

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Trade name : Reno Cast ES
Product code : 611620

1.2. Recommended use and restrictions on use

Recommended use : Refractory Applications

1.3. Supplier

Manufacturer

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

| | | |
|---|------|--|
| Carcinogenicity Category 1A | H350 | May cause cancer |
| Specific target organ toxicity (repeated exposure) Category 1 | H372 | Causes damage to organs through prolonged or repeated exposure |

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) : Danger

Hazard statements (GHS US) : H350 - May cause cancer
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements (GHS US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.

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P501 - 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 |
|------------------------------------|---------------------|-------------|-----------------------------------|
| Silica, crystalline – cristobalite | CAS-No.: 14464-46-1 | 7.2 – 10.43 | STOT RE 1, H372 |
| Crystalline silica | CAS-No.: 14808-60-7 | 0.4 – 4.6 | Carc. 1A, H350 STOT RE 1, H372 |
| Titanium dioxide | CAS-No.: 13463-67-7 | ≤ 0.1 | Carc. 2, H351 |

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.
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 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

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.

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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 : 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.

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

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No additional information available

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) |

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| Titanium dioxide (13463-67-7) | |
|--|--|
| Remark (ACGIH) | TLV® Basis: LRT irr; pneumoconiosis. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans) |
| Regulatory reference | ACGIH 2022 |
| USA - OSHA - Occupational Exposure Limits | |
| Local name | Titanium dioxide (Total dust) |
| OSHA PEL (TWA) [1] | 15 mg/m³ |
| Regulatory reference (US-OSHA) | OSHA Annotated Table Z-1 |
| Silica, crystalline – cristobalite (14464-46-1) | |
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Silica crystalline - 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 2022 |
| 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 |
| Crystalline silica (14808-60-7) | |
| USA - ACGIH - Occupational Exposure Limits | |
| Local name | Silica crystalline - quartz |
| 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 2022 |
| 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 |

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 |

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Skin and body protection:

Wear suitable protective clothing

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 |
| Appearance | : Granular powder. |
| Color | : Gray |
| Odor | : Odourless |
| Odor threshold | : No data available |
| pH | : 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 | : No data available |
| Solubility | : No data available |
| 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 |
| Explosive properties | : No data available |
| 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.

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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

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 : Not classified

Titanium dioxide (13463-67-7)

| | |
|----|------------------------------|
| pH | 7 (aqueous suspension, 10 %) |
|----|------------------------------|

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

| | |
|----|-------|
| pH | 6 – 7 |
|----|-------|

Crystalline silica (14808-60-7)

| | |
|----|-------|
| pH | 6 – 7 |
|----|-------|

Serious eye damage/irritation : Not classified

Titanium dioxide (13463-67-7)

| | |
|----|------------------------------|
| pH | 7 (aqueous suspension, 10 %) |
|----|------------------------------|

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

| | |
|----|-------|
| pH | 6 – 7 |
|----|-------|

Crystalline silica (14808-60-7)

| | |
|----|-------|
| pH | 6 – 7 |
|----|-------|

Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : May cause cancer.

Titanium dioxide (13463-67-7)

| | |
|------------|--------------------------------------|
| IARC group | 2B - Possibly carcinogenic to humans |
|------------|--------------------------------------|

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| Crystalline silica (14808-60-7) | |
|--|---|
| IARC group | 1 - Carcinogenic to humans |
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : Not classified |
| 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. |
| Crystalline silica (14808-60-7) | |
| STOT-repeated exposure | Causes damage to organs through prolonged or repeated exposure. |
| Aspiration hazard | : Not classified |
| Viscosity, kinematic | : Not applicable |
| Titanium dioxide (13463-67-7) | |
| Viscosity, kinematic | Not applicable |
| Silica, crystalline – cristobalite (14464-46-1) | |
| Viscosity, kinematic | Not applicable |
| Crystalline silica (14808-60-7) | |
| Viscosity, kinematic | Not applicable (solid) |

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.

| 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) |
| ErC50 algae | 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

| 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 |

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| Crystalline silica (14808-60-7) | |
|--|-----------------------------------|
| Persistence and degradability | 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. |

| Silica, crystalline – cristobalite (14464-46-1) | |
|--|-------------------------|
| Bioaccumulative potential | No test data available. |

| Crystalline silica (14808-60-7) | |
|--|----------------------------------|
| Bioaccumulative potential | Bioaccumulation: not applicable. |

12.4. Mobility in soil

| Titanium dioxide (13463-67-7) | |
|--------------------------------------|-------------------------------------|
| Surface tension | No data available in the literature |
| 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. |

| Crystalline silica (14808-60-7) | |
|--|---|
| Ecology - soil | No (test)data on mobility of the substance available. |

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

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) : Not applicable
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

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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

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

IATA

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

15.2. International regulations

CANADA

Titanium dioxide (13463-67-7)

Listed on the Canadian DSL (Domestic Substances List)

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

Listed on the Canadian DSL (Domestic Substances List)

Crystalline silica (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Titanium dioxide (13463-67-7)

Listed on IARC (International Agency for Research on Cancer)

Crystalline silica (14808-60-7)

Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

| Component | State or local regulations |
|--|---|
| 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 |
| 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 |

SECTION 16: Other information

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Revision date : 6/8/2023

| Full text of H-phrases | |
|------------------------|--|
| 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

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