

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Trade name : Reno Restoration BF
Product code : 273600

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

Flammable solids Category 1	Flammable solid
Acute toxicity (inhalation:dust,mist) Category 4	Harmful if inhaled
Carcinogenicity Category 1A	May cause cancer
Specific target organ toxicity (repeated exposure) Category 1	Causes damage to organs through prolonged or repeated exposure

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

Flammable solid
Harmful if inhaled
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 away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Ground/Bond container and receiving equipment.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wash hands, forearms and face thoroughly after handling.

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Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If exposed or concerned: Get medical advice/attention.
Call a poison center or doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
In case of fire: Use media other than water to extinguish.
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

Name	Product identifier	%	GHS US classification
Silicon carbide	CAS-No.: 409-21-2	8 – 11	Carc. 1B, H350
Crystalline silica	CAS-No.: 14808-60-7	1.525 – 5.4	Carc. 1A, H350 STOT RE 1, H372
Silicon nitride (Si ₃ N ₄)	CAS-No.: 12033-89-5	2 – 5	STOT SE 3, H335
Zirconium oxide	CAS-No.: 1314-23-4	1.15 – 4.2	Acute Tox. 4 (Inhalation:dust,mist), H332
Iron	CAS-No.: 7439-89-6	0.36 – 3.25	Acute Tox. 2 (Inhalation:dust,mist), H330
Carbon Black	CAS-No.: 1333-86-4	1 – 3	Carc. 2, H351
Diethylene glycol	CAS-No.: 111-46-6	0.98 – 3	Acute Tox. 4 (Oral), H302
Adipic acid, dimethyl ester	CAS-No.: 627-93-0	≤ 2.64	Acute Tox. 4 (Dermal), H312
Titanium dioxide	CAS-No.: 13463-67-7	0.2555 – 1.176	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. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.

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.

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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

Fire hazard : Flammable solid.
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 : No open flames, no sparks, and no smoking. 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.

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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. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. 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

- Technical measures : Ground/bond container and receiving equipment.
- Storage conditions : Keep cool. Protect from sunlight. Keep away from ignition sources. Store in a well-ventilated place.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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No additional information available	
Silicon nitride (Si3N4) (12033-89-5)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	3 mg/m ³ (Respirable fraction) 10 mg/m ³ (Inhalable fraction)
Zirconium oxide (1314-23-4)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	5 mg/m ³
ACGIH OEL STEL	10 mg/m ³
Carbon Black (1333-86-4)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Carbon black
ACGIH OEL TWA	3 mg/m ³ (Inhalable fraction)
Remark (ACGIH)	TLV® Basis: Bronchitis. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans)
Regulatory reference	ACGIH 2022
USA - OSHA - Occupational Exposure Limits	
Local name	Carbon black
OSHA PEL (TWA) [1]	3.5 mg/m ³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

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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 2022
USA - OSHA - Occupational Exposure Limits	
Local name	Titanium dioxide (Total dust)
OSHA PEL (TWA) [1]	15 mg/m ³
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
Crystalline silica (14808-60-7)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Silica crystalline - 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 2022
USA - OSHA - Occupational Exposure Limits	
Local name	Quartz (Respirable) (Silica: Crystalline)
Remark (OSHA)	Table Z-3. For OSHA PEL (TWA): Use formulas: (250 / (%SiO ₂ +5)) for mppcf and (10 mg/m ³ / (%SiO ₂ +2)) for mg/m ³ . CAS No. source: eCFR Table Z-1.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
Silicon carbide (409-21-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Silicon carbide
ACGIH OEL TWA	3 mg/m ³ (Respirable fraction. The value is for particulate matter containing no asbestos and < 1% crystalline silica) 0.1 fibers/cm ³ (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 ³ (Inhalable fraction. The value is for particulate matter containing no asbestos and < 1% crystalline silica)
Remark (ACGIH)	Non fibrous = TLV® Basis: URT irr Fibrous (including whiskers) = TLV® Basis: Mesothelioma; cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2022
USA - OSHA - Occupational Exposure Limits	
Local name	Silicon carbide
OSHA PEL (TWA) [1]	15 mg/m ³ (Total dust) 5 mg/m ³ (Respirable fraction)
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

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Adipic acid, dimethyl ester (627-93-0)

No additional information available

Iron (7439-89-6)

No additional information available

Diethylene glycol (111-46-6)

No additional information available

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.

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Moist solid.
Color	: Black
Odor	: Characteristic odour
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)	: Flammable solid.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Solubility	: No data available

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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

Flammable solid.

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

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

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)	: Harmful if inhaled.

Reno Restoration BF	
ATE US (dust, mist)	1.475 mg/l/4h
Zirconium oxide (1314-23-4)	
LD50 oral rat	> 5000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral)
LC50 Inhalation - Rat	> 4.3 mg/l (OECD 436: Acute inhalation toxicity-acute toxic class method, 4 h, Rat, Male / female, Experimental value, Inhalation (aerosol))
ATE US (dust, mist)	1.5 mg/l/4h

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Carbon Black (1333-86-4)	
LD50 oral rat	> 10000 mg/kg (Equivalent or similar to OECD 401, Rat, Male / female, Experimental value, Oral, 28 day(s))
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))
Silicon carbide (409-21-2)	
LD50 oral rat	> 2000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
LD50 dermal rat	> 2000 mg/kg body weight (OECD 402: Acute Dermal Toxicity, 24 h, Rat, Male / female, Experimental value, Dermal)
Adipic acid, dimethyl ester (627-93-0)	
LD50 oral rat	> 5000 mg/kg body weight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, 14 day(s), Rat, Female, Read-across, Oral, 14 day(s))
LD50 dermal rabbit	> 1000 mg/kg body weight (Equivalent or similar to OECD 402, 24 h, Rabbit, Male / female, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 11 mg/l (Equivalent or similar to OECD 403, 4 h, Rat, Male / female, Read-across, Inhalation (aerosol), 14 day(s))
ATE US (dermal)	1100 mg/kg body weight
Iron (7439-89-6)	
LD50 oral rat	98600 mg/kg body weight (Equivalent or similar to OECD 401, Rat, Male, Experimental value, Oral)
LC50 Inhalation - Rat	> 0.25 mg/l (6 h, Rat, Male, Experimental value, Inhalation (dust))
ATE US (oral)	98600 mg/kg body weight
ATE US (dust, mist)	0.05 mg/l/4h
Diethylene glycol (111-46-6)	
LD50 oral rat	16500 mg/kg body weight (Rat, Male / female, Experimental value, Oral, 5 day(s))
LD50 dermal rabbit	13300 mg/kg body weight (Rabbit, Experimental value, Dermal, 14 day(s))
LC50 Inhalation - Rat	> 4.6 mg/l air (Other, 4 h, Rat, Weight of evidence, Inhalation (aerosol), 14 day(s))
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	13300 mg/kg body weight
Skin corrosion/irritation	: Not classified
Carbon Black (1333-86-4)	
pH	4 – 10 (5 %, 20 °C)
Titanium dioxide (13463-67-7)	
pH	7 (aqueous suspension, 10 %)
Crystalline silica (14808-60-7)	
pH	6 – 7

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Silicon carbide (409-21-2)	
pH	Not applicable (non-soluble in water), CIPAC MT 75: Determination of pH
Adipic acid, dimethyl ester (627-93-0)	
pH	8.9 (3 %)
Diethylene glycol (111-46-6)	
pH	5 – 8 (50 %)
Serious eye damage/irritation	: Not classified
Carbon Black (1333-86-4)	
pH	4 – 10 (5 %, 20 °C)
Titanium dioxide (13463-67-7)	
pH	7 (aqueous suspension, 10 %)
Crystalline silica (14808-60-7)	
pH	6 – 7
Silicon carbide (409-21-2)	
pH	Not applicable (non-soluble in water), CIPAC MT 75: Determination of pH
Adipic acid, dimethyl ester (627-93-0)	
pH	8.9 (3 %)
Diethylene glycol (111-46-6)	
pH	5 – 8 (50 %)
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: May cause cancer.
Carbon Black (1333-86-4)	
IARC group	2B - Possibly carcinogenic to humans
Titanium dioxide (13463-67-7)	
IARC group	2B - Possibly carcinogenic to humans
Crystalline silica (14808-60-7)	
IARC group	1 - Carcinogenic to humans
Silicon carbide (409-21-2)	
IARC group	2A - Probably carcinogenic to humans
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
Silicon nitride (Si3N4) (12033-89-5)	
STOT-single exposure	May cause respiratory irritation.
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

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Silicon nitride (Si₃N₄) (12033-89-5)	
Viscosity, kinematic	Not applicable
Zirconium oxide (1314-23-4)	
Viscosity, kinematic	Not applicable
Carbon Black (1333-86-4)	
Viscosity, kinematic	Not applicable (solid)
Titanium dioxide (13463-67-7)	
Viscosity, kinematic	Not applicable
Crystalline silica (14808-60-7)	
Viscosity, kinematic	Not applicable (solid)
Silicon carbide (409-21-2)	
Viscosity, kinematic	Not applicable (solid)
Adipic acid, dimethyl ester (627-93-0)	
Viscosity, kinematic	No data available in the literature
Iron (7439-89-6)	
Viscosity, kinematic	Not applicable
Diethylene glycol (111-46-6)	
Viscosity, kinematic	No data available in the literature

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.

Zirconium oxide (1314-23-4)	
LC50 - Fish [1]	> 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Brachydanio rerio, Static system, Fresh water, Experimental value, Nominal concentration)
EC50 - Crustacea [1]	> 100 mg/l (EU Method C.2, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Read-across, GLP)
Carbon Black (1333-86-4)	
LC50 - Fish [1]	> 1000 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Danio rerio, Static system, Fresh water, Experimental value, Lethal)
EC50 - Crustacea [1]	> 5600 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 24 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
ErC50 algae	> 10000 mg/l (OECD 201: Alga, Growth Inhibition Test, 72 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, Nominal concentration)

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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)
Silicon carbide (409-21-2)	
ErC50 algae	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, 48 h, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)
Adipic acid, dimethyl ester (627-93-0)	
LC50 - Fish [1]	18 – 24 ppm (EPA OTS 797.1400, 96 h, Pimephales promelas, Static system, Fresh water, Read-across)
EC50 - Crustacea [1]	72 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value)
EC50 72h - Algae [1]	> 100 mg/l (OECD 201: Alga, Growth Inhibition Test, Pseudokirchneriella subcapitata, Static system, Fresh water, Experimental value, Growth rate)
Diethylene glycol (111-46-6)	
LC50 - Fish [1]	75200 mg/l (96 h, Pimephales promelas, Flow-through system, Experimental value, Lethal)
EC50 - Crustacea [1]	> 10000 mg/l (DIN 38412-11, 24 h, Daphnia magna, Static system, Fresh water, Experimental value, Locomotor effect)
12.2. Persistence and degradability	
Silicon nitride (Si3N4) (12033-89-5)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable
Zirconium oxide (1314-23-4)	
Persistence and degradability	Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
Carbon Black (1333-86-4)	
Persistence and degradability	Biodegradability in soil: not applicable. 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)
Crystalline silica (14808-60-7)	
Persistence and degradability	Biodegradability: not applicable.

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Crystalline silica (14808-60-7)	
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 (inorganic)
ThOD	Not applicable (inorganic)
Adipic acid, dimethyl ester (627-93-0)	
Persistence and degradability	Readily biodegradable in water.
ThOD	1.747 g O ₂ /g substance
Iron (7439-89-6)	
Persistence and degradability	Biodegradability in soil: not applicable. Biodegradability: not applicable.
Chemical oxygen demand (COD)	Not applicable (inorganic)
ThOD	Not applicable (inorganic)
Diethylene glycol (111-46-6)	
Persistence and degradability	Biodegradable in the soil. Readily biodegradable in water.
Biochemical oxygen demand (BOD)	0.02 g O ₂ /g substance
Chemical oxygen demand (COD)	1.51 g O ₂ /g substance
ThOD	1.51 g O ₂ /g substance
12.3. Bioaccumulative potential	
Silicon nitride (Si₃N₄) (12033-89-5)	
Bioaccumulative potential	Bioaccumulation: not applicable.
Zirconium oxide (1314-23-4)	
BCF - Other aquatic organisms [1]	0.64 (24 h, Chlorella sp., Fresh water, Read-across, Fresh weight)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
Carbon Black (1333-86-4)	
Bioaccumulative potential	Not bioaccumulative.
Titanium dioxide (13463-67-7)	
Bioaccumulative potential	Not bioaccumulative.
Crystalline silica (14808-60-7)	
Bioaccumulative potential	Bioaccumulation: not applicable.
Silicon carbide (409-21-2)	
Bioaccumulative potential	Not bioaccumulative.
Adipic acid, dimethyl ester (627-93-0)	
Partition coefficient n-octanol/water (Log Pow)	1.4 (Experimental value, OECD 117: Partition Coefficient (n-octanol/water), HPLC method, 22 °C)

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Adipic acid, dimethyl ester (627-93-0)	
Bioaccumulative potential	Low potential for bioaccumulation (Log Kow < 4).
Iron (7439-89-6)	
Bioaccumulative potential	Not bioaccumulative.
Diethylene glycol (111-46-6)	
BCF - Fish [1]	100 l/kg (3 day(s), Leuciscus melanotus, Static system, Fresh water, Experimental value)
Partition coefficient n-octanol/water (Log Pow)	-1.98 (Calculated)
Bioaccumulative potential	Low potential for bioaccumulation (BCF < 500).
12.4. Mobility in soil	
Zirconium oxide (1314-23-4)	
Surface tension	Not applicable (solid)
Ecology - soil	No (test)data on mobility of the substance available.
Carbon Black (1333-86-4)	
Surface tension	Not applicable (solid)
Ecology - soil	No (test)data on mobility of the substance available. Not toxic to plants. Not toxic to animals.
Titanium dioxide (13463-67-7)	
Surface tension	No data available in the literature
Ecology - soil	Low potential for mobility in soil.
Crystalline silica (14808-60-7)	
Ecology - soil	No (test)data on mobility of the substance available.
Silicon carbide (409-21-2)	
Surface tension	No data available in the literature
Ecology - soil	Low potential for adsorption in soil.
Adipic acid, dimethyl ester (627-93-0)	
Ecology - soil	No (test)data on mobility of the substance available.
Iron (7439-89-6)	
Ecology - soil	Adsorbs into the soil.
Diethylene glycol (111-46-6)	
Surface tension	48.5 mN/m
Organic Carbon Normalized Adsorption Coefficient (Log Koc)	0 (log Koc, SRC PCKOCWIN v2.0, QSAR)
Ecology - soil	Highly mobile in soil.

12.5. Other adverse effects

No additional information available

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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

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

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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

Silicon nitride (Si₃N₄) (12033-89-5)

Listed on the Canadian DSL (Domestic Substances List)

Zirconium oxide (1314-23-4)

Listed on the Canadian DSL (Domestic Substances List)

Carbon Black (1333-86-4)

Listed on the Canadian DSL (Domestic Substances List)

Titanium dioxide (13463-67-7)

Listed on the Canadian DSL (Domestic Substances List)

Crystalline silica (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

Silicon carbide (409-21-2)

Listed on the Canadian DSL (Domestic Substances List)

Adipic acid, dimethyl ester (627-93-0)

Listed on the Canadian DSL (Domestic Substances List)

Iron (7439-89-6)

Listed on the Canadian DSL (Domestic Substances List)

Diethylene glycol (111-46-6)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Carbon Black (1333-86-4)

Listed on IARC (International Agency for Research on Cancer)

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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)

Silicon carbide (409-21-2)

Listed on IARC (International Agency for Research on Cancer)

15.3. US State regulations

Carbon Black (1333-86-4)

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
Zirconium oxide(1314-23-4)	U.S. - Massachusetts - Right To Know List
Carbon Black(1333-86-4)	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
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
Silicon carbide(409-21-2)	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
Diethylene glycol(111-46-6)	U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

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Revision date : 10/21/2022

Full text of H-phrases

H302	Harmful if swallowed
H312	Harmful in contact with skin
H330	Fatal if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation

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Full text of H-phrases	
H350	May cause cancer
H351	Suspected of causing cancer
H372	Causes damage to organs through prolonged or repeated exposure

Safety Data Sheet (SDS), USA

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