

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Trade name : Reno IronCast  
Product code : 165600

#### 1.2. Recommended use and restrictions on use

Recommended use : Refractory Applications

#### 1.3. Supplier

Reno Refractories, Inc.  
601 Reno Drive  
P.O. Box 201  
Morris, AL 35116 - United States  
T 205-647-0240 - F 205-647-6854

#### 1.4. Emergency telephone number

Emergency number : 1-800-262-8200 CHEMTREC

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Skin sensitization, Category 1 : May cause an allergic skin reaction  
Carcinogenicity Category 1A : May cause cancer

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger  
Hazard statements (GHS US) : May cause an allergic skin reaction  
May cause cancer  
Precautionary statements (GHS US) : Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Avoid breathing dust/fume/gas/mist/vapors/spray.  
Contaminated work clothing must not be allowed out of the workplace  
Wear protective gloves/protective clothing/eye protection/face protection.  
If on skin: Wash with plenty of water  
If exposed or concerned: Get medical advice/attention.  
Specific treatment (see supplemental first aid instruction on this label)  
If skin irritation or rash occurs: Get medical advice/attention.  
Wash contaminated clothing before reuse.  
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

#### 2.3. Other hazards which do not result in classification

No additional information available

#### 2.4. Unknown acute toxicity (GHS US)

Not applicable

### SECTION 3: Composition/Information on ingredients

#### 3.1. Substances

Not applicable

#### 3.2. Mixtures

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Name	Product identifier	%	GHS-US classification
Silicon carbide	(CAS-No.) 409-21-2	3.6 - 8	Carc. 1B, H350
Titanium dioxide	(CAS-No.) 13463-67-7	0.04 - 3.18	Carc. 2, H351
Carbon*	(CAS-No.) Trade Secret	< 2	Carc. 2, H351
Carbon*	(CAS-No.) Trade Secret	0 - 1	Carc. 1B, H350
Crystalline silica	(CAS-No.) 14808-60-7	< 0.761	Carc. 1A, H350 STOT RE 1, H372
Nickel	(CAS-No.) 7440-02-0	< 0.15	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372

\*Chemical name, CAS number and/or exact concentration have been withheld as a trade secret

Full text of hazard classes and H-statements : see section 16

### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

- First-aid measures general : IF exposed or concerned: Get medical advice/attention. Call a poison center/doctor/physician if you feel unwell. Get medical advice/attention if you feel unwell.
- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention. If skin irritation or rash occurs: Get medical advice/attention.
- First-aid measures after eye contact : Rinse eyes with water as a precaution.
- First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell.

#### 4.2. Most important symptoms and effects (acute and delayed)

- Symptoms/effects after skin contact : May cause an allergic skin reaction.

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

- Suitable extinguishing media : Water spray. Dry powder. Foam.

#### 5.2. Specific hazards arising from the chemical

No additional information available

#### 5.3. Special protective equipment and precautions for fire-fighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

- Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray.

##### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

#### 6.4. Reference to other sections

For further information refer to section 13.

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### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray.
- Hygiene measures : Separate working clothes from town clothes. Launder separately. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

#### 7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store in a well-ventilated place. Keep cool.

### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

<b>Crystalline silica (14808-60-7)</b>		
ACGIH	Local name	Silica crystalline - quartz
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.025 mg/m <sup>3</sup> (Respirable fraction)
ACGIH	Remark (ACGIH)	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
ACGIH	Regulatory reference	ACGIH 2018
OSHA	Remark (OSHA)	Table Z-3. For OSHA PEL (TWA): Use formulas: (250 / (%SiO <sub>2</sub> +5)) for mppcf and (10 mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2)) for mg/m <sup>3</sup> . CAS No. source: eCFR Table Z-1.
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
<b>Titanium dioxide (13463-67-7)</b>		
ACGIH	Local name	Titanium dioxide
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	10 mg/m <sup>3</sup>
ACGIH	Remark (ACGIH)	TLV® Basis: LRT irr. Notations: A4 (Not classifiable as a Human Carcinogen)
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup>
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
<b>Nickel (7440-02-0)</b>		
ACGIH	Local name	Nickel, elemental
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	1.5 mg/m <sup>3</sup> (Inhalable fraction)
ACGIH	Remark (ACGIH)	TLV® Basis: Dermatitis; pneumoconiosis. Notations: A5 (Not Suspected as a Human Carcinogen)
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	1 mg/m <sup>3</sup> metal and insoluble compounds (as Ni) 1 mg/m <sup>3</sup> soluble compounds (as Ni)
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
<b>Silicon carbide (409-21-2)</b>		
ACGIH	Local name	Silicon carbide

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<b>Silicon carbide (409-21-2)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (Respirable fraction. The value is for particulate matter containing no asbestos and < 1% crystalline silica) 0.1 fibers/cm <sup>3</sup> (Respirable fibers: length > 5 µm; aspect ratio ≥ 3:1, as determined by the membrane filter method at 400-450X magnification (4-mm objective), using phase-contrast illumination) 10 mg/m <sup>3</sup> (Inhalable fraction. The value is for particulate matter containing no asbestos and < 1% crystalline silica)
ACGIH	Remark (ACGIH)	Non fibrous = TLV® Basis: URT irr Fibrous (including whiskers) = TLV® Basis: Mesothelioma; cancer. Notations: A2 (Suspected Human Carcinogen)
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	15 mg/m <sup>3</sup> (Total dust) 5 mg/m <sup>3</sup> (Respirable fraction)
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

### **Carbon**

Not applicable

### **Carbon**

ACGIH	Local name	Carbon black
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	3 mg/m <sup>3</sup> (Inhalable fraction)
ACGIH	Remark (ACGIH)	TLV® Basis: Bronchitis. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
ACGIH	Regulatory reference	ACGIH 2018
OSHA	OSHA PEL (TWA) (mg/m <sup>3</sup> )	3.5 mg/m <sup>3</sup>
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

### **8.2. Appropriate engineering controls**

Appropriate engineering controls : Ensure good ventilation of the work station.  
Environmental exposure controls : Avoid release to the environment.

### **8.3. Individual protection measures/Personal protective equipment**

#### **Hand protection:**

Protective gloves

#### **Eye protection:**

Safety glasses

#### **Skin and body protection:**

Wear suitable protective clothing

#### **Respiratory protection:**

Wear respiratory protection.

## **SECTION 9: Physical and chemical properties**

### **9.1. Information on basic physical and chemical properties**

Physical state : Solid  
Color : Dark grey to black  
Odor : Almost odourless  
Odor threshold : No data available  
pH : No data available

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Melting point	: No data available
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Non flammable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: 2.53
Solubility	: Water: < 0.1 %
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

VOC content : 0 %

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

<b>Titanium dioxide (13463-67-7)</b>	
LD50 oral rat	> 5000 mg/kg body weight (OECD 425: Acute Oral Toxicity: Up-and-Down Procedure, Rat, Female, Experimental value, Oral, 14 day(s))
LC50 inhalation rat (mg/l)	> 6.82 mg/l (Other, 4 h, Rat, Male, Experimental value, Inhalation (dust), 14 day(s))
<b>Nickel (7440-02-0)</b>	
LD50 oral rat	> 9000 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral)
<b>Silicon carbide (409-21-2)</b>	
LD50 oral rat	> 2000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral)
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)

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<b>Carbon</b>	
LD50 oral rat	> 8000 mg/kg (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral)
LD50 dermal rabbit	> 3000 mg/kg (Rabbit, Literature study, Dermal)
LC50 inhalation rat (mg/l)	> 4.6 mg/l air (4 h, Rat, Experimental value, Inhalation)

Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: May cause cancer.

<b>Crystalline silica (14808-60-7)</b>	
IARC group	1 - Carcinogenic to humans

<b>Titanium dioxide (13463-67-7)</b>	
IARC group	2B - Possibly carcinogenic to humans

<b>Nickel (7440-02-0)</b>	
IARC group	2B - Possibly carcinogenic to humans
National Toxicity Program (NTP) Status	Reasonably anticipated to be Human Carcinogen

<b>Silicon carbide (409-21-2)</b>	
IARC group	2A - Probably carcinogenic to humans

<b>Carbon</b>	
IARC group	2B - Possibly carcinogenic to humans

Reproductive toxicity	: Not classified
Specific target organ toxicity – single exposure	: Not classified

Specific target organ toxicity – repeated exposure	: Not classified
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<b>Crystalline silica (14808-60-7)</b>	
Specific target organ toxicity – repeated exposure	Causes damage to organs through prolonged or repeated exposure.

<b>Nickel (7440-02-0)</b>	
Specific target organ toxicity – repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after skin contact	: May cause an allergic skin reaction.

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
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<b>Titanium dioxide (13463-67-7)</b>	
LC50 fish 1	> 100 mg/l (Equivalent or similar to OECD 203, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Nominal concentration)
ErC50 (algae)	61 mg/l (EPA 600/9-78-018, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)

<b>Nickel (7440-02-0)</b>	
LC50 fish 1	15.3 mg/l (Other, 96 h, Oncorhynchus mykiss, Semi-static system, Fresh water, Experimental value, Nickel ion)

<b>Carbon</b>	
LC50 fish 1	> 1000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Literature study)

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Carbon	
EC50 Daphnia 1	> 5600 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Static system, Fresh water, Experimental value)

### 12.2. Persistence and degradability

Crystalline silica (14808-60-7)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Titanium dioxide (13463-67-7)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

Nickel (7440-02-0)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)

Silicon carbide (409-21-2)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

Carbon	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

### 12.3. Bioaccumulative potential

Titanium dioxide (13463-67-7)	
Bioaccumulative potential	Not bioaccumulative.

Nickel (7440-02-0)	
BCF other aquatic organisms 1	1555 (Other, Myrriophyllum sp., Fresh water, Experimental value, Nickel ion)
Log Pow	-0.57 (Estimated value)
Bioaccumulative potential	Potential for bioaccumulation (500 ≤ BCF ≤ 5000).

Silicon carbide (409-21-2)	
Bioaccumulative potential	Bioaccumulation: not applicable.

Carbon	
Bioaccumulative potential	Not bioaccumulative.

### 12.4. Mobility in soil

Titanium dioxide (13463-67-7)	
Ecology - soil	Low potential for mobility in soil.

Nickel (7440-02-0)	
Ecology - soil	No (test)data on mobility of the substance available.

Carbon	
Ecology - soil	Adsorbs into the soil. Not toxic to plants. Not toxic to animals.

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### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

## SECTION 14: Transport information

### Department of Transportation (DOT)

In accordance with DOT

Not applicable

### Transportation of Dangerous Goods

Not applicable

### Transport by sea

Not applicable

### Air transport

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

#### Crystalline silica (14808-60-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Titanium dioxide (13463-67-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Nickel (7440-02-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory  
Subject to reporting requirements of United States SARA Section 313

CERCLA RQ

100 lb

#### Silicon carbide (409-21-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Carbon

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### Carbon

Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

#### CANADA

#### Crystalline silica (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

#### Titanium dioxide (13463-67-7)

Listed on the Canadian DSL (Domestic Substances List)

#### Nickel (7440-02-0)

Listed on the Canadian DSL (Domestic Substances List)



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<b>Silicon carbide (409-21-2)</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Carbon</b>
Listed on the Canadian DSL (Domestic Substances List)
<b>Carbon</b>
Listed on the Canadian DSL (Domestic Substances List)

### EU-Regulations

No additional information available

### National regulations

<b>Crystalline silica (14808-60-7)</b>
Listed on IARC (International Agency for Research on Cancer)
<b>Titanium dioxide (13463-67-7)</b>
Listed on IARC (International Agency for Research on Cancer)
<b>Nickel (7440-02-0)</b>
Listed on IARC (International Agency for Research on Cancer)
Listed as carcinogen on NTP (National Toxicology Program)
<b>Silicon carbide (409-21-2)</b>
Listed on IARC (International Agency for Research on Cancer)
<b>Carbon</b>
Listed on IARC (International Agency for Research on Cancer)

### 15.3. US State regulations

Nickel (7440-02-0)					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		

  

Carbon					
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)	Maximum allowable dose level (MADL)
Yes	No	No	No		

Component	State or local regulations
Crystalline silica(14808-60-7)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Carbon()	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Titanium dioxide(13463-67-7)	U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Nickel(7440-02-0)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List
Silicon carbide(409-21-2)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

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Revision date : 04/18/2019

Full text of H-phrases:

H317	May cause an allergic skin reaction
H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

SDS US (GHS HazCom 2012)

*The information provided in the 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. Reno Refractories, Inc. makes no warranties, expressed or implied, with respect to such information, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose or course of performance or usage of trade. User is responsible for determining whether the product is fit for a particular purpose and suitable for user's method of use or application. 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.*