

Safety Data Sheet



1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FERROSILICON 30-90%

Other name(s): FESI 45/50; FESI 75/80; Ferro silicon LA.

Recommended Use of the Chemical and Restrictions on Use Additive to liquid metal in foundries for production of cast iron.

Supplier: Ixom Operations Pty Ltd
ABN: 51 600 546 512
Street Address: Level 8, 1 Nicholson Street
East Melbourne Victoria 3002
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: 1 800 033 111 (ALL HOURS)

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

Substances and mixtures, which in contact with water, emit flammable gases - Category 3

SIGNAL WORD: WARNING



Hazard Statement(s):

H261 In contact with water releases flammable gas.

Precautionary Statement(s):

Prevention:

P231+P232 Handle under inert gas. Protect from moisture.
P280 Wear protective gloves / protective clothing / eye protection / face protection.

Response:

P370+P378 In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Storage:

P402+P404 Store in a dry place. Store in a closed container.

Disposal:

P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

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Other Hazards:

AUH029 Contact with water liberates toxic gas.
AUH032 Contact with acids liberates very toxic gas.

Poisons Schedule (SUSMP): None allocated.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Ferrosilicon with >30% silicon	8049-17-0	30-<90%	H261
Other component(s)	-	to 100%	-

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:

Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discolouration of the skin (which suggests a lack of oxygen in the blood - cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. Apply artificial respiration if patient is not breathing. Seek immediate medical advice.

Skin Contact:

If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

Eye Contact:

If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.

Ingestion:

Rinse mouth with water. If swallowed, give a glass of water to drink. If vomiting occurs give further water. Seek medical advice.

Indication of immediate medical attention and special treatment needed:

Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Dry agent (carbon dioxide, dry chemical powder). Dry sand.

Unsuitable Extinguishing Media:

Water jet, water fog.

Hazchem or Emergency Action Code: 4Y

Specific hazards arising from the chemical:

Substance emits flammable gases when in contact with water.

Special protective equipment and precautions for fire-fighters:

Lump material is not combustible. When suspended in air, dust of iron-silicon alloys can be readily ignited. On burning will emit toxic fumes. The degree of combustibility in air is dependent upon particle size and quantity of dispersion, with hazard increasing with particle fineness. Avoid generating sparks or ignition sources in areas of high airborne dust levels or in areas with accumulated dust.

On contact with water emits flammable and toxic gases including hydrogen, phosphine and arsine. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:

Shut off all possible sources of ignition. Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:

Wear protective equipment to prevent skin and eye contact and breathing in vapours/dust. Work up wind or increase ventilation. Sweep or vacuum up, but avoid generating dust. Collect and seal in properly labelled containers. Use non-sparking tools. DO NOT spray with water.

7. HANDLING AND STORAGE

Precautions for safe handling:

Avoid skin and eye contact and breathing in dust. Avoid handling which leads to dust formation. May form flammable dust clouds in air. For precautions necessary refer to Safety Data Sheet "Dust Explosion Hazards". Take precautionary measures against static discharges. Apply inert atmosphere (eg. N₂) during crushing.

Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well ventilated place. Keep dry - reacts with water, may lead to drum rupture. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for spills.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for particulates and decomposition products:

Dusts not otherwise classified: 8hr TWA = 10 mg/m³

Arsine: 8hr TWA = 0.16 mg/m³ (0.05 ppm)

Phosphine: 8hr TWA = 0.42 mg/m³ (0.3 ppm), 15 min STEL = 1.4 mg/m³ (1 ppm)

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As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

STEL (Short Term Exposure Limit) - the airborne concentration of a particular substance calculated as a time-weighted average over 15 minutes, which should not be exceeded at any time during a normal eight hour work day. According to current knowledge this concentration should neither impair the health of, nor cause undue discomfort to, nearly all workers.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls:

Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES, DUST MASK.



Wear overalls, safety glasses and impervious gloves. Avoid generating and inhaling dusts. If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Solid
Colour:	Black or Grey
Odour:	Odourless
Solubility:	Reacts with water.
Specific Gravity:	2.5-7.3
Relative Vapour Density (air=1):	Not available
Vapour Pressure (20 °C):	Not available
Flash Point (°C):	Not applicable

Product Name: FERROSILICON 30-90%
Substance No: 000000014389

Issued: 23/04/2019
Version: 8

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Flammability Limits (%): Not available
Autoignition Temperature (°C): >400
Melting Point/Range (°C): 1220-1400
pH: Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Reacts with water.

Chemical stability: No information available.

Possibility of hazardous reactions: Highly flammable hydrogen gas and the highly flammable and toxic gases phosphine and arsine may be formed if the product gets in contact with moisture, acids, or bases. A reaction with hydrofluoric acid or nitric acid leads to the formation of toxic gases such as silicon tetrafluoride or nitrous gases. Wet product will form highly flammable hydrogen gas if added to molten metal, due to decomposition of water. Addition of wet material to molten metal may cause explosions. Dust explosion hazard.

Conditions to avoid: Avoid exposure to moisture. Avoid exposure to humidity. Avoid dust generation.

Incompatible materials: Incompatible with water , acids , bases .

Hazardous decomposition products: Hydrogen gas if wetted.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion: Swallowing can result in nausea, vomiting, diarrhoea, and abdominal pain.

Eye contact: May be an eye irritant. Exposure to the dust may cause discomfort due to particulate nature. May cause physical irritation to the eyes.

Skin contact: Contact with skin may result in irritation.

Inhalation: Breathing in dust may result in respiratory irritation. The vapour or smoke generated on contact with water, acids or alkalis is highly toxic. Breathing in high concentrations may result in headache, vomiting, irritation to the respiratory tract and central nervous system effects.

Acute toxicity: No LD50 data available for the product. However, for the major constituent:
Dermal LD50 (rabbit): >20000 mg/kg.

Respiratory or skin sensitisation: No information available.

Chronic effects: Not listed as carcinogenic according to the International Agency for Research on Cancer (IARC).

Aspiration hazard: No information available.

12. ECOLOGICAL INFORMATION

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Ecotoxicity	Avoid contaminating waterways.
Persistence/degradability:	No information available.
Bioaccumulative potential:	No information available.
Mobility in soil:	No information available.

13. DISPOSAL CONSIDERATIONS

Disposal methods:

Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.



UN No:	1408
Transport Hazard Class:	4.3 Dangerous When Wet
Subrisk 1:	6.1 Toxic
Packing Group:	III
Proper Shipping Name or Technical Name:	FERROSILICON
Hazchem or Emergency Action Code:	4Y

Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No:	1408
Transport Hazard Class:	4.3 Dangerous When Wet
Subrisk 1:	6.1 Toxic
Packing Group:	III
Proper Shipping Name or Technical Name:	FERROSILICON

IMDG EMS Fire:	F-G
IMDG EMS Spill:	S-N

Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No:	1408
Transport Hazard Class:	4.3 Dangerous When Wet
Subrisk 1:	6.1 Toxic
Packing Group:	III

Product Name: FERROSILICON 30-90%
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Proper Shipping Name or
Technical Name: FERROSILICON

15. REGULATORY INFORMATION

Classification:

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

Substances and mixtures, which in contact with water, emit flammable gases - Category 3

Hazard Statement(s):

H261 In contact with water releases flammable gas.

Poisons Schedule (SUSMP): None allocated.

All the constituents of this material are listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Supplier Safety Data Sheet; 10/ 2017.

Reason(s) for Issue:

5 Yearly Revised Primary SDS

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.