SAFETY DATA SHEETS

This SDS packet was issued with item:

078031892

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

078559517

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

SAFETY DATA SHEET

1. Identification

Product identifier

Product No.:	Product name:	Common name(s), synonym(s)
368045	Tube PLN PLC 16X100mm 10.0ml PLBL RD	

Other means of identification

SDS number: 088100003939

Recommended use and restriction on use

Recommended use: Scientific and industrial laboratory use. For In Vitro Diagnostic Use.
Restrictions on use: For External Use Only

Manufacturer/Importer/Supplier/Distributor Information

Manufacturer

Company Name:	BD Diagnostics, Preanalytical Systems
Address:	1 Becton Drive 07417 Franklin Lakes, NJ USA
Telephone:	1 800 631 0174
Fax:	1 201 847 4866
Contact Person:	Technical Services
E-mail:	pas_tech_services@bd.com

Emergency telephone number: ChemTrec 1 800 424 9300

2. Hazard(s) identification

Hazard Classification

Health Hazards

Carcinogenicity — Category 1A

Label Elements

Hazard Symbol:

Signal Word: Danger

Hazard Statement: H350: May cause cancer.

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Precautionary Statements

Prevention: P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.

Response: P308+P313: IF exposed or concerned: Get medical advice/attention.

Storage: P405: Store locked up.

Disposal: P501: 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.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
Quartz (SiO2)		14808-60-7	50 - <100%
Aluminum oxide (Al2O3)		1344-28-1	0.1 - <1%
Benzene, methyl-		108-88-3	0 - <0.1%
Iron oxide (Fe2O3)		1309-37-1	0 - <0.1%
Titanium oxide (TiO2)		13463-67-7	0 - <0.1%

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

4. First-aid measures

General information: Get medical attention if symptoms occur.

Ingestion: Rinse mouth thoroughly. Seek medical advice.

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.

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Eye contact: Important! Immediately rinse with water for at least 15 minutes. Get medical attention if symptoms occur.

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

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.

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

7. Handling and storage

Precautions for safe handling: Wear appropriate personal protective equipment. Low hazard for recommended handling by trained personnel.

Conditions for safe storage, including any incompatibilities: Keep containers tightly closed. Keep the container in a safe place. Keep in a cool, well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Quartz (SiO2) - Respirable dust.	TWA	0.1 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	0.1 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Quartz (SiO2)	AN ESL	0.27 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2012)
	ST ESL	14 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2012)
Quartz (SiO2) - Respirable dust.	TWA PEL	0.1 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
Quartz (SiO2) - Total dust.	TWA PEL	0.3 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
Quartz (SiO2) - Respirable fraction.	TWA	0.025 mg/m3	US. ACGIH Threshold Limit Values (12 2010)
Quartz (SiO2) - Respirable dust.	REL	0.05 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Quartz (SiO2) - Respirable.	TWA	0.1 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
	TWA	2.4 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
Quartz (SiO2) - Respirable dust.	OSHA_ACT	0.025 mg/m3	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (03 2016)
	TWA	0.05 mg/m3	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) (03 2016)
Quartz (SiO2) - Respirable dust.	PEL	0.05 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (03 2016)
Aluminum oxide (Al2O3) - Total dust.	TWA	10 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
Aluminum oxide (Al2O3) - Respirable fraction.	TWA	5 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
Aluminum oxide (Al2O3) - Total dust.	TWA	10 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Aluminum oxide (Al2O3) - Respirable fraction.	TWA	5 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Aluminum oxide (Al2O3)	AN ESL	5 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2012)
	ST ESL	50 µg/m3	US. Texas. Effects Screening Levels (Texas

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

				Commission on Environmental Quality) (03 2012)
Aluminum oxide (Al2O3) - Respirable fraction.	TWA PEL		5 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
Aluminum oxide (Al2O3) - Total dust.	TWA PEL		10 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
Aluminum oxide (Al2O3) - Respirable fraction.	TWA		1 mg/m3	US. ACGIH Threshold Limit Values (12 2010)
Aluminum oxide (Al2O3) - Total dust.	PEL		15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Aluminum oxide (Al2O3) - Respirable fraction.	PEL		5 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Aluminum oxide (Al2O3) - Total dust.	TWA		50 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
	TWA		15 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
Aluminum oxide (Al2O3) - Respirable fraction.	TWA		15 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
	TWA		5 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
Benzene, methyl-	STEL	150 ppm	560 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	100 ppm	375 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	150 ppm	580 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	TWA	100 ppm	375 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	ST ESL		640 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	AN ESL		1,200 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	ST ESL		170 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (07 2011)
	AN ESL		330 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (12 2010)
	TWA PEL	10 ppm	37 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (02 2012)
	STEL	150 ppm	560 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
	Ceiling	500 ppm		US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
	TWA	20 ppm		US. ACGIH Threshold Limit Values (12 2010)
	REL	100 ppm	375 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	STEL	150 ppm	560 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	Ceiling	300 ppm		US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)
	MAX.	500 ppm		US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

	CONC		
	TWA	200 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)
Iron oxide (Fe2O3) - Fume.	TWA	10 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	10 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Iron oxide (Fe2O3)	ST ESL	50 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (12 2010)
	AN ESL	5 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (12 2010)
Iron oxide (Fe2O3) - Fume.	TWA PEL	5 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)
Iron oxide (Fe2O3) - Respirable fraction.	TWA	5 mg/m3	US. ACGIH Threshold Limit Values (12 2010)
Iron oxide (Fe2O3) - Dust and fume. - as Fe	REL	5 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
Iron oxide (Fe2O3) - Fume.	PEL	10 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
Iron oxide (Fe2O3) - Respirable fraction.	TWA	15 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
Iron oxide (Fe2O3) - Total dust.	TWA	15 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
	TWA	50 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
Iron oxide (Fe2O3) - Respirable fraction.	TWA	5 mg/m3	US. OSHA Table Z-3 (29 CFR 1910.1000) (03 2016)
Titanium oxide (TiO2) - Respirable fraction.	TWA	1 mg/m3	US. ACGIH Notice of Intended Changes (NIC) to Threshold Limit Values (02 2013)
Titanium oxide (TiO2) - Total dust.	TWA	10 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	10 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
Titanium oxide (TiO2)	ST ESL	50 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2012)
	AN ESL	5 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (03 2012)
	TWA	10 mg/m3	US. ACGIH Threshold Limit Values (12 2010)
Titanium oxide (TiO2) - Total dust.	PEL	15 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Benzene, methyl- (o-Cresol, with hydrolysis: Sampling time: End of shift.)	0.3 mg/g (Creatinine in urine)	ACGIH BEI (03 2013)
Benzene, methyl- (toluene: Sampling time: End of shift.)	0.03 mg/l (Urine)	ACGIH BEI (03 2013)
Benzene, methyl- (toluene: Sampling time: Prior to last shift of work week.)	0.02 mg/l (Blood)	ACGIH BEI (03 2013)

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

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

Individual protection measures, such as personal protective equipment

General information:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.
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:	Use suitable protective gloves if risk of skin contact.
Other:	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

Appearance

Physical state:	solid
Form:	solid
Color:	White
Odor:	Odorless
Odor threshold:	No data available.
pH:	Not applicable
Melting point/freezing point:	Not applicable
Initial boiling point and boiling range:	Not applicable
Flash Point:	Not applicable
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Relative density:	No data available.
Solubility(ies)	

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Solubility in water:	Not applicable
Solubility (other):	Not applicable
Partition coefficient (n-octanol/water):	Not applicable
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	Not determined.

10. Stability and reactivity

Reactivity:	Stable under normal temperature conditions and recommended use.
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

Ingestion:	Due to the small packaging the risk of ingestion is minimal.
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.

Symptoms related to the physical, chemical and toxicological characteristics

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

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: No data available.

Dermal
Product: No data available.

Inhalation
Product: No data available.

Repeated dose toxicity
Product: No data available.

Specified substance(s):

Aluminum oxide (Al_2O_3)	NOAEL (Rat(Female, Male), Oral, 28 - 53 d): 1,000 mg/kg Oral Read-across from supporting substance (structural analogue or surrogate), Weight of Evidence study LOAEL (Rat(Male), Inhalation): 28 mg/m3 Inhalation Read-across from supporting substance (structural analogue or surrogate), Supporting study NOAEL (Rat(Female, Male), Oral, > 364 d): 322.5 mg/kg Oral Read-across from supporting substance (structural analogue or surrogate), Weight of Evidence study
Benzene, methyl-	LOAEL (Rat(Female, Male), Inhalation): 4,710 mg/m3 Inhalation Experimental result, Key study NOAEL (Rat(Female, Male), Oral, 13 Weeks): 625 mg/kg Oral Experimental result, Key study LOAEL (Rat(Female, Male), Inhalation): 2,261 mg/m3 Inhalation Experimental result, Key study NOAEL (Rat(Female, Male), Inhalation): 2,355 mg/m3 Inhalation Experimental result, Key study LOAEL (Rat(Female, Male), Inhalation, 26 Weeks): 1,500 ppm(m) Inhalation Not specified, Not specified
Iron oxide (Fe_2O_3)	NOAEL (Rat(Male), Inhalation): 10.1 mg/m3 Inhalation Read-across based on grouping of substances (category approach), Key study NOAEL (Rat(Female, Male), Inhalation): 4.7 mg/m3 Inhalation Read-across based on grouping of substances (category approach), Key study
Titanium oxide (TiO_2)	NOAEL (Rat(Female, Male), Inhalation): 5 mg/m3 Inhalation Experimental result, Supporting study LOAEL (Mouse(Female), Inhalation): 47 mg/m3 Inhalation Experimental result, Supporting study LOAEL (Mouse(Female), Inhalation): 10.8 mg/m3 Inhalation Experimental result, Supporting study NOAEL (Hamster, Syrian(Female), Inhalation): 9.9 mg/m3 Inhalation Experimental result, Supporting study

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

NOAEL (Rat(Female), Inhalation): 9.5 mg/m3 Inhalation Experimental result, Supporting study

Skin Corrosion/Irritation

Product: No data available.

Specified substance(s):

Aluminum oxide (Al2O3)	in vivo (Rabbit): Not irritant Experimental result, Key study
Benzene, methyl-	in vivo (Rabbit): Irritating Experimental result, Key study
Iron oxide (Fe2O3)	in vivo (Rabbit): Not irritant Experimental result, Weight of Evidence study in vivo (Rabbit): Not irritant Experimental result, Weight of Evidence study
Titanium oxide (TiO2)	in vivo (Rabbit): Not irritant Experimental result, Supporting study

Serious Eye Damage/Eye Irritation

Product: No data available.

Specified substance(s):

Aluminum oxide (Al2O3)	in vivo (Rabbit, 24 hrs): Not irritating EU in vivo (Rabbit, 24 hrs): The slight erythema was reversible, resolving by 48 hours post administration of the test substance. The scores observed for cunjunctival erythema would not lead to a classification under EU-CLP (Regulation (EC) 1272/2008). EU
Benzene, methyl-	in vivo (Rabbit, 24 - 72 hrs): Not irritating EU in vivo (Rabbit, 4 d): Irritating AFNOR scale for interpretation of occular irritation
Iron oxide (Fe2O3)	in vivo (Rabbit, 1 - 72 hrs): Not irritating
Titanium oxide (TiO2)	in vivo (Rabbit, 1 hrs): Not irritating EU in vivo (Rabbit, 24 hrs): Not irritating EU in vivo (Rabbit, 48 - 72 hrs): Minimal irritant EU in vivo (Rabbit, 24 hrs): Not irritating EU in vivo (Rabbit, 1 hrs): Minimal irritant EU in vivo (Rabbit, 48 - 72 hrs): Not irritating EU in vivo (Rabbit, 24 hrs): Minimal irritant EU in vivo (Rabbit, 24 - 72 hrs): Not irritating EU in vivo (Rabbit, 1 hrs): Not irritating EU in vivo (Rabbit, 24 - 72 hrs): Minimal irritant EU in vivo (Rabbit, 48 - 72 hrs): Not irritating EU

Respiratory or Skin Sensitization

Product: No data available.

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Specified substance(s):

Aluminum oxide (Al2O3)	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Benzene, methyl-	Skin sensitization:, in vivo (Guinea pig): Non sensitising
Titanium oxide (TiO2)	Skin sensitization:, in vivo/in vitro (Guinea pig): Non sensitising

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Quartz (SiO2)	Overall evaluation: 1. Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

Quartz (SiO2)	Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

Quartz (SiO2)	Cancer

Germ Cell Mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: No data available.

Other effects: No data available.

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product:	No data available.
Specified substance(s):	
Aluminum oxide (Al2O3)	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
Benzene, methyl-	LC 50 (Oncorhynchus kisutch, 96 h): 5.5 mg/l Experimental result, Key study
Iron oxide (Fe2O3)	LC 50 (Pimephales promelas, 96 h): 14.4 mg/l Experimental result, 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 LC 90 (Danio rerio, 96 h): +/- 100,000 mg/l Experimental result, Key study LC 50 (Oncorhynchus mykiss, 96 h): 18.29 mg/l Experimental result, Supporting study
Titanium oxide (TiO2)	LC 50 (Cyprinodon variegatus, 96 h): > 10,000 mg/l Experimental result, Weight of Evidence study LC 50 (Oncorhynchus mykiss, 96 h): > 100 mg/l Experimental result, Weight of Evidence study EC 50 (Danio rerio, 96 h): > 100 mg/l Experimental result, Not specified NOAEL (Oncorhynchus mykiss, 96 h): >= 100 mg/l Experimental result, Weight of Evidence study LC 50 (Cyprinodon variegatus, 96 h): > 240 - < 370 mg/l Experimental result, Not specified

Aquatic Invertebrates

Product:	No data available.
Specified substance(s):	
Aluminum oxide (Al2O3)	EC 50 (Ceriodaphnia dubia, 48 h): 1.9 mg/l Experimental result, Weight of Evidence study
Benzene, methyl-	LC 50 (Ceriodaphnia dubia, 2 d): 3.78 mg/l Experimental result, Key study
Iron oxide (Fe2O3)	EC 50 (Haliotis rubra, 48 h): 5.11 mg/l Experimental result, Supporting study EC 50 (Daphnia magna, 48 h): > 100 mg/l Experimental result, Key study
Titanium oxide (TiO2)	EC 50 (Water flea (Daphnia magna), 48 h): > 1,000 mg/l Intoxication EC 50 (Daphnia magna, 48 h): > 100 mg/l Experimental result, Not specified EC 50 (Daphnia magna, 48 h): > 1,000 mg/l Experimental result, Weight of

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

	Evidence study 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

Chronic hazards to the aquatic environment:

Fish

Product:	No data available.
Specified substance(s):	
Aluminum oxide (Al2O3)	EC 50 (Pimephales promelas, 7 d): 1.861 mg/l Experimental result, Weight of Evidence study EC 50 (Pimephales promelas, 7 d): 1.453 mg/l Experimental result, Weight of Evidence study
Benzene, methyl-	NOAEL (Oncorhynchus kisutch, 40 d): 1.39 mg/l Experimental result, Key study
Iron oxide (Fe2O3)	NOAEL (Pimephales promelas, 33 d): 1.6 mg/l Experimental result, Supporting study NOAEL (Salvelinus fontinalis, 35 Weeks): 6 mg/l Experimental result, Supporting study NOAEL (Pimephales promelas, 33 d): 1 mg/l Experimental result, Supporting study NOAEL (Pimephales promelas, 12 Months): < 1.5 mg/l Experimental result, Supporting study
Titanium oxide (TiO2)	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.
Specified substance(s):	
Aluminum oxide (Al2O3)	EC 50 (Daphnia magna, 21 d): 1.097 mg/l Experimental result, Weight of Evidence study EC 50 (Ceriodaphnia dubia, 7 d): 2.374 mg/l Experimental result, Weight of Evidence study
Benzene, methyl-	LOAEL (Ceriodaphnia dubia, 7 d): 2.76 mg/l Experimental result, Key study EC 50 (Ceriodaphnia dubia, 7 d): 3.23 mg/l Experimental result, Key study
Iron oxide (Fe2O3)	NOAEL (Arrenurus manubriator, 15 d): 800 mg/l Experimental result, Supporting study NOAEL (Daphnia magna, 21 d): 2 mg/l Experimental result, Supporting study NOAEL (Daphnia pulex, 21 d): 2.5 mg/l Experimental result, Supporting study

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

	EC 50 (Daphnia longispina, 21 d): 4.49 mg/l Experimental result, Supporting study EC 50 (Leptophlebia marginata, 24 d): 50.12 mg/l Experimental result, Supporting study
Titanium oxide (TiO2)	EC 50 (Nitokra spinipes, 13 d): 2.03 mg/l Experimental result, Supporting study EC 50 (Nitokra spinipes, 13 d): 107.4 mg/l Experimental result, Supporting study EC 100 (Daphnia magna, 30 d): 500 mg/l Experimental result, Supporting study LC 100 (Daphnia magna, 18 d): 1,000 mg/l Experimental result, Supporting study

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: No data available.

Specified substance(s):

Benzene, methyl-	74 % Detected in water. Experimental result, Weight of Evidence study 62 % Detected in water. Experimental result, Weight of Evidence study 81 % (5 d) Detected in water. Experimental result, Weight of Evidence study 73 % Detected in water. Experimental result, Weight of Evidence study 100 % (4 d) Detected in water. Not specified, Not specified

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available.

Specified substance(s):

Benzene, methyl-	Leuciscus idus, Bioconcentration Factor (BCF): 90 Aquatic sediment Experimental result, Key study Anguilla japonica, Bioconcentration Factor (BCF): 13.2 Aquatic sediment Not specified, Not specified

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Titanium oxide (TiO2)	Cyprinus carpio, Bioconcentration Factor (BCF): 550 Aquatic sediment Experimental result, Supporting study Cyprinus carpio, Bioconcentration Factor (BCF): 74 Aquatic sediment Experimental result, Supporting study Cyprinus carpio, Bioconcentration Factor (BCF): 325 Aquatic sediment Experimental result, Supporting study Oncorhynchus mykiss, Bioconcentration Factor (BCF): 19 - 208 Aquatic sediment Experimental result, Key study Cyprinus carpio, Bioconcentration Factor (BCF): 9 Aquatic sediment Experimental result, Supporting study

Partition Coefficient n-octanol / water (log Kow)

Product: Log Kow: Not applicable

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Quartz (SiO2)	No data available.
Aluminum oxide (Al2O3)	No data available.
Benzene, methyl-	No data available.
Iron oxide (Fe2O3)	No data available.
Titanium oxide (TiO2)	No data available.

Other adverse effects: No data available.

13. Disposal considerations

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

Contaminated Packaging: No data available.

14. Transport information

DOTUN 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.

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

IMDG

UN 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:	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. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Chemical Identity	OSHA hazard(s)
Quartz (SiO2)	kidney effects lung effects Cancer immune system effects

CERCLA Hazardous Substance List (40 CFR 302.4):

Chemical Identity	Reportable quantity
Benzene, methyl-	1000 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Delayed (Chronic) Health Hazard
Carcinogenicity

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

Chemical Identity	Reportable quantity
Benzene, methyl-	1000 lbs.

SARA 311/312 Hazardous Chemical

Chemical Identity	Threshold Planning Quantity
Quartz (SiO2)	10000 lbs
Aluminum oxide (Al2O3)	10000 lbs
Benzene, methyl-	10000 lbs
Iron oxide (Fe2O3)	10000 lbs
Titanium oxide (TiO2)	10000 lbs

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

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

Chemical Identity	Reportable quantity
Benzene, methyl-	Reportable quantity: 1000 lbs.

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

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

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

Chemical Identity
Quartz (SiO2)

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)

16.Other information, including date of preparation or last revision

Issue Date: 10/26/2018

Becton, Dickinson and Company
BD, Franklin Lakes, NJ
07417 USA
www.bd.com

Version #:	13.1
Revision Information:	
Further Information:	No data available.
Disclaimer:	Disclaimer: The information contained herein has been obtained from various sources and is believed to be correct as of the date issued. However, neither BD nor any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability for a particular use of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. BD provides SDS in electronic form so the information may be more easily accessed. Due to the possibility of errors during transmission, BD makes no representations as to the completeness or accuracy of the information.