



chem-supply

Safety Data Sheet

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Infosafe No™	1CH38	Issue Date : February 2016	RE-ISSUED by CHEMSUPP
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Product Name : **IRON (Filings, Powder, Wire)**

Not classified as hazardous

1. Identification

GHS Product Identifier	IRON (Filings, Powder, Wire)		
Company Name	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)		
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia		
Telephone/Fax Number	Tel: (08) 8440-2000 Fax: (08) 8440-2001		
Recommended use of the chemical and restrictions on use	Powder metallurgy products, magnets, high-frequency cores, auto parts, catalyst in ammonia synthesis and medicine.		
Other Names	<u>Name</u>	<u>Product Code</u>	
	IRON Powder	IT013	
	IRON FILINGS Fine	IT014	
	IRON Wire	IT015	
Other Information	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday.		

Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Not classified as hazardous according to the Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004) 3rd Edition, Safe Work Australia. Not classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).
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3. Composition/information on ingredients

Chemical Characterization	Solid				
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	Iron	7439-89-6	100 %		

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. Give water to drink. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.
Skin	Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. If rapid recovery does not occur, obtain medical attention
First Aid Facilities	Maintain eyewash fountain and safety shower in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products	Oxides of iron.
Specific Methods	Material does not burn. This product in sufficient quantity and reduced particle size is capable of creating



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Precautions in connection with Fire a dust explosion.
Small fire: Use dry sand, powdered graphite, powdered salt, or powdered limestone. DO NOT use water, carbon dioxide, or dry chemical.
Large fire: Use water spray, fog or foam.
If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out.
Wear SCBA and chemical splash suit. Structural firefighter's uniform may provide limited protection.

Other Information The materials themselves are non-flammable but the fine metallic dust produced as a result of their breakdown or removed from metallic components during cleaning or surface treatments can present both fire and explosion hazards.

6. Accidental release measures

Spills & Disposal ELIMINATE all ignition sources (no smoking, flares, sparks or flames) within at least 25m. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.

Personal Precautions Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

Personal Protection Wear protective clothing specified for normal operations (see Section 8)

Clean-up Methods - Small Spillages Sweep up (avoid generating dust) and using clean non-sparking tools transfer to a clean, suitable, clearly labelled container for disposal in accordance with local regulations.

Environmental Precautions When iron ions flocculate in an alkaline medium, mechanical damage occurs in aquatic organisms. Due to the poor solubility of the product, no harmful effects on aquatic organisms are to be expected when handled and used with due care and attention.

7. Handling and storage

Precautions for Safe Handling Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. Take precautionary measures against static discharges. Use in well ventilated areas away from all ignition sources.

Conditions for safe storage, including any incompatibilities Store away from oxidizing agents. Keep container tightly closed and dry, away from direct sunlight. Store away from acids and halogenated materials. Store at room temperature (15 - 25 °C).

Corrosiveness Corrosive in water.

Unsuitable Materials Polystyrene.

8. Exposure controls/personal protection

Other Exposure Information A time weighted average (TWA) concentration for an 8 hour day, and 5 day week has not been established by Safe Work Australia for this product. There is a blanket limit of 10 mg/m³ for dusts when limits have not otherwise been established.

Appropriate engineering controls In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.

Respiratory Protection Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.

Eye Protection The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Hand Protection Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Plastic or rubber gloves.

Personal Protective Equipment Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.

Footwear Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection Flame retardant protective clothing. Clean clothing or protective clothing should be worn, preferably with



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Hygiene Measures	an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals. Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.
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9. Physical and chemical properties

Form	Solid
Appearance	Grey-black filings, grey powder or black-brown wire.
Odour	Odourless.
Melting Point	1300 - 1500 °C (depending upon composition)
Boiling Point	2730 - 2750 °C
Solubility in Water	Insoluble, can react with water.
Solubility in Organic Solvents	Insoluble.
Specific Gravity	7.86 @ 20 °C
Vapour Pressure	1 mm Hg @ 1787 °C
Volatile Component	0% @ 21 °C
Flammability	Non combustible material. Non flammable.
Auto-Ignition Temperature	100 °C - 700 °C - powder Minimum ignition temperature, iron dust cloud: 430 °C
Explosion Properties	Moderate explosion hazard in the form of a dust when exposed to heat, flame or static discharge.
Molecular Weight	55.85
Particle Size	+212 µm: 0%, +100 µm: 21%, +45 µm: 79%.
Other Information	Tensile strength: 30,000 psi Brinell hardness: 60 Magnetic permeability 88,400 gauss @ 25 °C Dissolves in nonoxidising acids (sulfuric and hydrochloric acid) and in cold dilute nitric acid.

10. Stability and reactivity

Chemical Stability	Stable to ignition temperature of 700C (1291F). Sensitive to moisture. Stable in dry air but readily oxidizes in moist air forming rust. Ultrafine (ca. 5 microns) powder forms are very unstable and can ignite spontaneously in air.
Conditions to Avoid	Heat, flame, ignition sources, dusting and incompatibles.
Incompatible Materials	Strong oxidizers, water (including humid atmospheres), acids, aldehydes, halogen-halogen compounds, hydrogen peroxide, hydrogen sulfide, nitrogen dioxide, nitril compounds, oils (heat). Solid or powdered iron ignites or explodes on contact with acetaldehyde, ammonium peroxodisulfate, chloroformamidinium, chloric acid, ammonium nitrate, halogens, dinitrogen tetraoxide, nitril fluoride, polystyrene, sodium acetylide, potassium dichromate and peroxyformic acid. Hot iron wire burns in chlorine gas. Chlorine trifluoride reacts with iron with incandescence.
Hazardous Decomposition Products	Toxic iron oxide fumes.
Possibility of hazardous reactions	Can react with water to liberate flammable hydrogen gas.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Toxicology Information	No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. If mishandled or overexposed to this product the following symptom or effects may occur.
Ingestion	After swallowing, symptoms may include nausea, vomiting and diarrhoea. Extremely large oral dosages may produce gastrointestinal disturbances. An overdose of iron may cause vomiting, abdominal pain, bloody diarrhoea, vomiting blood, lethargy, cardiac dysrhythmia, drop in blood pressure and shock. In severe cases, toxicity may progress and develop into an increase in acidity in the blood, bluish skin



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Inhalation	discoloration, fever, liver damage and possibly death. Irritation symptoms in the respiratory tract. Symptoms may include coughing and shortness of breath.
Skin	No adverse effects expected.
Eye	May cause irritation, transient irritation, redness and pain. Eye contact may cause conjunctivitis and deposition of iron particles can leave a 'rust ring' or brownish stain on the cornea.
Carcinogenicity	Has been found to cause cancer in laboratory animals. Iron and steel founding is evaluated in the IARC Monographs (Exposure circumstances) (Vol. 34, Suppl. 7; 1987) as Group 1: Carcinogenic to humans.
Reproductive Toxicity	Human [resp]: decline in semen parameters.
Chronic Effects	Long-term inhalation exposure to iron has resulted in mottling of the lungs, a condition referred to as siderosis. This is considered a benign pneumoconiosis and does not ordinarily cause significant physiological impairment. Ingestion of greater than 50 to 100 mg of iron per day may result in pathological iron deposition in body tissues. Repeated iron ingestion can produce cardiac toxicity.
Mutagenicity	No evidence of mutagenic effects.

12. Ecological information

Ecotoxicity	Quantitative data on the ecological effect of this product are not available.
Persistence and degradability	Methods for the determination of biodegradability are not applicable to inorganic substances.
Other Adverse Effects	When iron ions flocculate in an alkaline medium, mechanical damage occurs in aquatic organisms.
Information on Ecological Effects	Due to the poor solubility of the product, no harmful effects on aquatic organisms are to be expected when handled and used with due care and attention.

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.
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14. Transport information

Transport Information	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.
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15. Regulatory information

Poisons Schedule	Not Scheduled
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16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons No. 6', Commonwealth of Australia, February 2015. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Substances Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995)]'.
Contact Person/Point	Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on



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information provided in this data sheet or by our technical representatives.

Empirical Formula & Fe

Structural Formula

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