

Safety Data Sheet according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Revision date: 04/16/2019

1. Jensification Product form : Network : Product code : Tade name : Recommended use : Recommended use : Recommended use : Reno Refractories inc. Bonn Drive P.O. Box 201 Morris, AL 35116 - United States T 205447.0240 - F. 205 447 6834 A. Emergency telephone number Emergency number : CHSU2 Charactel(S) Identification CASIS May cause cancer Specific target organ toxicity (repeated exposure) Causes damage to organs through prolonged or repeated exposure CHSU3 ClassEffaction Causes damage to organs through prolonged or repeated exposure CHSU3 ClassEffaction Causes damage to organs through prolonged or repeated exposure CHSU3 ClassEffaction : VESUS ClassEffaction : Causes damage to organs through prolonged or repeated exposure : CHSU3 ClassEffaction : VESUS ClassEffaction : Causes damage to organs through prolonged or repeated exposure : <			
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3.2. Mixtures	J.Z. WIXLUIUS		

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Name	Product identifier	%	GHS-US classification
Silica, crystalline – cristobalite	(CAS-No.) 14464-46-1	4.2 - 8.049	STOT RE 1, H372
Crystalline silica	(CAS-No.) 14808-60-7	< 3.57	Carc. 1A, H350 STOT RE 1, H372
Titanium dioxide	(CAS-No.) 13463-67-7	0.25 - 2.35	Carc. 2, H351
Amorphous/fused silica	(CAS-No.) 60676-86-0	0 - 1.7	STOT RE 2, H373

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.
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)
No additional information available	
4.3. Immediate medical attention and spec	ial treatment, if necessary
Treat symptomatically.	e e e e e e e e e e e e e e e e e e e
SECTION 5: Fire-fighting measures	
	a madia
5.1. Suitable (and unsuitable) extinguishin	
	Water spray. Dry powder. Foam.
5.2. Specific hazards arising from the cher	nical
No additional information available	
5.3. Special protective equipment and pred	cautions 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 measu	ires
6.1. Personal precautions, protective equi	
6.1.1. For non-emergency personnel	
Emergency procedures :	Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe 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
	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.	
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. Do not breathe dust/fume/gas/mist/vapors/spray.
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Hygiene measures

: Separate working clothes from town clothes. Launder separately. 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

Crystalline silica (14808-60-7)	
ACGIH	Local name	Silica crystaline - quartz
ACGIH	ACGIH TWA (mg/m ³)	0.025 mg/m ³ (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 / (%SiO2+5)) for mppcf and (10 mg/m3 / (%SiO2+2)) for mg/m3. CAS No. source: eCFR Table Z-1.
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
Titanium dioxide (13463-67-7)	·
ACGIH	Local name	Titanium dioxide
ACGIH	ACGIH TWA (mg/m ³)	10 mg/m ³
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 ³)	15 mg/m³
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
Silica, crystalline -	- cristobalite (14464-46-1)	
ACGIH	Local name	Silica crystaline - cristobalite
ACGIH	ACGIH TWA (mg/m ³)	0.025 mg/m ³ (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 ½ the value calculated from the count or mass formulae for quartz. CAS No. source: eCFR Table Z-1.
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
Amorphous/fused	silica (60676-86-0)	
OSHA	OSHA PEL (TWA) (ppm)	20 mppcf
OSHA	Remark (OSHA)	Table Z-3. For OSHA PEL (TWA): Use formula: (80 mg/m3 / (%SiO2)) for mg/m3. CAS No. source: eCFR Table Z-1.
OSHA	Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
	1	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:

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Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

Wear respiratory protection.

SECTION 9: Physical and chemical properties Information on basic physical and chemical properties 9.1. : Solid Physical state Color : Gray Odor : Almost odourless Odor threshold : No data available pН : No data available 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 : 2.2 - 2.9 : Water: < 0.1 % Solubility Log Pow : No data available Auto-ignition temperature : Not applicable Decomposition temperature : No data available : No data available Viscosity, kinematic Viscosity, dynamic : No data available Explosion limits Not applicable · Explosive properties : No data available : No data available Oxidizing properties

9.2. Other information

No additional information available

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

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Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Titanium dioxide (13463-67-7)	
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))
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: May cause cancer.
Crystalline silica (14808-60-7)	
IARC group	1 - Carcinogenic to humans
Titanium dioxide (13463-67-7)	
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	: Causes damage to organs through prolonged or repeated exposure.
Crystalline silica (14808-60-7)	
Specific target organ toxicity – repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Silica, crystalline – cristobalite (14464-46-1)	
Specific target organ toxicity – repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Amorphous/fused silica (60676-86-0)	
Specific target organ toxicity – repeated exposure	May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available

SECTION 12: Ecological info	rmation
12.1. Toxicity	
Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
Titanium dioxide (13463-67-7)	
LC50 fish 1	> 100 mg/l (Equivalent or similar to OECD 203, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value, Nominal concentration)

61 mg/l (EPA 600/9-78-018, 72 h, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Nominal concentration)

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	
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ErC50 (algae)

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Titanium dioxide (13463-67-7)		
Persistence and degradability	Biodegradability: not applicable.	
Chemical oxygen demand (COD)	Not applicable (inorganic)	
ThOD	Not applicable (inorganic)	
Silica, crystalline – cristobalite (14464-46	δ-1)	
Persistence and degradability	Biodegradability: not applicable.	
Chemical oxygen demand (COD)	Not applicable	
ThOD	Not applicable	
BOD (% of ThOD)	Not applicable	
Amorphous/fused silica (60676-86-0)		
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.	
Chemical oxygen demand (COD)	Not applicable (inorganic)	
ThOD	Not applicable (inorganic)	
12.3. Bioaccumulative potential		
Titanium dioxide (13463-67-7)		
Bioaccumulative potential	Not bioaccumulative.	
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Silica, crystalline – cristobalite (14464-46-1)	
Bioaccumulative potential	No test data available.
Amorphous/fused silica (60676-86-0)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

Titanium dioxide (13463-67-7)		
Ecology - soil	Low potential for mobility in soil.	
Silica, crystalline – cristobalite (14464-46-1)		
Ecology - soil	No (test)data on mobility of the substance available.	
Amorphous/fused silica (60676-86-0)		
Ecology - soil	No (test)data on mobility of the substance available.	

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal consideration	S
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

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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

Silica, crystalline – cristobalite (14464-46-1)

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

Amorphous/fused silica (60676-86-0)

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)
Silica, crystalline – cristobalite (14464-46-1)
Listed on the Canadian DSL (Domestic Substances List)
Amorphous/fused silica (60676-86-0)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Crystalline silica (14808-60-7)		
Listed on IARC (International Agency for Research on Cancer)		
Titanium dioxide (13463-67-7)		
Listed on IARC (International Agency for Research on Cancer)		

15.3. US State regulations

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
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
Silica, crystalline – cristobalite(14464-46-1)	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
Amorphous/fused silica(60676-86-0)	U.S New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

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Revision date

: 04/16/2019

Full text of H-phrases:

H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure

SDS US (GHS HazCom 2012)

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