STANFORD
ADVANCED MATERIALS

Safety data sheet
Carbonyl Iron Powder CM

1. Substance/preparation and company identification

Company
Stanford Advanced Materials
23661 Birtcher Dr. Lake Forest,
CA 92630 USA

24 Hour Emergency Response Information
+1 (949) 407-8904

Molecular formula: FE (TRACES OF C, N AND O)
Synonyms: Carbonyl Iron Powders

2. Composition/information on ingredients

CAS Number	Content (W/W)	Chemical name
7439-89-6	>= 95.0 %	Carbonyl iron powder

3. Hazard identification

Emergency overview

CAUTION: MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
INHALATION OF DUSTS MAY CAUSE PNEUMOCONIOSIS.
INGESTION MAY CAUSE GASTRIC DISTURBANCES.
AVOID CREATING DUST.
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 liquified gases.

Acute toxicity:
No other known acute effects.

Potential environmental effects

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.

4. First-aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

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.

Note to physician
Symptoms: Overexposure may cause:, vomiting, acidosis, shock, bloody diarrhea, nausea

5. Fire-fighting measures

Autoignition:	> 150 °C	
Lower explosion limit:		(20 °C, 1 bar)
Flammability:	Highly flammable.	

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.

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

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: 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.

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

General safety and hygiene measures:
Wear protective clothing as necessary to minimize contact.

9. Physical and chemical properties

Form:	powder	
Odour:	odourless	
Colour:	grey	
Melting point:	1,535 °C	Literature data.
Boiling point:	2,735 °C	Literature data.
Density:	7.8 g/cm3	(20 °C) Literature data.
Bulk density:	2,500 - 3,500 kg/m3	
Solubility in water:		insoluble

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.

Corrosion to metals:
No corrosive effect on metal.

11. Toxicological information

Acute toxicity

Oral:
LD50/rat: > 5,000 mg/kg

Chronic toxicity

Carcinogenicity:
In the majority of the short term assays the substance caused no carcinogenic effects.

12. Ecological information

Environmental fate and transport

Biodegradation:
Evaluation: Inorganic product which cannot be eliminated from water by biological purification processes.
Can be eliminated mechanically.

Bioaccumulation:

The product will not be readily bioavailable due to its consistency and insolubility in water.
Accumulation in organisms is not to be expected.

Environmental toxicity

Acute and prolonged toxicity to fish:
DIN 38412 Part 15 static
golden orfe/LC50 (96 h): > 10,000 mg/l
Nominal concentration.

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

Hazard class:	4.1
Packing group:	III
ID number:	UN 3089
Hazard label:	4.1
Proper shipping name:	METAL POWDER, FLAMMABLE, N.O.S. (contains CARBONYL IRON POWDER)

Sea transport
IMDG

Hazard class:	4.1
Packing group:	III
ID number:	UN 3089
Hazard label:	4.1
Marine pollutant:	NO
Proper shipping name:	METAL POWDER, FLAMMABLE, N.O.S. contains (CARBONYL IRON POWDER)

Air transport
IATA/ICAO

Hazard class:	4.1
Packing group:	III
ID number:	UN 3089
Hazard label:	4.1
Proper shipping name:	METAL POWDER, FLAMMABLE, N.O.S. contains (CARBONYL IRON POWDER)

15. Regulatory information

Federal Regulations

Registration status:
TSCA, US released / listed

OSHA hazard category: Chronic target organ effects reported, Water Reactive

SARA hazard categories (EPCRA 311/312): Reactivity, Chronic

16. Other information

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

HMIS uses 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 high hazard.

Local contact information
sales@samaterials.com

IMPORTANT:
The information provided in 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text
END OF DATA SHEET