

SAFETY DATA SHEETS

This SDS packet was issued with item:

078120335

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).

078289903 078669833

Safety data sheet for chemical products (SDS)

1.PRODUCT AND COMPANY IDENTIFICATION

- Product name : Cylindrical Nickel Cadmium Battery
- Company name : Energy Company of Panasonic Group
SANYO Electric Co., Ltd. Energy Company
- Address : 222-1, kaminaizen, Sumoto City, Hyogo, Japan
- Telephone number : +81-799-24-4111
- Telefax number : +81-799-23-2995
- Emergency telephone number : [Weekday] +81-799-23-2881
[Night and holiday] +81-799-24-4131

2.HAZARDS IDENTIFICATION

- Most important hazard and effects

For the battery cell, chemical materials are stored in a hermetically sealed metal case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition or explosion and chemical danger of hazardous materials' leakage.

However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by misuse, the gas release vent will be operated. The battery cell case will be breached at the extreme. Hazardous materials may be released.

Moreover, if heated strongly by the surrounding fire, acrid or harmful fume may be emitted.

Human health effects:

Inhalation: The electrolyte inhalation affects the respiratory tract membrane and the lungs. Cadmium fume may cause a cough, chest pain and dyspnea. Bronchitis and pneumonia will be occurred. Probably, it is carcinogen.

Skin contact: The electrolyte skin contact affects the skin seriously and may cause dermatitis.

Eye contact: The electrolyte leaked from the battery cell is strong alkali. When it goes into an eye, the cornea may be affected and it may lead to blindness.

Ingestion: The electrolyte ingestion irritates the mouth and the throat seriously results in vomiting, nausea, hematemesis, stomach pains and diarrhea.

Environmental effects:

Since a battery cell remains in the environment, do not throw out it into the environment.

- Specific hazards :
As previously described.

3.COMPOSITION / INFORMATION ON INGREDIENTS

- Substance or preparation : Preparation
- Information about the chemical nature of product :

Common chemical name / General name	CAS number	Concentration / Concentration range	Classification and hazard labelling
Nickel,Nickel Compounds	7440-02-0	15-40%	Specific hazard
Cadmium,Cadmium Compounds	7440-43-9	10-40%	Specific hazard
Cobalt Compounds	7440-48-4	0-3%	Specific hazard
Carbon Black	1333-86-4	0-1%	Specific hazard
Iron	7439-89-6	20-65%	-
Potassium Hydroxide	1310-58-3	0-5%	acute toxicity corrosivity irritant property
Sodium Hydroxide	1310-73-2		
Lithium Hydroxide	1310-65-2		

4.FIRST-AID MEASURES

Internal cell materials of an opened battery cell

- Inhalation :
Cover the victim in a blanket, move to the place of fresh air and keep quiet. Seek medical attention immediately. When dyspnea (breathing difficulty) or asphyxia (breath-hold), give artificial respiration immediately.
- Skin contact :
Remove contaminated clothes and shoes immediately. Wash the adherence or contact region with soap and plenty of water. Seek medical attention immediately.
- Eye contact :
Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

A battery cell and internal cell materials of an opened battery cell

- Ingestion :
Do not induce vomiting. Seek medical attention immediately.
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5.FIRE-FIGHTING MEASURE

Although a battery cell is not flammability, in case of fire, move it to the safe place quickly.

The following measures are taken when it cannot be moved.

- Suitable extinguishing media: Dry sand, chemical powder fire extinguishing medium.
 - Specific hazards: Acrid or harmful fume is emitted during fire.
 - Special protective equipment for firefighters : Protective equipment written in Section 8.
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6.ACCIDENTAL RELEASE MEASURES

Internal cell materials, such as electrolyte leaked from battery cell, are carefully dealt with according to the followings.

- Personal precautions :
Forbid unauthorized person to enter. Remove leaked materials with protective equipment written in Section 8.
 - Environmental precautions: Do not throw out into the environment.
 - Method of recovery and neutralization :
Dilute the leaked electrolyte with water and neutralize with diluted sulfuric acid. The leaked solid is moved to a container. The leaked place is fully flushed with water.
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7.HANDLING AND STORAGE

- Handling

Technical measures

Prevention of user exposure: Not necessary under normal use.

Prevention of fire and explosion: Not necessary under normal use.

Precaution for safe handling: Do not damage or remove the external tube.

Specific safe handling advice: Never throw out cells in a fire or expose to high temperatures. Do not soak cells in water and seawater. Do not expose to strong oxidizers. Do not give a strong mechanical shock or throw down. Never disassemble, modify or deform. Do not connect the positive terminal to the negative terminal with electrically conductive material. In the case of charging, use only dedicated charger or charge according to the conditions specified by Sanyo.

- Storage

Technical measures

Storage conditions (suitable to be avoided): Avoid direct sunlight, high temperature, high humidity.

Store in cool place (temperature : -30 ~ 35 degree C, humidity : 45 ~ 85%).

Incompatible products: Conductive materials, water, seawater, strong oxidizers and strong acids

Packing material (recommended, not suitable): Insulative and tear-proof materials are recommended.

8.EXPOSURE CONTROLS / PERSONAL PROTECTION

- Engineering measures :
No engineering measure is necessary during normal use. In case of internal cell materials' leakage, the information below will be useful.
- Control parameters

Common chemical name / General name	ACGIH(2010)	
	TLV-TWA	BEI
Nickel,Nickel Compounds	(As Ni) Metal : 1.5mg/m ³ Soluble compounds : 0.1mg/m ³ Insoluble compounds : 0.2mg/m ³	-
Cadmium,Cadmium Compounds	(As Cd) Simple substance : 0.01mg/m ³ Compounds : 0.002mg/m ³	In urine : 5 micro g/g In blood : 5 micro g/l
Cobalt Compounds	(As Co) 0.02mg/m ³	In urine : 15 micro g/l In blood : 1 micro g/l
Carbon Black	3.5mg/m ³	-
Potassium Hydroxide	-	-
Sodium Hydroxide	-	-
Lithium Hydroxide	0.025mg/m ³	-

ACGIH: American Conference of Governmental Industrial Hygienists, Inc.

TLV-TWA: Threshold Limit Value-time weighted average concentration

BEI: Biological Exposure Indices

- Personal protective equipment
 - Respiratory protection: Protective mask
 - Hand protection: Protective gloves
 - Eye protection: Protective glasses designed to protect against liquid splashes
 - Skin and body protection: Working clothes with long sleeve and long trousers
- A battery cell is not applied to Toxic Substances Control Act (TSCA), because it is not a chemical substance but an article.

9.PHYSICAL AND CHEMICAL PROPERTIES

- Appearance
 - Physical state: Solid
 - Form: Cylindrical
 - Color: Metallic color (without tube)
 - Odour: No odour
- pH : NA
- Specific temperatures/temperature ranges at which changes in physical state occur :
There is no useful information for the product as a mixture.
- Flash point : NA
- Explosion properties : NA
- Density : about 2.4~4.0g/cm³
- Solubility ,with indication of the solvent(s) : Insoluble in water

10.STABILITY AND REACTIVITY

- Stability : Stable under normal use
- Hazardous reactions occurring under specific conditions
 - By misuse of a battery cell or the like, oxygen or hydrogen accumulates in the cell and the internal pressure rises. These gases may be emitted through the gas release vent. When fire is near, these gases may take fire.
 - When a battery cell is heated strongly by the surrounding fire, acrid or harmful fume may be emitted.
- Conditions to avoid : Direct sunlight, high temperature and high humidity
- Materials to avoid : Conductive materials, water, seawater, strong oxidizers and strong acids
- Hazardous decomposition products: Acrid or harmful fume is emitted during fire.

11. TOXICOLOGICAL INFORMATION

There is no data available on the product itself. The information of the internal cell materials is as follows.

Nickel, Nickel Compounds

- Acute toxicity:
 - oral GHS: out of Category.
 - skin Unknown.
 - inhalation (gas) GHS: exempt from a classification.
 - inhalation (steam) Unknown.
 - inhalation (mist) Unknown.
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: Category 1
 The allergy, asthma or breathing difficulties might be caused when inhaling.
 - Skin sensitization: GHS: Category 1
 The allergic skin reaction might be caused.
- Germline mutagenicity:
 - GHS: It is not possible to classify it due to data deficiency.
- Carcinogenicity :
 - GHS: Category 2
 - ACGIH: (Metal) A5 – Not suspected as a human carcinogen
 - ACGIH: (water-soluble compounds) A4 – Not classified as a human carcinogen obviously
 - ACGIH: (Insoluble compounds) A1 – Confirmed human carcinogen
 - NIOSH: Potential occupational carcinogen
 - NTP: Reasonably anticipated to be human carcinogen
 - IARC: (Metal) Group 2B Possibly carcinogenic to human
 - IARC: (Compounds) Group 1 carcinogenic to human
- Reproduction Toxicity :
 - GHS: It is not possible to classify it due to data deficiency.
- Certain target organ/ Systemic toxicity (single exposure):
 - GHS: Category 1(respiratory organ and kidney).
 - The disorder of the respiratory organ and the kidney is caused.
- Certain target organ/ Systemic toxicity (repeated exposure):
 - GHS: Category 1(respiratory organ).
 - The disorder of the respiratory organ is caused by long-term or repeated exposure.

Cadmium, Cadmium Compounds

- Acute toxicity:
 - oral GHS: Category 4 (Swallowing is harmful.)
 - skin Unknown.
 - inhalation (dust) GHS: Category 1 (It is dangerous in the life when inhaling.)
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization: Unknown.
- Germline mutagenicity:
 - GHS: Category 2
 - The hereditary disorder might be caused.
- Carcinogenicity:
 - GHS: Category 1A
 - ACGIH : A2 – Suspected human carcinogen
 - NIOSH : potential occupational carcinogen
 - NTP : Known to be a human carcinogen
 - IARC : Group 1 carcinogenic to human
- Reproduction Toxicity :
 - GHS: Category 2
 - Harmful effects on reproductive capacity or fetus might be exerted.
- Certain target organ/ Systemic toxicity (single exposure):
 - GHS: Category 1
 - Damage of lungs and the respiratory organ is caused.
 - Overexposure causes the pulmonary disorder.

- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: Category 1
The disorder of the kidney, lungs, blood, bone, and respiratory organ is caused by long-term or repeated exposure.

Cobalt, Cobalt Compounds

- Acute toxicity:
 - oral GHS: out of Category.
 - skin Unknown.
 - inhalation (gas) GHS: exempt from a classification.
 - inhalation (steam) Unknown.
 - inhalation (mist) GHS: It is not possible to classify it due to data deficiency.
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: Category 1
The allergy, asthma or breathing difficulties might be caused when inhaling.
 - Skin sensitization: GHS: Category 1
The allergic skin reaction might be caused.
- Germline mutagenicity: Unknown.
- Carcinogenicity :
 - GHS: Category 2
 - ACGIH: A3 –Confirmed animal carcinogen but relevance to human carcinogen is unknown.
 - IARC: Group 2B Possibly carcinogenic to human.
 - The cancer might be caused.
- Reproduction Toxicity :
 - GHS: Category 2.
 - The adverse effect on reproductive competence or the fetus might occur.
- Certain target organ/ Systemic toxicity (single exposure):
 - GHS: Category 3(respiratory tract irritating properties).
 - The respiratory organ might be stimulated.
- Certain target organ/ Systemic toxicity (repeated exposure):
 - GHS: Category 1(respiratory organ).
 - The disorder of the respiratory organ is caused by long-term or repeated exposure.

Carbon Black

- Acute toxicity:
 - oral rat LD₅₀ 15400 mg/kg
 - skin Unknown.
 - inhalation (dust) Unknown.
- Skin corrosivity : Unknown.
- Serious damage and irritant property for eyes: Unknown.
- Respiratory or skin sensitization:
 - Respiratory sensitization: Unknown.
 - Skin sensitization: Unknown.
- Germline mutagenicity : Unknown.
- Carcinogenicity :
 - GHS: Category 2
 - ACGIH: A3 –Confirmed animal carcinogen but relevance to human carcinogen is unknown.
 - IARC: Group 2B Possibly carcinogenic to human.
 - The cancer might be caused.
- Reproduction Toxicity : Unknown.
- Certain target organ/ Systemic toxicity (single exposure): Unknown.
- Certain target organ/ Systemic toxicity (repeated exposure):
 - GHS: Category 1
 - The disorder of the pulmonary is caused by long-term or repeated inhalation exposure.

Potassium Hydroxide

- Acute toxicity:
 - oral GHS: Category 3. Harmful if swallowed.
 - skin GHS: It is not possible to classify.

- inhalation (steam) GHS: It is not possible to classify.
- inhalation (dust) GHS: It is not possible to classify.
- Skin corrosivity : GHS: Category 1B.
Serious chemical wound of the skin and damage of eyes is caused.
- Serious damage and irritant property for eyes: GHS: Category 1.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: It is not possible to classify.
 - Skin sensitization: GHS: out of Category.
- Germline mutagenicity : GHS: out of Category.
- Carcinogenicity : GHS: It is not possible to classify.
- Reproduction Toxicity : GHS: It is not possible to classify.
- Certain target organ/ Systemic toxicity (single exposure):
GHS: Category 1.
The disorder of the respiratory system is caused.
- Certain target organ/ Systemic toxicity (repeated exposure)
GHS: It is not possible to classify.

Sodium Hydroxide

- Acute toxicity:
 - oral GHS: It is not possible to classify.
 - skin GHS: It is not possible to classify.
 - inhalation (gas) GHS: out of Category.
 - inhalation (steam) Unknown.
 - inhalation (dust) Unknown.
- Skin corrosivity : GHS: Category 1.
Serious chemical wound of the skin and damage of eyes is caused.
- Serious damage and irritant property for eyes: GHS: Category 1.
Serious damage of eyes is caused.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: It is not possible to classify.
 - Skin sensitization: GHS: out of Category.
- Germline mutagenicity : GHS: out of Category
- Carcinogenicity : GHS: It is not possible to classify.
- Reproduction Toxicity : GHS: It is not possible to classify.
- Certain target organ/ Systemic toxicity (single exposure):
GHS: Category 1(respiratory system).
The disorder of the respiratory organ is caused.
- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: It is not possible to classify.

Lithium Hydroxide

- Acute toxicity:
 - oral GHS: Category 3. Harmful if swallowed.
 - skin Unknown.
 - inhalation (steam) Unknown.
 - inhalation (dust) GHS: Category 3. Harmful if inhaled.
- Skin corrosivity : GHS: Category 1.
Serious chemical wound of the skin and damage of eyes is caused.
- Serious damage and irritant property for eyes: GHS: Category 1.
- Respiratory or skin sensitization:
 - Respiratory sensitization: GHS: It is not possible to classify.
 - Skin sensitization: GHS: It is not possible to classify.
- Germline mutagenicity : Unknown.
- Carcinogenicity : Unknown.
- Reproduction Toxicity : Unknown.
- Certain target organ/ Systemic toxicity (single exposure):
GHS: Category 1.
The disorder of the respiratory system is caused by inhalation exposure.
- Certain target organ/ Systemic toxicity (repeated exposure):
GHS: Category 1&2.

The disorder of the respiratory system is caused by long-term or repeated inhalation exposure.
The disorder of the liver and the hematopoietic system by long-term or repeated oral exposure might be caused.

12.ECOLOGICAL INFORMATION

- Persistence/degradability :
Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.
 - Bioaccumulation :
Cadmium bioaccumulation occurs in plants and marine food in human food chain.
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13.DISPOSAL CONSIDERATIONS

- Recommended methods for safe and environmentally preferred disposal :
Product (waste from residues)
Do not throw out a used battery cell. Recycle it through the recycling company.
Contaminated packaging
Neither a container nor packing is contaminated during normal use. When internal materials leaked from a battery cell contaminates them, dispose them as industrial wastes subject to special control.
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14.TRANSPORT INFORMATION

- This battery doesn't correspond to dangerous article of the United Nations transportation regulations.
Moreover, this article doesn't correspond to dangerous article to which transportation is restricted by the following decree and guideline.
- TECHNICAL INSTRUCTINS FOR THE SAFE TRANSPORT OF DANGEROUS GOODS BY AIR(ICAO)
 - IATA Dangerous Goods Regulations(IATA)
 - INTERNATIONAL MARITIME DANGEROUS GOODS CODE(IMO)
 - code of federal regulations(U.S.DOT)
- However, it is necessary to obey the IATA Dangerous Goods Regulations(A123).

In the case of transportation, confirm no leakage and no spillage from a container. Take in a cargo of them without falling, dropping and breakage. Prevent collapse of cargo piles and wet by rain. The container must be handled carefully. Do not give shocks that result in a mark of hitting on a cell. Moreover, take the protection measures not short-circuited. Please refer to Section 7-HANDLING AND STORAGE also.

15.REGULATORY INFORMATION

- Regulations specifically applicable to the product :
Wastes Management and Public Cleaning Law (Japan)
Law for Promotion Effective Utilization of Resources (Japan)
Mercury-containing and Rechargeable Battery Management Act (USA)
Commission Directive 2006/66/EC (EU)
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16.OTHER INFORMATION

- The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.
 - This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.
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• Reference

Chemical substances information: Japan Advanced Information center of Safety and Health
International Chemical Safety Cards (ICSCs):
International Occupational Safety and Health Information Center (CIS)
2010 TLVs and BEIs : American Conference of Governmental Industrial Hygienists (ACGIH)
NIOSH CARCINOGEN LIST: National Institute for Occupational Safety and Health (NIOSH)
The Ninth Report on Carcinogen: National Toxicology Program (NTP)
IARC Monographs Program on the Evaluation of Carcinogenic Risks to Humans:
International Agency for Research on Cancer (IARC)

Globally Harmonized System of Classification and Labelling of Chemicals(GHS)
National Institute of Technology and Evaluation(NITE)

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Prepared and approved by

Energy Company of Panasonic Group

SANYO Electric Co., Ltd.

Energy Company

Cadnica Business Unit

Engineering Group



Printing Date: 2011-Nov-10

Printing Date: Reviewed on

Product Name: BD Vacutainer® Brand SST™ Tubes containing Silica and Gel

1 Identification of substance:

• **Product Details:**

MSDS Number: VS60313-13
Issue Date: November 9, 2011
Supersedes: VS60313-12
ECO No.: ECO158574

• **Product Name:** BD Vacutainer® Brand SST™ Tubes containing Silica and Gel

• **Catalog Numbers:** 365906, 365951, 365954, 365956, 365959, 365967, 365968, 365978, 365979, 366509, 366510, 366511, 366512, 366513, 366514, 366590, 366591, 366596, 367695, 367696, 367782, 367783, 367784, 367785, 367786, 367788, 367789, 367790, 367791, 367795, 367966, 367968, 367974, 367975, 367976, 367977, 367979, 367981, 367983, 367985, 367986, 367987, 367988, 367989, 367991, 367997, 368013, 368014, 368015, 368016, 368159, 368162, 368510, 368514, 368517, 368825, 369782, 369783, 369784, 369789
Discontinued: 6515, 6592, 196510, 196511, 360008, 360009, 360027, 360028, 363012, 365960, 365972, 366371, 366517, 366710, 366712, 366713, 366796, 367739, 367980, 367984, 368086, 368087, 368158, 886510, 886511, 886514, 886590, 86591

• **Manufacturer/Supplier:**

BD Diagnostics, Preanalytical Systems
1 Becton Drive
Franklin Lakes, NJ, 07417-1885

• **Information Department:**

BD Diagnostics, Preanalytical Systems Technical Service, (800) 631-0174.

• **Emergency Information:**

In case of a chemical emergency, spill, fire, exposure, or accident contact ChemTrec at (800) 424-9300.

2 Composition/Data on components:

• **Description:**

Chemical name: Silica and Gel (Proprietary Mixture)
Synonyms: Silica: Amorphous silica, fused silica

• **CAS No.:**

Silica: 60676-86-0
Gel: Proprietary mixture

• **Quantity of substances:**

Silica: 0.10 – 2.56 mg
Gel: 0.90 – 3.50 g

• **Exposure limits:** 0.1 mg/m³ (ACGIH) (OSHA PEL)(Silica, respirable)

3 Hazards identification:

• **Hazard description:**

EU: This product contains no hazardous constituents, or the concentration of all chemical constituents are below the regulatory threshold limits described by European Directive 91/155/EEC, and 93/112/EC.

U.S.: Silica dust particles may cause slight eye irritation. Inhalation of large amounts of silica dust causes acute pneumoconiosis, characterized by coughing and throat irritation. Repeated inhalation of



Material Safety Data Sheet

acc. to ISO/DIS 11014

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Product Name: BD Vacutainer® Brand SST™ Tubes containing Silica and Gel

silica dust may cause silicosis, a delayed (chronic) lung disease characterized by a severe fibrous scarring of the lung. Silicosis may be progressive and result in heart failure. Silicosis increases the risk of tuberculosis, and may lead to chronic kidney disease and end-stage renal disease. Amorphous Silica is classified by IARC as Group 3 (Not classifiable as to human carcinogenicity.) Avoid inhalation of dusts. Avoid generation and accumulation of dusts.

Primary route of entry: eyes, inhalation

- **Classification system:** The classification is according to the latest editions of the EU- list, and extended by company and literature data.

- **Acute Exposure Effects:**

Eyes: May cause slight eye irritation.

Skin: None identified.

Inhalation: May cause irritation of the respiratory tract.

Ingestion: None identified.

- **Repeated Exposure Effects:**

Eyes: May cause slight eye irritation.

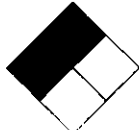
Skin: None identified.

Inhalation: Repeated inhalation exposure to silica dust may cause silicosis, a delayed (chronic) lung disease characterized by a severe fibrous scarring of the lung. Silicosis may be progressive and result in heart failure. Silicosis increases the risk of tuberculosis, and may lead to chronic kidney disease and end-stage renal disease.

Ingestion: None identified.

- **Medical Conditions Which Might be Aggravated:** Pre-existing lung disease

- **NFPA ratings (scale 0-4):**



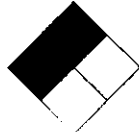
Health = 2

Fire = 0

Reactivity = 0

Specific Hazard = 0

- **HMIS ratings (scale 0-4):**



Health = 2

Flammability = 0

Reactivity = 0

Special = 0

4 First aid measures:

General information: No special measures required

After inhalation: Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Consult a physician.

After skin contact: Immediately wash with water and soap, and rinse thoroughly

After eye contact: Rinse opened eye for 15 minutes under running water. If symptoms persist, consult a doctor.

After Swallowing: If large amounts are swallowed, get immediate medical attention.

Information for doctor: Show this label



Product Name: BD Vacutainer® Brand SST™ Tubes containing Silica and Gel

5 Fire fighting measures:

- **Suitable extinguishing agents:** Use media suitable for surrounding fire.
- **Protective equipment:** Wear self-contained NIOSH approved breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 Accidental release measures:

- **Person-related safety precautions:** Avoid overexposure. Wear protective equipment, including NIOSH approved respirator. Exposure limits: 0.1 mg/m³ (ACGIH)(OSHA PEL)(Silica, respirable)
- **Measures for environmental protection:** Not applicable
- **Measures for cleaning/collecting:** Wet down to minimize any airborne dust. Place in an appropriate disposal container.
- **Additional information:** None

7 Handling and storage:

- **Handling:**
Information for safe handling: Follow routine safe handling procedures.
Information about protection against explosions and fires: Not applicable.
- **Storage:**
Requirements to be met by storerooms and receptacles: Use suitable containers. Keep tightly closed when not in use. Store in a well-ventilated area.
Information about storage in one common storage facility: Avoid strong oxidizing agents.
Further information about storage conditions: None

8 Exposure controls and personal protection:

- **Additional information about design of technical systems:** Use sufficient local or general exhaust.
- **Components with limit values that require monitoring at the workplace:**
Exposure limits: 0.1 mg/m³ (ACGIH) (OSHA PEL)(Silica)
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal Protective Equipment:**
General protective hygiene measures: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Use with adequate ventilation. Provide eye bath and safety shower.
Breathing equipment: NIOSH/MSHA Approved respirator
Protection of hands: Use compatible chemical - resistant gloves
Eye protection: Use chemical safety goggles
Body protection: Wear appropriate protective clothing to prevent skin exposure.



Product Name: BD Vacutainer® Brand SST™ Tubes containing Silica and Gel

09 Physical and chemical properties:

- **General Information:**

Form: Gel

Color: Tan

Odor: Odorless

- **Change in condition:**

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

- **Flash point:** Not applicable

- **Flammability (solid, gaseous):** Not applicable

- **Danger of explosion:** Product does not present an explosion hazard.

- **Vapor pressure:** Not applicable

- **Density:** Not determined

- **Solubility in/Miscibility w/H₂O:** Not applicable

- **pH-value:** Not applicable

Organic solvents: Not applicable

- **Solids content:** Not available

10 Stability and reactivity:

- **Thermal decomposition / conditions to be avoided:** None identified

- **Materials to be avoided:** Strong oxidizing agents

- **Dangerous reactions:** Stable

- **Dangerous products of decomposition:** None identified

11 Toxicological information:

- **Acute toxicity:**

Eye: May cause slight eye irritation.

Skin: None identified.

Inhalation: May cause irritation of the respiratory tract.

Ingestion: None identified.

- **Primary irritant effect:**

On the skin: Not established

On the eye: Not established

- **Sensitization:** Not established

- **Additional toxicological information:**

Chronic: Exposure to silica dust may cause silicosis, a delayed (chronic) lung disease characterized by a severe fibrous scarring of the lung. Silicosis may be progressive and result in heart failure. Silicosis increases the risk of tuberculosis, and may lead to chronic kidney disease and end-stage renal disease.



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Product Name: *BD Vacutainer® Brand SST™ Tubes containing Silica and Gel*

Carcinogenicity: *Amorphous Silica is classified by IARC as Group 3 (Not classifiable as to human carcinogenicity.)*

12 Ecological information:

- **Ecotoxicological effects:** *No data is available on the adverse effects of this material on the environment. Neither COD nor BOD data are available.*
- **Other information:** *Not applicable*
- **General notes:** *Not applicable*

13 Disposal considerations:

- **Product:**
Recommendation
Disposal should be done in accordance with local, state and federal regulations. Disposal must be made according to the regulations found in 40 CFR 261. This product is not a RCRA hazardous waste.
- **Uncleaned packagings:**
Recommendation
Disposal should be done in accordance with local, state and federal regulations.
Recommended cleansing agent
Water, if necessary with cleansing agents

14 Transport information:

- **DOT regulations:** *Not regulated*
- **Land transport ADR/RID (cross-border):** *Not regulated*
- **Maritime transport IMDG:** *Not regulated*
- **Air transport ICAO-TI and IATA-DGR:** *Not regulated*

15 Regulations:

- **SARA Section 355 (extremely hazardous substances):** *Substance not listed*
- **SARA Section 302 (extremely hazardous substances):** *Substance not listed*
- **SARA Section 304 (Reportable Quantity (RQ) under CERCLA):** *None*
- **Section 313 (specific toxic chemical listings):** *Substance not listed*
- **TSCA (Toxic Substances Control Act) Inventory:** *Silica listed*
- **California Proposition 65 – Chemicals Known to Cause Cancer:** *Silica listed; gel component may contain trace amounts.*
- **California Proposition 65 – Chemicals Known to Cause Reproductive Toxicity:** *Silica listed*



Material Safety Data Sheet
acc. to ISO/DIS 11014

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Product Name: BD Vacutainer® Brand SST™ Tubes containing Silica and Gel

- **SARA Section 311/312 (Hazard notification categories under SARA Title III):** Acute; Chronic
- **Hazardous chemical(s) under OSHA Hazard Communication Standard (29 CFR 1910.1200):** Respirable Amorphous, fused silica listed.
- **Carcinogenicity categories**
IARC (International Agency for Research on Cancer): Group 3 (Not classifiable as to human carcinogenicity)
NTP (National Toxicology Program): Amorphous silica not listed
TLV (Threshold Limit Value established by ACGIH): 0.1 mg/m³ (Silica, respirable)
MAK (German Maximum Workplace Concentration): MAK: 0,3 A mg/m³ (Silica)
- **Product related hazard information:**
- **National regulations:** Not applicable
- **Water hazard class:** Not known to be hazardous to water.

16 Other information:

To the best of our knowledge, the information contained herein is accurate. However, neither BD or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability 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.

- **Department issuing MSDS:** Regulatory Affairs