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SAFETY DATA SHEET

Classified in accordance 29 CFR 1910.1200

1. Identification

Product identifier

Product No.:	Product name:	Common name(s), synonym(s)
367812	Tube PLN PLH 13X75mm 4.0ml PLBL RD	BD Vacutainer® Serum CAT Blood Collection Tubes

Recommended restrictions

Recommended use: Scientific and industrial laboratory use. For In Vitro Diagnostic Use.

Restrictions on use: For External Use Only

Manufacturer/Importer/Distributor Information

Manufacturer

Company Name: BD, Integrated Diagnostic Solutions
Address: 1 Becton Drive
Franklin Lakes, NJ 07417
USA

Telephone: 1 800 631 0174
Fax: 1 201 847 4866
Contact Person: Technical Services
E-mail: productcomplaints@bd.com

Emergency telephone number: CHEMTREC 1 800 424 9300

2. Hazard(s) identification

Hazard Classification

Health Hazards

Carcinogenicity Category 1A

Environmental Hazards

Chronic hazards to the aquatic
environment Category 3

Label Elements

Hazard Symbol:



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Signal Word:	Danger
Hazard Statement:	H350: May cause cancer. H412: Harmful to aquatic life with long lasting effects.
Precautionary Statements	
Prevention:	P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P273: Avoid release to the environment. P280: Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P308+P313: IF exposed or concerned: Get medical advice/attention.
Storage:	P405: Store locked up.
Disposal:	P501: Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.
Other hazards which do not result in GHS classification:	None.

3. Composition/information on ingredients
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Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%) [*]
Quartz (SiO ₂)	No data available.	14808-60-7	75.6169%
Aluminum oxide (Al ₂ O ₃)	No data available.	1344-28-1	0.8427%
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.	556-67-2	0.0806%
Benzene, methyl-	No data available.	108-88-3	0.0806%
Iron oxide (Fe ₂ O ₃)	No data available.	1309-37-1	0.0766%
Titanium oxide (TiO ₂)	No data available.	13463-67-7	0.0766%

^{*} All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Description of necessary first-aid measures

General information:	Get medical attention if symptoms occur. May cause cancer.
Inhalation:	Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if symptoms occur.
Eye contact:	Important! Immediately rinse with water for at least 15 minutes. Get medical attention if symptoms occur.
Ingestion:	Rinse mouth thoroughly. Seek medical advice.
Personal Protection for First-aid Responders:	Use fire-extinguishing media appropriate for surrounding materials., Wear self-contained breathing apparatus and protective clothing.

Most important symptoms/effects, acute and delayed

Symptoms:	No data available.
Hazards:	Low hazard for recommended handling by trained personnel.

Indication of immediate medical attention and special treatment needed



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Treatment: Get medical attention if symptoms occur.

5. Fire-fighting measures

General Fire Hazards: No unusual fire or explosion hazards noted.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, fog, CO₂, dry chemical, or alcohol resistant foam.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: None known.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: No unusual fire or explosion hazards noted.

Special protective equipment for fire-fighters: Use fire-extinguishing media appropriate for surrounding materials. Wear self-contained breathing apparatus and protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid contact with spilled material. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up: Sweep or scoop up and remove. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Environmental Precautions: Do not release into the environment.

7. Handling and storage

Handling
SDS_US



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Technical measures (e.g. Local and general ventilation): Observe good industrial hygiene practices. Low hazard for recommended handling by trained personnel.

Safe handling advice: Wear appropriate personal protective equipment. Low hazard for recommended handling by trained personnel.

Contact avoidance measures: No data available.

Storage

Safe storage conditions: Keep containers tightly closed. Keep the container in a safe place. Keep in a cool, well-ventilated place.

Safe packaging materials: No data available.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Quartz (SiO ₂) - Respirable dust.	TWA	0.1 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	TWA	0.1 mg/m ³	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
Quartz (SiO ₂)	AN ESL	0.27 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	ST ESL	14 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
Quartz (SiO ₂) - Respirable dust.	TWA PEL	0.1 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
Quartz (SiO ₂) - Total dust.	TWA PEL	0.3 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
Quartz (SiO ₂) - Respirable dust.	REL	0.05 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards, as amended
Quartz (SiO ₂) - Respirable.	TWA	0.1 mg/m ³	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
	TWA	2.4 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
Quartz (SiO ₂) - Respirable dust.	OSHA_ACT	0.025 mg/m ³	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended



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	TWA	0.05 mg/m ³	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended
Quartz (SiO ₂) - Respirable dust.	PEL	0.05 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Quartz (SiO ₂)	IDLH	50 mg/m ³	US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended
Quartz (SiO ₂) - Respirable fraction.	TWA	0.025 mg/m ³	US. ACGIH Threshold Limit Values, as amended
Aluminum oxide (Al ₂ O ₃) - Total dust.	TWA	10 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Aluminum oxide (Al ₂ O ₃) - Respirable fraction.	TWA	5 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
Aluminum oxide (Al ₂ O ₃) - Total dust.	TWA	10 mg/m ³	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
Aluminum oxide (Al ₂ O ₃) - Respirable fraction.	TWA	5 mg/m ³	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
Aluminum oxide (Al ₂ O ₃)	AN ESL	5 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	ST ESL	50 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
Aluminum oxide (Al ₂ O ₃) - Respirable fraction.	TWA PEL	5 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
Aluminum oxide (Al ₂ O ₃) - Total dust.	TWA PEL	10 mg/m ³	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
Aluminum oxide (Al ₂ O ₃) - Respirable fraction.	TWA	1 mg/m ³	US. ACGIH Threshold Limit Values, as amended
Aluminum oxide (Al ₂ O ₃) - Total dust.	PEL	15 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Aluminum oxide (Al ₂ O ₃) - Respirable fraction.	PEL	5 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Aluminum oxide (Al ₂ O ₃) - Total dust.	TWA	50 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
	TWA	15 mg/m ³	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
Aluminum oxide (Al ₂ O ₃) - Respirable fraction.	TWA	15 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
	TWA	5 mg/m ³	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
Benzene, methyl-	ST ESL	640 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended



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	AN ESL	1,200 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	ST ESL	170 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	AN ESL	330 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	TWA	20 ppm	US. ACGIH Threshold Limit Values, as amended
	REL	100 ppm 375 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards, as amended
	STEL	150 ppm 560 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards, as amended
	IDLH	500 ppm	US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended
	TWA	100 ppm 375 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	STEL	150 ppm 560 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	Ceiling	300 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000), as amended
	MAX. CONC	500 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000), as amended
	TWA	200 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000), as amended
	TWA	100 ppm 375 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
	STEL	150 ppm 580 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
	Ceiling	500 ppm	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
	STEL	150 ppm 560 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
	TWA PEL	10 ppm 37 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as amended
Iron oxide (Fe2O3) - Fume.	TWA	10 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	TWA	10 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
Iron oxide (Fe2O3)	ST ESL	50 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	AN ESL	5 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
Iron oxide (Fe2O3) - Fume.	TWA PEL	5 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants, as



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			amended
Iron oxide (Fe ₂ O ₃) - Respirable fraction.	TWA	5 mg/m ³	US. ACGIH Threshold Limit Values, as amended
Iron oxide (Fe ₂ O ₃) - Dust and fume. - as Fe	REL	5 mg/m ³	US. NIOSH: Pocket Guide to Chemical Hazards, as amended
Iron oxide (Fe ₂ O ₃) - Fume.	PEL	10 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Iron oxide (Fe ₂ O ₃) - Respirable fraction.	TWA	15 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
Iron oxide (Fe ₂ O ₃) - Total dust.	TWA	15 mg/m ³	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
	TWA	50 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
Iron oxide (Fe ₂ O ₃) - Respirable fraction.	TWA	5 mg/m ³	US. OSHA Table Z-3 (29 CFR 1910.1000), as amended
Iron oxide (Fe ₂ O ₃)	IDLH	2,500 mg/m ³	US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended
Titanium oxide (TiO ₂) - Respirable fraction.	TWA	1 mg/m ³	US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values, as amended
Titanium oxide (TiO ₂) - Total dust.	TWA	10 mg/m ³	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	TWA	10 mg/m ³	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A, as amended
Titanium oxide (TiO ₂)	ST ESL	50 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	AN ESL	5 µg/m ³	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality), as amended
	TWA	10 mg/m ³	US. ACGIH Threshold Limit Values, as amended
Titanium oxide (TiO ₂) - Total dust.	PEL	15 mg/m ³	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000), as amended
Titanium oxide (TiO ₂)	IDLH	5,000 mg/m ³	US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Please refer to the latest edition of the appropriate source text and consult an industrial hygienist or similar professional, or local agencies, for further information.

Biological Limit Values

No biological exposure limits noted for the ingredient(s).

Appropriate Engineering Controls

Observe good industrial hygiene practices. Low hazard for recommended handling by trained personnel.



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Individual protection measures, such as personal protective equipment

Eye/face protection: Avoid contact with eyes and prolonged skin contact. Protective gloves and goggles must be used if there is a risk of direct contact or splash.

Skin Protection

Hand Protection: Material: Use suitable protective gloves if risk of skin contact.

Skin and Body Protection: No data available.

Respiratory Protection: No protection is ordinarily required under normal conditions of use and with adequate ventilation.

Hygiene measures: Observe good industrial hygiene practices.

9. Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Physical state: Solid

Form: Powder

Color: White

Odor: Odorless

Odor Threshold: No data available.

Melting Point: Not applicable

Boiling Point: No data available.

Flammability: Not applicable

Upper/lower limit on flammability or explosive limits

Explosive limit - upper: Not applicable

Explosive limit - lower: Not applicable

Flash Point: Not applicable

Self Ignition Temperature: Not determined.

Decomposition Not applicable

Temperature: Not applicable

pH: Not applicable

Viscosity

Dynamic viscosity: Not determined.

Kinematic viscosity: No data available.

Flow Time: Not applicable

Solubility(ies)



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Solubility in Water:	Not applicable
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	Not applicable
Vapor pressure:	Not applicable
Relative density:	Not applicable
Density:	Not applicable
Bulk density:	Not applicable
Vapor density (air=1):	Not applicable
Particle characteristics	
Particle Size:	Not applicable
Particle Size Distribution:	Not applicable
Specific surface area:	Not applicable
Surface charge/Zeta potential:	Not applicable
Assessment:	Not applicable
Shape:	Not applicable
Crystallinity:	Not applicable
Surface treatment:	Not applicable

10. Stability and reactivity

Reactivity:	Material is stable under normal conditions.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Material is stable under normal conditions.
Conditions to avoid:	None under normal conditions.
Incompatible Materials:	None under normal conditions.
Hazardous Decomposition Products:	Material is stable under normal conditions.

11. Toxicological information

Information on likely routes of exposure



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Inhalation:	Under normal conditions of intended use, this material is not expected to be an inhalation hazard. Prolonged breathing of high levels of crystalline silica can cause silicosis. Also, airborne crystalline silica is possibly carcinogenic to humans.
Skin Contact:	Due to the small packaging the risk of skin contact is minimal.
Eye contact:	Due to the small packaging the risk of eye contact is minimal.
Ingestion:	Due to the small packaging the risk of ingestion is minimal.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	No specific symptoms noted.
Skin Contact:	Skin irritation is not anticipated when used normally.
Eye contact:	No specific symptoms noted.
Ingestion:	No specific symptoms noted.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	LD 50 (Rat): > 15,900 mg/kg Experimental result, Key study
Octamethylcyclotetrasiloxane	LD 50 (Rat): > 4,800 mg/kg Experimental result, Key study LD 50 (Mouse): 1,700 mg/kg Experimental result, Supporting study LD 50 (Rat): > 61,440 mg/kg Experimental result, Supporting study
Toluene	LD 50 (Rat): 5,580 mg/kg Experimental result, Key study LD 50 (Rat): > 5,000 mg/kg Experimental result, Supporting study
Diiron trioxide	LD 50 (Rat): > 5,000 mg/kg Experimental result, Key study LD 50 (Rat): > 10,000 mg/kg Experimental result, Key study
Titanium dioxide	LD 50 (Rat): > 25,000 mg/kg Experimental result, Supporting study LD 50 (Rat): > 11,000 mg/kg Experimental result, Supporting study LD 50 (Mouse): > 5,000 mg/kg Experimental result, Key study LD 50 (Rat): > 5,000 mg/kg Experimental result, Key study LD 50 (Rat): > 5,000 mg/kg



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	Experimental result, Supporting study
Dermal	
Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	LD 50 (Rat): > 2,000 mg/kg Experimental result, Supporting study
Toluene	LD 50 (Rabbit): > 5,000 mg/kg Experimental result, Key study
Diiron trioxide	No data available.
Titanium dioxide	No data available.
Inhalation	
Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	NOAEL (Rat): 10 mg/m ³ Read-across from supporting substance (structural analogue or surrogate), Key study, Aerosol LC 50 (Rat): 7.6 mg/l Experimental result, Key study, Aerosol
Octamethylcyclotetrasiloxane	LC 50 (Rat): 36 mg/l Experimental result, Key study, Aerosol
Toluene	LC 50 (Rat): 25.7 mg/l Experimental result, Key study, Vapor LC 50 (Rat): 30 mg/l Experimental result, Key study, Vapor LC 50 (Rat): 28.1 mg/l Experimental result, Key study, Vapor
Diiron trioxide	LC 0 (Rat): > 210 mg/m ³ Experimental result, Weight of Evidence study, Aerosol
Titanium dioxide	LC 50 (Rat): 5.09 mg/l Experimental result, Key study, Inhalation LC 50 (Rat): > 6.82 mg/l Experimental result, Key study, Inhalation



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Repeated dose toxicity

Product:

No data available.

Components:

Quartz (SiO₂)

No data available.

Aluminium oxide

NOAEL (Rat(Female, Male), Oral, 28 - 53 d): 1,000 mg/kg Read-across from supporting substance (structural analogue or surrogate), Weight of Evidence study Oral

NOAEL (Rat(Female, Male), Oral, > 364 d): 322.5 mg/kg Read-across from supporting substance (structural analogue or surrogate), Weight of Evidence study Oral

LOAEL (Rat(Male), Inhalation): 28 mg/m³ Read-across from supporting substance (structural analogue or surrogate), Supporting study Inhalation

Octamethylcyclotetrasiloxane

NOAEL (Rat(Female, Male), Inhalation): 2,500 mg/m³ Experimental result, Supporting study Inhalation

NOAEL (Rat(Female, Male), Inhalation, 13 Weeks): 34 ppm(m)

Experimental result, Supporting study Inhalation

NOAEL (Rat(Female, Male), Inhalation, 14 d): >= 400 ppm(m) Experimental result, Supporting study Inhalation

NOAEL (Rat(Female, Male), Inhalation, <= 24 Months): 150 ppm(m)

Experimental result, Key study Inhalation

NOAEL (Rat(Female, Male), Oral, 12 Months): >= 1 %(m) Experimental result, Supporting study Oral

Toluene

LOAEL (Rat(Female, Male), Inhalation, 26 Weeks): 1,500 ppm(m) Not specified, Not specified Inhalation

LOAEL (Rat(Female, Male), Inhalation): 600 ppm(m) Experimental result, Key study Inhalation

NOAEL (Rat(Female, Male), Inhalation): 300 ppm(m) Experimental result, Key study Inhalation

LOAEL (Rat(Female, Male), Inhalation): 4,710 mg/m³ Experimental result, Key study Inhalation

NOAEL (Rat(Female, Male), Oral, 13 Weeks): 625 mg/kg Experimental result, Key study Oral

Diiron trioxide

NOAEL (Rat(Male), Inhalation): 10.1 mg/m³ Read-across based on grouping of substances (category approach), Key study Inhalation

NOAEL (Rat(Female, Male), Inhalation): 4.7 mg/m³ Read-across based on grouping of substances (category approach), Key study Inhalation

Titanium dioxide

NOAEL (Rat(Female, Male), Inhalation): 5 mg/m³ Experimental result, Supporting study Inhalation

NOAEL (Rat(Male), Oral, 29 d): 24,000 mg/kg Experimental result, Key study Oral

NOAEL (Rat(female), Inhalation): 0.52 mg/m³ Experimental result, Supporting study Inhalation

NOAEL (Rat(Male), Inhalation): 5 mg/m³ Experimental result, Supporting study Inhalation

NOAEL (Mouse(female), Inhalation): 9.5 mg/m³ Experimental result, Supporting study Inhalation

Skin Corrosion/Irritation



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Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	in vivo (Rabbit): Not irritant in vivo (Rabbit): Not irritant
Toluene	No data available.
Diiron trioxide	No data available.
Titanium dioxide	No data available.

Serious Eye Damage/Eye Irritation

Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	Not irritating in vivo Rabbit, 24 hrs: EU
Octamethylcyclotetrasiloxane	No data available.
Toluene	Not irritating in vivo Rabbit, 24 - 72 hrs: EU Irritating in vivo Rabbit, 4 d: AFNOR scale for interpretation of ocular irritation
Diiron trioxide	Not irritating in vivo Rabbit, 1 - 72 hrs:
Titanium dioxide	Not irritating in vivo Rabbit, 24 hrs: EU Not irritating in vivo Rabbit, 48 - 72 hrs: EU Minimal irritant in vivo Rabbit, 24 hrs: EU Not irritating in vivo Rabbit, 1 hrs: EU Minimal irritant in vivo Rabbit, 48 - 72 hrs: EU Not irritating in vivo Rabbit, 24 hrs: EU Not irritating in vivo Rabbit, 48 - 72 hrs: EU Minimal irritant in vivo Rabbit, 24 - 72 hrs: EU Not irritating in vivo Rabbit, 24 - 72 hrs: EU Minimal irritant in vivo Rabbit, 1 hrs: EU Not irritating in vivo Rabbit, 1 hrs: EU

Respiratory or Skin Sensitization



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Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Octamethylcyclotetrasiloxane	No data available.
Toluene	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Diiron trioxide	No data available.
Titanium dioxide	Skin sensitization:, in vivo/in vitro (Guinea pig): Non sensitising

Carcinogenicity

Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	No data available.
Toluene	No data available.
Diiron trioxide	No data available.
Titanium dioxide	No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Quartz (SiO ₂)	Overall evaluation: 1. Carcinogenic to humans.
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ACGIH: US.ACGIH Threshold Limit Values:

Quartz (SiO ₂)	Hazard Designation: Group A2. Suspected human carcinogen.
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US. National Toxicology Program (NTP) Report on Carcinogens:

Quartz (SiO ₂)	Known To Be Human Carcinogen.
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US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

Quartz (SiO ₂)	Cancer
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Germ Cell Mutagenicity

In vitro

Product:	No data available.
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Components:	
Quartz (SiO ₂)	No data available.

Aluminium oxide	No data available.
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Octamethylcyclotetra siloxane	No data available.
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Toluene	No data available.
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Diiron trioxide	No data available.
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Titanium dioxide	No data available.
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In vivo

Product:	No data available.
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Components:	
Quartz (SiO ₂)	No data available.

Aluminium oxide	No data available.
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Octamethylcyclotetra siloxane	No data available.
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Toluene	No data available.
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Diiron trioxide	No data available.
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Titanium dioxide	No data available.
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Reproductive toxicity

Product:	No data available.
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Components:



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Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	No data available.
Toluene	No data available.
Diiron trioxide	No data available.
Titanium dioxide	No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	No data available.
Toluene	No data available.
Diiron trioxide	No data available.
Titanium dioxide	No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	No data available.
Toluene	No data available.
Diiron trioxide	No data available.
Titanium dioxide	No data available.

Aspiration Hazard

Product: No data available.

Components:



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Quartz (SiO ₂)	No data available.
Aluminium oxide	No data available.
Octamethylcyclotetrasiloxane	No data available.
Toluene	No data available.
Diiron trioxide	No data available.
Titanium dioxide	No data available.

Information on health hazards

Other hazards

Product: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	LC 50 (Pimephales promelas, 96 h): 35 mg/l Experimental result, Weight of Evidence study LC 50 (Oncorhynchus mykiss, 96 h): 14.6 mg/l Experimental result, Weight of Evidence study
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	LC 50 (Pimephales promelas, 96 h): 33.9 mg/l LC 50 (Fathead minnow (Pimephales promelas), 96 h): 21 - 34 mg/l Mortality LC 50 (Oncorhynchus kisutch, 96 h): 5.5 mg/l Experimental result, Key study
Iron oxide (Fe ₂ O ₃)	LC 90 (Danio rerio, 96 h): +/- 100,000 mg/l Experimental result, Key study LC 50 (Pimephales promelas, 96 h): 14.4 mg/l Experimental result, Supporting study LC 50 (Oncorhynchus mykiss, 96 h): 18.29 mg/l Experimental result,



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Titanium oxide (TiO ₂)	Supporting study LC 0 (Danio rerio, 96 h): >= 50,000 mg/l Experimental result, Key study LC 50 (Lepomis macrochirus, 96 h): 20 mg/l Experimental result, Supporting study EC 50 (96 h): > 9,051 mg/l Experimental result, Not specified NOAEL (Oncorhynchus mykiss, 96 h): >= 100 mg/l Experimental result, Weight of Evidence study LC 50 (Pimephales promelas, 96 h): > 1,000 mg/l Experimental result, Weight of Evidence study LC 50 (Cyprinodon variegatus, 96 h): > 240 - < 370 mg/l Experimental result, Not specified NOAEL (Pimephales promelas, 96 h): >= 1,000 mg/l Experimental result, Weight of Evidence study
Aquatic Invertebrates	
Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	EC 50 (Ceriodaphnia dubia, 48 h): 1.9 mg/l Experimental result, Weight of Evidence study
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	
Iron oxide (Fe ₂ O ₃)	LC 50 (Ceriodaphnia dubia, 2 d): 3.78 mg/l Experimental result, Key study EC 50 (Daphnia magna, 48 h): > 100 mg/l Experimental result, Key study EC 50 (Haliotis rubra, 48 h): 5.11 mg/l Experimental result, Supporting study
Titanium oxide (TiO ₂)	EC 50 (Daphnia magna, 48 h): > 100 mg/l Experimental result, Not specified EC 50 (Water flea (Daphnia magna), 48 h): > 1,000 mg/l Intoxication EC 50 (Daphnia magna, 48 h): > 100 mg/l Experimental result, Supporting study EC 50 (Daphnia magna, 48 h): > 1,000 mg/l Experimental result, Weight of Evidence study EC 50 (Daphnia magna, 48 h): > 1,000 mg/l Experimental result, Weight of Evidence study
Toxicity to Aquatic Plants	
Product:	No data available.
Components:	
Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.
Toxicity to microorganisms	
Product:	No data available.



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Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8- octamethyl-	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	EC 50 (Pimephales promelas, 7 d): 1.453 mg/l Experimental result, Weight of Evidence study EC 50 (Pimephales promelas, 7 d): 1.861 mg/l Experimental result, Weight of Evidence study
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8- octamethyl-	No data available.
Benzene, methyl-	NOAEL (Oncorhynchus kisutch, 40 d): 1.39 mg/l Experimental result, Key study
Iron oxide (Fe ₂ O ₃)	NOAEL (Pimephales promelas, 33 d): 1.6 mg/l Experimental result, Supporting study NOAEL (Pimephales promelas, 12 Months): < 1.5 mg/l Experimental result, Supporting study NOAEL (Pimephales promelas, 33 d): 1 mg/l Experimental result, Supporting study NOAEL (Salvelinus fontinalis, 35 Weeks): 6 mg/l Experimental result, Supporting study
Titanium oxide (TiO ₂)	ED 0 (Phoxinus phoxinus, 30 d): >= 1,000 mg/l Experimental result, Supporting study LC 0 (Coregonus autumnalis migratorius G., 30 d): 3 mg/l Experimental result, Supporting study

Aquatic Invertebrates

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	EC 50 (Ceriodaphnia dubia, 7 d): 2.374 mg/l Experimental result, Weight of Evidence study EC 50 (Daphnia magna, 21 d): 1.097 mg/l Experimental result, Weight of Evidence study
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8- octamethyl-	No data available.



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Benzene, methyl-	LOAEL (Ceriodaphnia dubia, 7 d): 2.76 mg/l Experimental result, Key study
Iron oxide (Fe ₂ O ₃)	EC 50 (Ceriodaphnia dubia, 7 d): 3.23 mg/l Experimental result, Key study
	EC 50 (Leptophlebia marginata, 5 d): 8.48 mg/l Experimental result, Supporting study
	NOAEL (Arrenurus manubriator, 15 d): 800 mg/l Experimental result, Supporting study
	EC 50 (Leptophlebia marginata, 24 d): 73.07 mg/l Experimental result, Supporting study
	EC 50 (Leptophlebia marginata, 5 d): 19.84 mg/l Experimental result, Supporting study
	NOAEL (Daphnia magna, 21 d): 2 mg/l Experimental result, Supporting study
Titanium oxide (TiO ₂)	EC 50 (Nitokra spinipes, 13 d): 107.4 mg/l Experimental result, Supporting study
	LC 100 (Daphnia magna, 18 d): 1,000 mg/l Experimental result, Supporting study
	EC 50 (Nitokra spinipes, 13 d): 2.03 mg/l Experimental result, Supporting study
	EC 100 (Daphnia magna, 30 d): 500 mg/l Experimental result, Supporting study

Toxicity to Aquatic Plants

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

Toxicity to microorganisms

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

Persistence and Degradability

Biodegradation

Product: No data available.



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Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8- octamethyl-	No data available.
Benzene, methyl-	73 % Experimental result, Weight of Evidence study Detected in water. 86 % Experimental result, Weight of Evidence study Detected in water. 53 % Experimental result, Weight of Evidence study Detected in water. 100 % (4 d) Not specified, Not specified Detected in water. 70 % Experimental result, Weight of Evidence study Detected in water.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

BOD/COD Ratio

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8- octamethyl-	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8- octamethyl-	Pimephales promelas, Bioconcentration Factor (BCF): 12,400 Experimental result, Key study Aquatic sediment Pimephales promelas, Bioconcentration Factor (BCF): 13,400 Experimental result, Key study Aquatic sediment
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.



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Titanium oxide (TiO ₂)	Oncorhynchus mykiss, Bioconcentration Factor (BCF): 19 Experimental result, Key study Aquatic sediment Oncorhynchus mykiss, Bioconcentration Factor (BCF): 67 Experimental result, Key study Aquatic sediment Oncorhynchus mykiss, Bioconcentration Factor (BCF): 20 Experimental result, Key study Aquatic sediment Cyprinus carpio, Bioconcentration Factor (BCF): 74 Experimental result, Supporting study Aquatic sediment Oncorhynchus mykiss, Bioconcentration Factor (BCF): 34 - 352 Experimental result, Key study Aquatic sediment
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Partition Coefficient n-octanol / water (log K_{ow})

Product: No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	Log K _{ow} : 2.73
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

Mobility in soil:

Product No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.

Results of PBT and vPvB assessment:

Product No data available.

Components:

Quartz (SiO ₂)	No data available.
Aluminum oxide (Al ₂ O ₃)	No data available.
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe ₂ O ₃)	No data available.
Titanium oxide (TiO ₂)	No data available.



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Other adverse effects:

Other hazards

Product: No data available.

Components:

Quartz (SiO₂) No data available.

Aluminum oxide (Al₂O₃) No data available.

Cyclotetrasiloxane, No data available.

2,2,4,4,6,6,8,8-

octamethyl-

Benzene, methyl- No data available.

Iron oxide (Fe₂O₃) No data available.

Titanium oxide (TiO₂) No data available.

13. Disposal considerations

Disposal methods: Dispose of waste and residues in accordance with local authority requirements.

Contaminated Packaging: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

14. Transport information

DOTUN number or ID number: Not regulated.

UN Proper Shipping Name: Not regulated.

Transport Hazard Class(es)

Class: Not regulated.

Label(s): Not regulated.

Packing Group: Not regulated.

Marine Pollutant: Not regulated.

Limited quantity Not regulated.

Excepted quantity Not regulated.

Special precautions for user: Not regulated.



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IMDG

UN number or ID number:	Not regulated.
UN Proper Shipping Name:	Not regulated.
Transport Hazard Class(es)	
Class:	Not regulated.
Subsidiary risk:	Not regulated.
EmS No.:	Not regulated.
Packing Group:	Not regulated.
Environmental Hazards	
Marine Pollutant:	Not regulated.
Special precautions for user:	Not regulated.

IATA

UN number or ID number:	Not regulated.
Proper Shipping Name:	Not regulated.
Transport Hazard Class(es):	
Class:	Not regulated.
Subsidiary risk:	Not regulated.
Packing Group:	Not regulated.
Environmental Hazards	
Marine pollutant:	Not regulated.
Special precautions for user:	Not regulated.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

Chemical Identity

Quartz (SiO₂)

OSHA hazard(s)

kidney effects
lung effects
Cancer
immune system effects



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CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity

Benzene, methyl-

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Carcinogenicity

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

None present or none present in regulated quantities.

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

Chemical Identity

Benzene, methyl-

US State Regulations

US. California Proposition 65



WARNING: This product can expose you to chemicals including, Quartz (SiO₂)Titanium oxide (TiO₂) which is [are] known to the State of California to cause cancer.

This product can expose you to chemicals including, Benzene, methyl- which is [are] known to the State of California to cause birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.



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US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

Quartz (SiO₂)
2-Pyrrolidinone, 1-ethenyl-, homopolymer
Siloxanes and Silicones, di-Me, polymers with Me silsesquioxanes and
polyethylene-polypropylene glycol mono-Bu ether
Oxirane, 2-methyl-, polymer with oxirane, monobutyl ether
Aluminum oxide (Al₂O₃)
Cyclotetrasiloxane, 2,2,4,4,6,6,8,8-octamethyl-
Benzene, methyl-
Iron oxide (Fe₂O₃)
Titanium oxide (TiO₂)

US. Massachusetts RTK - Substance List

Chemical Identity

Quartz (SiO₂)

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity

Quartz (SiO₂)

US. Rhode Island RTK

Chemical Identity

Quartz (SiO₂)

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

Not applicable

16. Other information, including date of preparation or last revision
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Issue Date: 11/17/2021
Version #: 13.2
Further Information: No data available.



Version: 13.2
Last revised date:
11/17/2021

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