OCHNOLOGY SOLUTION PVT. LTD
Website: www.ochnology.com
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Material Safety Data Sheet (MSDS)

Pig Iron

Material: Pig Iron (Iron-Carbon Alloy) | Iron CAS No. 7439-89-6

1. Identification of the Substance and Supplier

Product Name	Pig Iron (Iron-Carbon Alloy)
Material Type	Crude iron alloy (Fe with C, Si, Mn, P, S)
Iron CAS No.	7439-89-6
Synonyms	Pig iron, foundry pig iron, basic pig iron, SG / nodular pig iron
Product Use	Foundry charge, steelmaking charge, ductile iron, specialty castings
Supplier	Ochnology Solution Pvt. Ltd., B-153, Sector-4 Defence Colony, Dehradun, Uttarakhand, India – 248001
Contact	projects@ochnology.com | bd@ochnology.com

2. Hazards Identification

GHS Classification: Pig iron in massive (ingot) form is not classified as hazardous. Hazards arise from dust / fines (combustible, iron-oxide fume on heating) and from molten metal during melting. Signal word: not classified (solid form).

- Pig iron in solid massive (ingot) form is not classified as hazardous under GHS
- Heavy ingots present a physical / mechanical injury hazard during handling
- Dust and fines (from cutting / grinding) may be combustible and irritating
- Melting generates intense heat, molten metal splash, and iron-oxide / metal fume
- Fume from melting may contain manganese and other metal oxides – control exposure

3. Composition / Information on Ingredients

Component	CAS No.	Concentration
Iron (Fe)	7439-89-6	>90%
Carbon (C)	7440-44-0	3.5 – 4.5%
Silicon (Si) / Manganese (Mn) / P / S	Various	Balance (grade dependent)

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4. First-Aid Measures

Inhalation: Not a hazard for solid material. For dust or melting fume, move to fresh air; seek medical attention if respiratory irritation or metal-fume fever symptoms occur.

Skin Contact: Solid material: wash any abrasions. Molten metal burns: cool with water, do NOT remove adhered metal, seek immediate medical attention.

Eye Contact: Remove dust/particles by rinsing with water. For hot-metal or fume exposure, rinse and seek medical attention.

Ingestion: Not a likely route for massive material. If fines are ingested, rinse mouth; seek medical advice if discomfort occurs.

5. Fire-Fighting Measures

- Solid pig iron is not flammable
- Fine iron dust / fines can be combustible and may form explosive dust clouds
- Use dry powder or dry sand on metal-dust fires; do NOT use water on molten metal
- Wear full protective equipment and SCBA when fighting fires involving metal dust / molten metal

6. Accidental Release Measures

- Solid ingots: recover and reuse; no special measures needed
- For fines / dust: avoid creating dust clouds; collect mechanically into containers
- Keep fines away from ignition sources and incompatible materials
- Wear appropriate PPE during clean-up of fines

7. Handling and Storage

- Use mechanical lifting aids and wear safety footwear / gloves – ingots are heavy
- Store in a dry area to minimise surface rusting
- Control dust and fines from any cutting / grinding; provide ventilation
- During melting, use proper foundry controls for heat, molten-metal splash, and fume

8. Exposure Controls / Personal Protection

- Iron oxide fume (as Fe): 5 mg/m^3 (8-hr TWA) – typical reference value for melting fume
- Manganese (fume / dust, as Mn): 0.2 mg/m^3 – typical reference value (relevant when melting)
- Provide local exhaust ventilation during melting and dust-generating operations
- Respiratory protection for fume / dust, eye protection, gloves, and heat-protective gear when melting

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9. Physical and Chemical Properties

Property	Value
Appearance	Grey / silvery metallic ingots (pigs)
Odour	Odourless
pH	Not applicable
Melting Point	Approx. 1,150 – 1,200°C (high-carbon iron)
Solubility in Water	Insoluble
Density	Approx. 7.0 – 7.3 g/cm^3

10. Stability and Reactivity

- Stable under normal conditions of storage and use
- Surface oxidises (rusts) slowly in moist air
- Fine dust may react with acids to release flammable hydrogen gas
- No hazardous polymerization occurs

11. Toxicological Information

- Solid pig iron is not toxic and poses negligible health risk in massive form
- Inhalation of iron-oxide fume from melting may cause metal-fume effects (e.g. siderosis on chronic exposure)
- Manganese fume over-exposure (during melting) can affect the nervous system
- Dust may cause mechanical irritation to eyes and respiratory tract

12. Ecological Information

- Solid iron is not classified as hazardous to the environment
- Iron is naturally abundant; low ecological concern in massive form
- Avoid release of large quantities of fines into the environment
- Recover and recycle metal where possible

13. Disposal Considerations

- Recover, reuse, or recycle as scrap metal – pig iron is fully recyclable
- Dispose of any fines / residues in accordance with local regulations
- Avoid uncontrolled disposal of metal fines

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14. Transport Information

UN Number	Not regulated
Proper Shipping Name	Not classified as dangerous goods (massive metal)
Hazard Class	Not applicable
Packing Group	Not applicable
Remarks	Solid metal ingots not regulated for transport; secure heavy loads appropriately

15. Regulatory Information

- Pig iron in solid form not classified as hazardous under GHS
- Iron-oxide and manganese fume (from melting) subject to occupational exposure regulations
- Iron listed on major chemical inventories (CAS 7439-89-6)

16. Other Information

This MSDS has been prepared in accordance with the GHS 16-section format. Pig iron in solid ingot form is low-hazard; the significant hazards arise during downstream melting (heat, molten-metal splash, iron-oxide / manganese fume) and from fine dust. Information relates to the specific material designated.