

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Revision date: 2/15/2024

SECTION 1: Identification

1.1. Identification

Product form Trade name Product code : Mixture Reno Plastic 86 PF · 230500 •

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 sales@r-ref.com - www.renorefractories.com

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

Corrosive to metals Category 1 Skin corrosion/irritation Category 2 Serious eye damage/eye irritation Category 1 Carcinogenicity Category 1A Specific target organ toxicity (repeated exposure) Category 1

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

May be corrosive to metals Causes skin irritation Causes serious eye damage May cause cancer Causes damage to organs through prolonged or repeated exposure

GHS US labeling Hazard pictograms (GHS US) Signal word (GHS US) Danger : Hazard statements (GHS US) · May be corrosive to metals Causes skin irritation Causes serious eye damage May cause cancer Causes damage to organs through prolonged or repeated exposure Precautionary statements (GHS US) Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe dust/fume/gas/mist/vapors/spray. EN (English US) 2/15/2024 (Revision date)

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Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. If on skin: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical advice/attention. Immediately call a poison center or doctor. Get medical advice/attention if you feel unwell. Specific treatment (see supplemental first aid instruction on this label). If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Absorb spillage to prevent material-damage. Store in corrosive resistant container with a resistant inner liner. 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)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Phosphoric acid	CAS-No.: 7664-38-2	2.4 – 3.25	Met. Corr. 1, H290 Acute Tox. 3 (Inhalation:dust,mist), H331 Skin Corr. 1, H314 Eye Dam. 1, H318
Silica, crystalline – cristobalite	CAS-No.: 14464-46-1	1.395 – 2.685	STOT RE 1, H372
Titanium dioxide	CAS-No.: 13463-67-7	1.295 – 1.416	Carc. 2, H351
Crystalline silica	CAS-No.: 14808-60-7	0-0.24	Carc. 1A, H350 STOT RE 1, H372

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.	
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 irrit medical advice/attention.	tation occurs: Get
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, do. Continue rinsing. Call a physician immediately.	if present and easy to
First-aid measures after ingestion	: Call a poison center/doctor/physician if you feel unwell.	
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Symptoms/effects after skin contact	: Irritation.	
Symptoms/effects after eye contact	: Serious damage to eyes.	
4.3. Immediate medical attention and special treatment, if necessary		
Treat symptomatically.		
······		
SECTION 5: Fire-fighting measure	es	

Suitable extinguishing media

: Water spray. Dry powder. Foam.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : Toxic fumes may be released.

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. 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		
Methods for cleaning up Other information	Mechanically recover the product. Notify authorities if product enters sewers or public waters.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 stor	rage	
7.1. Precautions for safe handling		
Precautions for safe handling Hygiene measures	 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. Avoid contact with skin and eyes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after 	
7.2. Conditions for safe storage, i	handling the product. ncluding any incompatibilities	
Storage conditions	: Store in corrosive resistant container with a resistant inner liner. Keep only in original container. Store locked up. Store in a well-ventilated place. Keep cool.	
Incompatible materials	Metals.	

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Reno Plastic 86 PF		
No additional information available		
Crystalline silica (14808-60-7)		
USA - ACGIH - Occupational Exposure Limits		
Local name	Silica crystaline - quartz	
ACGIH OEL TWA	0.025 mg/m ³ (Respirable fraction)	
Remark (ACGIH)	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)	
Regulatory reference	ACGIH 2023	
USA - OSHA - Occupational Exposure Limits		
Local name	Quartz (Respirable) (Silica: Crystalline)	
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.	
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts	
Phosphoric acid (7664-38-2)		
USA - ACGIH - Occupational Exposure Limits		
Local name	Phosphoric acid	
ACGIH OEL TWA	1 mg/m ³	
ACGIH OEL STEL	3 mg/m ³	
Remark (ACGIH)	TLV® Basis: URT, eye, & skin irr	
Regulatory reference	ACGIH 2023	
USA - OSHA - Occupational Exposure Limits		
Local name	Phosphoric acid	

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Phosphoric acid (7664-38-2)	
OSHA PEL TWA	1 mg/m³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
Titanium dioxide (13463-67-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Titanium dioxide
ACGIH OEL TWA	0.2 mg/m ³ (Respirable fraction) 2.5 mg/m ³ (Respirable fraction)
Remark (ACGIH)	TLV® Basis: LRT irr; pneumoconiosis. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
Local name	Titanium dioxide (Total dust)
OSHA PEL TWA	15 mg/m³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
Silica, crystalline – cristobalite (14464-46-1	1)
USA - ACGIH - Occupational Exposure Limits	
Local name	Silica crystaline - cristobalite
ACGIH OEL TWA	0.025 mg/m³ (Respirable fraction)
Remark (ACGIH)	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
Local name	Cristobalite (Silica: Crystalline)
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.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
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/Person	nal protective equipment
Hand protection:	
Protective gloves	
Eye protection:	
Safety glasses	
Skin and body protection:	
Wear suitable protective clothing	

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Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties Physical state : Solid Color Grey to black · 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 2.4 – 2.6 : Solubility Water: < 0.1 % Partition coefficient n-octanol/water (Log Pow) No data available · Auto-ignition temperature Not applicable Decomposition temperature : No data available Viscosity, kinematic : Not applicable Viscosity, dynamic : No data available Explosion limits : Not applicable No data available Explosive properties : Oxidizing properties No data available

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).

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10.5. Incompatible materials

metals.

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) : Acute toxicity (dermal) : Acute toxicity (inhalation) :	Not classified Not classified Not classified
Phosphoric acid (7664-38-2)	
LD50 oral rat	2600 mg/kg body weight (Equivalent or similar to OECD 423, Rat, Female, Experimental value 10 % aqueous solution, Oral, 7 day(s))
LD50 dermal rabbit	2740 mg/kg body weight (Rabbit, Experimental value, Skin)
LC50 Inhalation - Rat	0.96 mg/l (Equivalent or similar to OECD 403, 4 h, Rat, Male, Read-across, Converted value, Inhalation, 14 day(s))
ATE US (oral)	2600 mg/kg body weight
ATE US (dermal)	2740 mg/kg body weight
ATE US (vapors)	0.96 mg/l/4h
ATE US (dust, mist)	0.96 mg/l/4h
Titanium dioxide (13463-67-7)	
LD50 oral rat	> 2000 mg/kg body weight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Experimental value, Oral, 14 day(s))
LC50 Inhalation - Rat	> 5.09 mg/l (OECD 403: Acute Inhalation Toxicity, 4 h, Rat, Male, Experimental value, Inhalation (dust), 14 day(s))
Skin corrosion/irritation :	Causes skin irritation.
Crystalline silica (14808-60-7)	
pH	6 – 7
Phosphoric acid (7664-38-2)	
pH	1.5
Titanium dioxide (13463-67-7)	
pH	7 (aqueous suspension, 10 %)
Silica, crystalline – cristobalite (14464-46-1)	
pH	6 - 7
Serious eye damage/irritation :	Causes serious eye damage.
Crystalline silica (14808-60-7)	
рН	6 – 7
Phosphoric acid (7664-38-2)	
pH	1.5

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Titanium dioxide (13463-67-7)	
рН	7 (aqueous suspension, 10 %)
Silica, crystalline – cristobalite (14464-46-1)	
рН	6 – 7
	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
STOT-single exposure :	Not classified
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Crystalline silica (14808-60-7)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Silica, crystalline – cristobalite (14464-46-1)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.
	Not classified
Viscosity, kinematic	Not applicable
Crystalline silica (14808-60-7)	
Viscosity, kinematic	Not applicable (solid)
Phosphoric acid (7664-38-2)	
Viscosity, kinematic	Not applicable (solid)
Titanium dioxide (13463-67-7)	
Viscosity, kinematic	Not applicable
Silica, crystalline – cristobalite (14464-46-1)	
Viscosity, kinematic	Not applicable
-,	Irritation.
Symptoms/effects after eye contact	Serious damage to eyes.

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.
Phosphoric acid (7664-38-2)	
LC50 - Fish [1]	75.1 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oryzias latipes, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	> 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)

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Phosphoric acid (7664-38-2)		
EC50 72h - Algae [1]	> 100 mg/l (EU Method C.3, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Growth rate)	
Titanium dioxide (13463-67-7)		
LC50 - Fish [1]	> 300 mg/l (Danio rerio, Fresh water, Literature study, Nominal concentration)	
EC50 - Crustacea [1]	> 100 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)	

12.2. Persistence and degradability

Crystalline silica (14808-60-7)		
Persistence and degradability	Biodegradability: not applicable.	
Chemical oxygen demand (COD)	Not applicable (inorganic)	
ThOD	Not applicable (inorganic)	
Phosphoric acid (7664-38-2)		
Persistence and degradability	Biodegradability: not applicable.	
Chemical oxygen demand (COD)	Not applicable (inorganic)	
ThOD	Not applicable (inorganic)	
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 (14464-46-1)		
Persistence and degradability	Biodegradability: not applicable.	
Chemical oxygen demand (COD)	Not applicable	
ThOD	Not applicable	
BOD (% of ThOD)	Not applicable	
12.3. Bioaccumulative potential		
Crystalline silica (14808-60-7)		
Bioaccumulative potential	Bioaccumulation: not applicable.	
Phosphoric acid (7664-38-2)		
Bioaccumulative potential	Not bioaccumulative.	
Titanium dioxide (13463-67-7)		

Bioaccumulative potential	Not bioaccumulative.
Silica, crystalline – cristobalite (14464-46-1)	
Bioaccumulative potential	No test data available.

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12.4. Mobility in soil	
Crystalline silica (14808-60-7)	
Ecology - soil	No (test)data on mobility of the substance available.
Phosphoric acid (7664-38-2)	
Surface tension	Not applicable (solid)
Ecology - soil	No (test)data on mobility of the substance available.
Titanium dioxide (13463-67-7)	
Surface tension	No data available in the literature
	No data available in the literature Low potential for mobility in soil.
Surface tension	
Surface tension Ecology - soil	

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

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

Not regulated for transport

14.2. UN proper shipping name	
Proper Shipping Name (DOT) Proper Shipping Name (TDG) Proper Shipping Name (IMDG) Proper Shipping Name (IATA)	 Not applicable Not applicable Not applicable Not applicable
14.3. Transport hazard class(es)	
DOT Transport hazard class(es) (DOT)	: Not applicable
TDG Transport hazard class(es) (TDG)	: Not applicable
IMDG Transport hazard class(es) (IMDG)	: Not applicable
IATA Transport hazard class(es) (IATA)	: Not applicable

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14.4. Packing group

Packing group (DOT)	: Not applicable
Packing group (TDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

14.5. Environmental hazards

Other information

: No supplementary information available.

14.6. Special precautions for user

DOT

No data available

TDG No data available

IMDG

No data available

ΙΑΤΑ

No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Phosphoric acid (7664-38-2)		
CERCLA RQ	5000 lb	
15.2. International regulations		
CANADA		

Crystalline silica (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

Phosphoric acid (7664-38-2)

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)

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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 Massachusetts - Right To Know List; U.S New Jersey - Right to Know Hazardous Substance List; U.S Pennsylvania - RTK (Right to Know) List
Phosphoric acid(7664-38-2)	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

SECTION 16: Other information

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Full text of H-phrases	
H290	May be corrosive to metals
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H331	Toxic if inhaled
H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

Reno Safety Data Sheet (SDS), USA

The information provided in the Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of it's 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.