

Material Safety Data Sheet

SORELMETAL-R



Section 1. Chemical product and company identification

Common name : SORELMETAL-R
Material uses : Iron (2.6 - 4.6% C) - Pig iron for cast iron foundries.
Supplier/Manufacturer : RICHARDS BAY MINERALS
Tisand (Pty) Ltd.
PO Box. 401
Richards Bay
Republic of South Africa
3900
In case of emergency : (27) 35-901-3333 or (27) 35-901-3156

Section 2. Hazards identification

Physical state : Solid. (Ingot.)
Emergency overview : No specific hazard.
USE WITH CARE.
Follow good industrial hygiene practice.
Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects
Eyes : May cause eye irritation.
Skin : No known significant effects or critical hazards.
Inhalation : May cause respiratory tract irritation.
Ingestion : No known significant effects or critical hazards.
Potential chronic health effects : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.
Medical conditions aggravated by over-exposure : NO EXPOSURE WHEN USED IN ITS ORIGINAL FORM. Processing of product such as grinding, welding and melting may produce dust and fumes. Repeated inhalation of dust or fumes can cause various degrees of respiratory irritation or lung damage (siderosis).

See toxicological information (section 11)

Section 3. Composition, Information on Ingredients

Ingredient name	Classification						
	UN number	IDLH	H	F	R	Special CAS number	% by weight
North America							
Iron	Not regulated.	-	0	0	1	7439-89-6	92 - 98
Silicon	UN1346	-	0	3	0	7440-21-3	0 - 3
Europe						EC number	
Iron			Not classified.			231-096-4	
Silicon			Not classified.			231-130-8	

See section 16 for the full text of the R-phrases declared above

This material is classified as not hazardous under OSHA regulations in the United States, the WHMIS in Canada, the NOM-018-STPS-2000 in Mexico and Brazil NBR 14725:2001, the European Directives and in any other country in Asia/Pacific, Africa or the Middle-East.

This product has not been tested as a whole for all potential health effects

Cr⁺⁶ is less than 1 ppm.

This product is not classified as radioactive i.e. SORELMETAL-R is analyzed annually to determine the emission of alpha, beta and gamma radionuclides and the results indicate that SORELMETAL-R does not emit any significant alpha, beta or gamma radionuclides above the background level.



See Sections 8, 11 and 14 for details.

Section 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 20 minutes. Get medical attention if irritation occurs.
- Skin contact** : Wash with soap and water. Get medical attention if irritation occurs.
- Inhalation** : Move person to fresh air. Get medical attention if breathing difficulty persists.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Notes to physician** : No specific antidote.

Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment.
- Special remarks on explosion hazards** : Moisture can be present on the ingot surface causing an EXPLOSION hazard if a cold or wet ingot is dropped into molten metal. Always heat the ingots sufficiently to remove moisture and surface irregularities, before dropping these into molten metal.

Section 6. Accidental release measures

In case of a major spill

- Personal precautions** : Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions**: Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : Place spilled material in an appropriate container for disposal.

Section 7. Handling and storage

- Handling** : If used in a process that creates dust or fumes, avoid inhalation and wear appropriate personal protective clothing. Avoid prolonged contact with eyes, skin and clothing. Wash thoroughly after handling. Use in a well-ventilated area.
- Storage** : The product absorbs moisture on long-term storage mostly under high humidity conditions. Remove moisture from the surface by DRYING/HEATING the ingots before use.

Section 8. Exposure controls, personal protection

- Engineering controls** : Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal protection

Eyes

- : Safety eyewear complying with an approved standard should be used and selected based on the task being performed and the risks involved (avoid exposure to liquid splashes, mists, gases or dusts). Where there is a risk of exposure to high velocity particles safety glasses or face shield complying with an approved standard should be used to protect against impact. Where there is a risk of exposure to dusts, goggles should be used.
Recommended: Safety glasses.





Respiratory : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.



Hands : Recommended: Leather gloves.



Skin/Body : Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
Recommended: Overall.



Personal protection in case of a large spill : Safety glasses and or goggles and or face shield should be used depending on the task being performed. Leather gloves. Overall. Boots. Wear MSHA/NIOSH approved respiratory apparatus or equivalent if required.

Product name

Iron

Silicon

Exposure limits**ACGIH TLV (United States).**TWA: 10 mg/m³ 8 hour(s). Form: Inhalable particle.**ACGIH TLV (United States, 1/2005).**TWA: 10 mg/m³ 8 hour(s). Form: All forms.**NIOSH REL (United States, 12/2001).**TWA: 10 mg/m³ 10 hour(s). Form: Total**OSHA PEL (United States, 8/1997).**TWA: 5 mg/m³ 8 hour(s). Form: Respirable fractionTWA: 15 mg/m³ 8 hour(s). Form: Total dust

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

- Physical state** : Solid. (Ingot.)
- Color** : Gray. (Dark.)
- Odor** : Odorless.
- Melting/freezing point** : 1150 to 1200°C (2102 to 2192°F)
- Specific gravity** : 7.8 (Water = 1)
- Bulk density** : Not available.
- Granulometry** : Not available.
- Dispersibility properties** : Not dispersible in cold water, hot water.
- Solubility** : Insoluble in cold water, hot water.

Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Reactive with oxidizing materials and reducing materials. Contact with acids may liberate extremely flammable gas (Hydrogen).
- Hazardous decomposition products** : Not available.
- Hazardous polymerization** : Will not occur.



Section 11. Toxicological information

Toxicity data

Ingredient name	Test	Result	Route	Species
Silicon	LD50	3160 mg/kg	Oral	Rat

Acute Effects

Eyes	: May cause eye irritation.
Skin	: No known significant effects or critical hazards.
Inhalation	: May cause respiratory tract irritation.
Ingestion	: No known significant effects or critical hazards.
Potential chronic health effects	: Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. Mutagenic effects: Not available. Teratogenic effects: Not available.
Medical conditions aggravated by over-exposure	: NO EXPOSURE WHEN USED IN ITS ORIGINAL FORM. Processing of product such as grinding, welding and melting may produce dust and fumes. Repeated inhalation of dust or fumes can cause various degrees of respiratory irritation or lung damage (siderosis).

Section 12. Ecological information

Products of degradation : Some metallic oxides.

Section 13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

Classification

ADN /ADR /TDG /DOT /IMDG/IATA: Not regulated.

NAERG : Not applicable.

Label

Not applicable.

Additional information

Not applicable.

Section 15. Regulatory information

United States

HCS Classification	: Not regulated.
U.S. Federal regulations	: TSCA : All components listed. SARA 302/304/311/312 extremely hazardous substances: No products were found. SARA 302/304 emergency planning and notification: No products were found. SARA 302/304/311/312 hazardous chemicals: Silicon SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Iron: Fire hazard; Silicon: Fire hazard, Immediate (acute) health hazard Clean Water Act (CWA) 307: No products were found. Clean Water Act (CWA) 311: No products were found. Clean Air Act (CAA) 112 accidental release prevention: No products were found.



Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
 Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

State regulations : Pennsylvania RTK: Silicon: (generic environmental hazard); Manganese: (environmental hazard, generic environmental hazard)
 Massachusetts RTK: Silicon; Manganese
 New Jersey: Silicon; Manganese
 California prop. 65: No products were found.

Canada
WHMIS (Canada) : Not controlled under WHMIS (Canada).
 DSL : All components listed.

Mexico
Classification :



EU regulations
Risk phrases : This product is not classified according to EU legislation.
Product use : Classification and labeling have been performed according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and the intended use.
 - Industrial applications.

International regulations
International lists : This product is not listed on major international inventories or exempted from being listed in Australia (AICS), Europe (EINECS/ELINCS), Korea (TCCL), Japan (METI/MOL), Philippines (RA6969).

Section 16. Other information

Label requirements : USE WITH CARE.

Hazardous Material Information System (U.S.A.) :

Health	1
Fire hazard	0
Reactivity	0
Personal protection	C

National Fire Protection Association (U.S.A.) :

A diamond-shaped hazard label with four colored sections: top (red) labeled 'Flammability' with '0', right (yellow) labeled 'Instability' with '0', left (blue) labeled 'Health' with '1', and bottom (white) labeled 'Special'.

Full text of R-phrases referred to in sections 2 and 3 - Europe : Not applicable.

Full text of classifications referred to in sections 2 and 3 - Europe : Not applicable.

References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. - Official Mexican Standards NOM-018-STPS-2000 and NOM-004-SCT2-1994. Brazil NBR 14725:2001.



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