust

Category 1
Yes

Label Elements

Signal Word
Danger

Hazard Statements
May form combustible dust concentrations in air
Self-heating; may catch fire

Precautionary Statements
Prevention

Revision Date: 29-Apr-2015
Keep cool. Protect from sunlight
Wear protective gloves/protective clothing/eye protection/face protection

Storage
Maintain air gap between stacks/pallets
Store away from other materials

Hazards not otherwise classified (HNOC)
May form combustible dust concentrations in air

### 3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron, powder, reduced</td>
<td>7439-89-6</td>
<td>&gt; 95</td>
</tr>
</tbody>
</table>

### 4. First-aid measures

**General Advice**
If symptoms persist, call a physician.

**Eye Contact**
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

**Skin Contact**
Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

**Inhalation**
Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

**Ingestion**
Get medical attention if symptoms occur. Clean mouth with water and drink afterwards plenty of water.

**Most important symptoms/effects** None reasonably foreseeable.

**Notes to Physician**
Treat symptomatically

### 5. Fire-fighting measures

**Unsuitable Extinguishing Media**
DO NOT USE WATER, FOAM OR CO2

**Flash Point**
No information available

**Method -**
No information available

**Autoignition Temperature**

**Explosion Limits**

- **Upper**
  - No data available

- **Lower**
  - No data available

**Sensitivity to Mechanical Impact**
No information available

**Sensitivity to Static Discharge**
No information available

**Specific Hazards Arising from the Chemical**
Risk of ignition. Dust can form an explosive mixture in air. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition. Self-heating; exposure to air may cause substance to self-heat without an energy supply.

**Hazardous Combustion Products**
Hydrogen

**Protective Equipment and Precautions for Firefighters**
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>1</td>
<td>N/A</td>
</tr>
</tbody>
</table>
6. Accidental release measures

Personal Precautions
Use personal protective equipment. Avoid dust formation. Ensure adequate ventilation.

Environmental Precautions
Should not be released into the environment. Do not flush into surface water or sanitary sewer system. See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

Storage
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines
This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Long sleeved clothing.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Powder Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Grey</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>1535 °C / 2795 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>3000 °C / 5432 °F @ 760 mmHg</td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>Upper: No data available, Lower: No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative Density</td>
<td>No information available</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
</tbody>
</table>
10. Stability and reactivity

Reactive Hazard  Yes

Stability  Moisture sensitive.

Conditions to Avoid  Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.

Incompatible Materials  Strong oxidizing agents, Acids, Fluorine, halogenated agents, Halogens, oxygen, nitriles, Aldehydes

Hazardous Decomposition Products  Hydrogen

Hazardous Polymerization  Hazardous polymerization does not occur.

Hazardous Reactions  None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information  See actual entry in RTECS for complete information.

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron, powder, reduced</td>
<td>30 g/kg</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Toxicologically Synergistic Products  No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation  No information available

Sensitization  No information available

Carcinogenicity

The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
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<tbody>
<tr>
<td>Iron, powder, reduced</td>
<td>7439-89-6</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects  No information available

Reproductive Effects  No information available.

Developmental Effects  No information available.

Teratogenicity  No information available.

STOT - single exposure  None known

STOT - repeated exposure  None known

Aspiration hazard  No information available

Symptoms / effects, both acute and delayed

Endocrine Disruptor Information  No information available

Other Adverse Effects  Tumorigenic effects have been reported in experimental animals. See actual entry in
12. Ecological information

Ecotoxicity
Do not empty into drains. Contains a substance which is: Harmful to aquatic organisms. The product contains following substances which are hazardous for the environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron, powder, reduced</td>
<td>Not listed</td>
<td>13.6 mg/L LC50 96 h</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Persistence and Degradability
Insoluble in water

Bioaccumulation/ Accumulation
No information available.

Mobility
Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
UN-No: UN3190
Proper Shipping Name: SELF-HEATING SOLID, INORGANIC, N.O.S.
Proper technical name: Iron, powder, reduced
Hazard Class: 4.2
Packing Group: II

TDG
UN-No: UN3190
Proper Shipping Name: SELF-HEATING SOLID, INORGANIC, N.O.S.
Hazard Class: 4.2
Packing Group: II

IATA
UN-No: UN3190
Proper Shipping Name: SELF-HEATING SOLID, INORGANIC, N.O.S.
Hazard Class: 4.2
Packing Group: II

IMDG/IMO
UN-No: UN3190
Proper Shipping Name: SELF-HEATING SOLID, INORGANIC, N.O.S.
Hazard Class: 4.2
Packing Group: II

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
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<tbody>
<tr>
<td>Iron, powder, reduced</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-096-4</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization
Acute Health Hazard Yes
Chronic Health Hazard No
Fire Hazard Yes
Sudden Release of Pressure Hazard No
Reactive Hazard Yes

Clean Water Act Not applicable
Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
B4 Flammable solid
F Dangerously reactive material

Revision Date 29-Apr-2015
16. Other information

<table>
<thead>
<tr>
<th>Prepared By</th>
<th>Regulatory Affairs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Thermo Fisher Scientific</td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:EMSDS.RA@thermofisher.com">EMSDS.RA@thermofisher.com</a></td>
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</table>

<table>
<thead>
<tr>
<th>Creation Date</th>
<th>12-Nov-2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision Date</td>
<td>29-Apr-2015</td>
</tr>
<tr>
<td>Print Date</td>
<td>29-Apr-2015</td>
</tr>
<tr>
<td>Revision Summary</td>
<td>This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)</td>
</tr>
</tbody>
</table>

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS