

SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Silica Gel, Indicating

Other means of identification

Product No.: 3401, 3402, 4471

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name: Avantor Performance Materials, LLC
Address: 100 Matsonford Rd, Suite 200
Radnor, PA 19087

Telephone: Customer Service: 855-282-6867

Contact Person: Product Information Compliance
E-mail: info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada (24 hrs/day, 7 days/week)

2. Hazard(s) identification

Hazard Classification

Health Hazards

Acute toxicity (Oral)	Category 3
Respiratory sensitizer	Category 1
Skin sensitizer	Category 1
Germ Cell Mutagenicity	Category 2
Carcinogenicity	Category 1B
Toxic to reproduction	Category 1B

Unknown toxicity - Health

Acute toxicity, oral	0 %
Acute toxicity, dermal	99.01 %
Acute toxicity, inhalation, dust or mist	100 %

Environmental Hazards

Acute hazards to the aquatic environment	Category 3
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Unknown toxicity - Environment

Acute hazards to the aquatic environment 99.01 %
Chronic hazards to the aquatic environment 100 %

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement: Toxic if swallowed.
Suspected of causing genetic defects.
May cause cancer.
May damage fertility or the unborn child.
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Harmful to aquatic life.

Precautionary Statements

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Contaminated work clothing should not be allowed out of the workplace. [In case of inadequate ventilation] wear respiratory protection. Avoid release to the environment.

Response: IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

Storage: Store locked up.

Disposal: 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.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Silica gel	63231-67-4	>99%
Cobalt dichloride	7646-79-9	<0.9%

* 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 advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion:	Rinse mouth thoroughly. Drink a few glasses of water or milk. Call a POISON CENTER/doctor if you feel unwell.
Inhalation:	Move to fresh air. Get medical attention if symptoms persist.
Skin Contact:	Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
Eye contact:	Flush thoroughly with water. If irritation occurs, get medical assistance.

Most important symptoms/effects, acute and delayed

Symptoms:	Toxic if swallowed. May cause allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically. Symptoms may be delayed.
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5. Fire-fighting measures

General Fire Hazards:	In case of fire and/or explosion do not breathe fumes.
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Suitable (and unsuitable) extinguishing media

Suitable extinguishing media:	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	None known.

Specific hazards arising from the chemical:	During fire, gases hazardous to health may be formed.
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Special protective equipment and precautions for firefighters

Special fire fighting procedures:	Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters:	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Keep unauthorized personnel away. Use personal protective equipment. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment.
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Methods and material for containment and cleaning up:	Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.
Notification Procedures:	Prevent entry into waterways, sewer, basements or confined areas. Stop leak if you can do so without risk. Inform authorities if large amounts are involved.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:	Use personal protective equipment as required. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dust. Wash thoroughly after handling.
Conditions for safe storage, including any incompatibilities:	Keep container tightly closed. Store in a cool and well-ventilated place. Store in a dry place. Store away from incompatible materials.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Silica gel	REL	6 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	TWA	20 millions of particles per cubic foot of air	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
	TWA	The exposure limit is calculated from the equation, $80/(\%SiO_2)$, using a value of 100% SiO_2 . Lower values of % SiO_2 will give higher exposure limits.	US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)
Cobalt dichloride - as Co	TWA	0.02 mg/m3	US. ACGIH Threshold Limit Values (2011)
Cobalt dichloride - Particulate.	ST ESL	Health 0.21 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (06 2018)
	AN ESL	Health 0.0017 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (06 2018)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Cobalt dichloride (Cobalt: Sampling time: End of shift at end of work week.)	15 µg/l (Urine)	ACGIH BEI (03 2015)

Appropriate Engineering Controls	No data available.
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Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eye/face protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Skin Protection	
Hand Protection:	Wear protective gloves.
Other:	Wear suitable protective clothing.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator.
Hygiene measures:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Crystals or powder.
Color:	Blue
Odor:	Odorless
Odor threshold:	No data available.
pH:	No data available.
Melting point/freezing point:	No data available.
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
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.
Density:	2.1 g/cm ³ (20 °C)
Relative density:	2.1 (20 °C)
Solubility(ies)	
Solubility in water:	Insoluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Contact with incompatible materials. Moisture. Excessive heat.
Incompatible Materials:	Strong oxidizing agents. Strong acids. Strong bases.
Hazardous Decomposition Products:	Thermal decomposition may produce oxides of carbon and silicon.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	May cause irritation to the respiratory system. May cause allergic respiratory reaction.
Skin Contact:	Prolonged skin contact may cause temporary irritation. May cause an allergic skin reaction.
Eye contact:	May cause temporary eye irritation.
Ingestion:	Toxic if swallowed. May cause irritation of the gastrointestinal tract.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral	
Product:	ATEmix (Rat): 55 mg/kg
Dermal	
Product:	No data available.
Specified substance(s):	
Silica gel	No data available.
Cobalt dichloride	LD 50 (Rat): > 2,000 mg/kg
Inhalation	
Product:	No data available.
Specified substance(s):	
Silica gel	No data available.
Cobalt dichloride	No data available.
Repeated dose toxicity	
Product:	No data available.

Skin Corrosion/Irritation

Product: Prolonged skin contact may cause temporary irritation. May cause allergic skin reaction.

Serious Eye Damage/Eye Irritation

Product: May cause temporary eye irritation.

Respiratory or Skin Sensitization

Product: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

Carcinogenicity

Product: May cause cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Cobalt dichloride Overall evaluation: 2B. Possibly carcinogenic to humans.

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

Cobalt dichloride Reasonably Anticipated to be a Human Carcinogen.

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

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive toxicity

Product: May damage fertility or the unborn child.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

Cobalt dichloride

LC 50 (Fathead Minnow, 96 h): 3.09 - 54.1 mg/l
LC 50 (Oncorhynchus mykiss, 96 h): 0.569 - 3.474 mg/l
NOAEL (Oncorhynchus mykiss, 96 h): 0.939 mg/l
NOAEL (Fathead Minnow, 96 h): 1.14 - 22.32 mg/l
LC 50 (Danio rerio, 96 h): 15.98 - 85.3 mg/l

Aquatic Invertebrates

Product:

No data available.

Specified substance(s):

Cobalt dichloride

EC 50 (Water flea (Daphnia magna), 48 h): 1.11 - 5.89 mg/l
LC 50 (Water flea (Daphnia magna), 48 h): 1.01 - 2.28 mg/l
LC 50 (Tubifex tubifex, 48 h): 202.99 - 484.76 mg/l
LC 50 (Ceriodaphnia dubia, 48 h): 1.077 - 6.81 mg/l
NOAEL (Ceriodaphnia dubia, 48 h): 0.468 - 2.084 mg/l

Chronic hazards to the aquatic environment:

Fish

Product:

No data available.

Specified substance(s):

Cobalt dichloride

LC 50 (Pimephales promelas, 7 d): 0.567 - 6.305 mg/l
NOAEL (Pimephales promelas, 34 d): 0.21 - 0.739 mg/l
NOAEL (Oncorhynchus mykiss, 30 d): 0.488 - 0.98 mg/l
NOAEL (Pimephales promelas, 7 d): 176.5 - 1,232 µg/l
LOAEL (Oncorhynchus mykiss, 30 d): 0.98 mg/l

Aquatic Invertebrates

Product:

No data available.

Specified substance(s):

Cobalt dichloride

NOAEL (Ceriodaphnia dubia, 7 d): 9.2 - 92.6 µg/l
LC 50 (Daphnia magna, 21 d): 21 µg/l
NOAEL (Daphnia magna, 21 d): 60.8 - 93.3 µg/l
EC 50 (Daphnia magna, 21 d): 12 - 138.9 µg/l
LC 50 (Ceriodaphnia dubia, 7 d): 106.46 µg/l

Toxicity to Aquatic Plants

Product:

No data available.

Persistence and Degradability

Biodegradation

Product:

There are no data on the degradability of this product.

BOD/COD Ratio

Product:

No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product:

No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product:

No data available.

Mobility in soil:

No data available.

Other adverse effects: Harmful to aquatic organisms.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT
Not regulated.

IMDG
Not regulated.

IATA
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)
None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Cobalt dichloride	None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Acute toxicity (any route of exposure)
Germ Cell Mutagenicity
Carcinogenicity
Toxic to reproduction

SARA 302 Extremely Hazardous Substance
None present or none present in regulated quantities.

SARA 304 Emergency Release Notification
None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Cobalt dichloride	10000 lbs.

SARA 313 (TRI Reporting)

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
Cobalt dichloride	10000 lbs.	25000 lbs.

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):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.

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

Chemical Identity

Cobalt dichloride

US. Massachusetts RTK - Substance List

Chemical Identity

Silica gel

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity

Silica gel

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

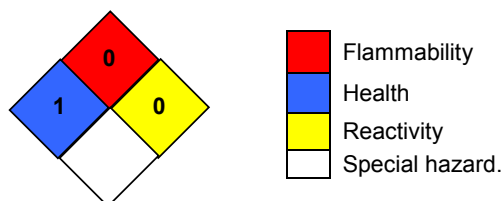
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Mexico INSQ:	Not in compliance with the inventory.
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	Not in compliance with the inventory.

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

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible

Issue Date: 03-09-2020

Revision Information: Not relevant.

Version #: 1.1

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

Further Information: No data available.

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