

**SAFETY DATA SHEET**

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/10/2018

Version 1.1

**SECTION 1. Identification****Product identifier**

Catalog No. 101812

Product name Sulfate Test Method: photometric 0.50 - 50.0 mg/l SO<sub>4</sub><sup>2-</sup>  
Spectroquant®

SO<sub>4</sub>-1

**Relevant identified uses of the substance or mixture and uses advised against**

Identified uses Reagent for analysis

**Details of the supplier of the safety data sheet**

Company EMD Millipore Corporation | 400 Summit Drive | Burlington |  
Massachusetts 01803 | United States of America | General Inquiries:  
+1 800-645-5476 | Monday to Friday, 9:00 AM to 4:00 PM Eastern  
Time (GMT-5)  
MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.

**Emergency telephone**

800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

**SECTION 2. Hazards identification****GHS Classification**

Flammable liquid, Category 3, H226  
Corrosive to Metals, Category 1, H290

For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS-Labeling***Hazard pictograms*

*Signal Word*  
Warning

*Hazard Statements*

H226 Flammable liquid and vapor.  
H290 May be corrosive to metals.

*Precautionary Statements*

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P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P234 Keep only in original container.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing.  
Rinse skin with water/ shower.  
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.  
P390 Absorb spillage to prevent material damage.  
P403 + P235 Store in a well-ventilated place. Keep cool.  
P406 Store in corrosive resistant stainless steel container with a resistant inner liner.  
P501 Dispose of contents/ container to an approved waste disposal plant.

## Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Chemical nature                      Aqueous solution of inorganic and organic compounds.

### Hazardous ingredients

*Chemical name (Concentration)*

CAS-No.

*ethanol (>= 10 % - < 30 % )*

64-17-5

*glycerine (>= 10 % - < 30 % )*

56-81-5

*hydrochloric acid (>= 1 % - < 5 % )*

Exact percentages are being withheld as a trade secret.

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## SECTION 4. First aid measures

### Description of first-aid measures

*Inhalation*

After inhalation: fresh air.

*Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

*Eye contact*

After eye contact: rinse out with plenty of water. Remove contact lenses.

*Ingestion*

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

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### Most important symptoms and effects, both acute and delayed

irritant effects, respiratory paralysis, Dizziness, narcosis, inebriation, Nausea, Vomiting, Cyanosis

### Indication of any immediate medical attention and special treatment needed

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

*Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Mixture with combustible ingredients.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

Hydrogen chloride gas

### Advice for firefighters

*Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

*Further information*

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### Environmental precautions

Do not let product enter drains. Risk of explosion.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

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Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® H<sup>+</sup>, Art. No. 101595).  
Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

#### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### Conditions for safe storage, including any incompatibilities

#### *Requirements for storage areas and containers*

No metal containers.

Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

The data applies to the entire pack.

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### *Ingredients*

Basis	Value	Threshold limits	Remarks
<i>ethanol (64-17-5)</i>			
ACGIH	Short Term Exposure Limit (STEL):	1,000 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	1,000 ppm 1,900 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	1,000 ppm 1,900 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	1,000 ppm 1,900 mg/m <sup>3</sup>	
<i>glycerine (56-81-5)</i>			
OSHA_TRANS	PEL:	15 mg/m <sup>3</sup>	Form of exposure: Total dust.
	PEL:	5 mg/m <sup>3</sup>	Form of exposure: Respirable fraction.
Z1A	Time Weighted Average (TWA):	10 mg/m <sup>3</sup>	Form of exposure: Total dust.
	Time Weighted Average (TWA):	5 mg/m <sup>3</sup>	Form of exposure: Respirable fraction.

#### *hydrochloric acid ()*

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ACGIH	Ceiling Limit Value:	2 ppm
NIOSH/GUIDE	Ceiling Limit Value and	5 ppm
	Time Period (if specified):	7 mg/m <sup>3</sup>
OSHA_TRANS	Ceiling Limit Value:	5 ppm
		7 mg/m <sup>3</sup>
Z1A	Ceiling Limit Value:	5 ppm
		7 mg/m <sup>3</sup>

## Engineering measures

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### *Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

#### *Eye/face protection*

Safety glasses

#### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

#### *Other protective equipment:*

Flame retardant antistatic protective clothing.

#### *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	alcohol-like
Odor Threshold	No information available.
pH	< 1
Melting point	No information available.
Boiling point	No information available.

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Flash point	95 °F (35 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Density	ca.1.1 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	No information available.
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Corrosion	May be corrosive to metals.

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## SECTION 10. Stability and reactivity

### Reactivity

Vapor/air-mixtures are explosive at intense warming.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:

Metals

Violent reactions possible with:

The generally known reaction partners of water.

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## Conditions to avoid

Heating.

## Incompatible materials

Metals

## Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Eye contact, Skin contact

#### *Target Organs*

Central nervous system

Eyes

Skin

Respiratory system

Cornea

Stomach

Liver

Blood

reproductive system

Kidneys

#### *Acute oral toxicity*

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

#### *Acute inhalation toxicity*

Symptoms: Possible damages: Irritation symptoms in the respiratory tract.

#### *Skin irritation*

Possible damages: slight irritation

#### *Eye irritation*

Possible damages: slight irritation

#### *Carcinogenicity*

Carcinogen classifications of IARC, NTP, California proposition 65 for Ethanol CAS 64-17-5 apply to beverage use only. This product is NOT intended for this use.

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### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## **Further information**

After absorption of large quantities:

Dizziness, inebriation, narcosis, respiratory paralysis, Cyanosis

However, when the product is handled appropriately, hazardous effects are unlikely to occur.

Handle in accordance with good industrial hygiene and safety practice.

## **Ingredients**

ethanol

### *Acute oral toxicity*

LD50 Rat: 10,470 mg/kg

OECD Test Guideline 401

### *Acute inhalation toxicity*

LC50 Rat: 124.7 mg/l; 4 h ; vapor

OECD Test Guideline 403

### *Skin irritation*

Rabbit

Result: No skin irritation

OECD Test Guideline 404

### *Eye irritation*

Rabbit

Result: Eye irritation

OECD Test Guideline 405



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### *Sensitization*

Local lymph node assay (LLNA) Mouse  
Result: negative  
Method: OECD Test Guideline 429

### *Germ cell mutagenicity*

#### *Genotoxicity in vitro*

Ames test  
Salmonella typhimurium  
Result: negative  
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test

#### MOUSE LYMPHOMA TEST

Result: negative  
Method: OECD Test Guideline 476

### *Reproductive toxicity*

Application Route: Oral  
Mouse  
Method: OECD Test Guideline 416

## glycerine

### *Acute oral toxicity*

LD50 Rat: 12,600 mg/kg (IUCLID)

### *Acute dermal toxicity*

LD50 Rabbit: > 18,700 mg/kg (IUCLID)

### *Skin irritation*

Rabbit  
Result: No irritation  
(IUCLID)

### *Eye irritation*

Rabbit  
Result: No eye irritation  
OECD Test Guideline 405

### *Sensitization*

Patch test: human  
Result: negative  
(IUCLID)

### *Germ cell mutagenicity*

#### *Genotoxicity in vitro*

Ames test  
Result: negative  
(IUCLID)

## hydrochloric acid

### *Skin irritation*

Rabbit  
Result: Corrosive  
OECD Test Guideline 404

### *Eye irritation*

Rabbit  
Result: Irreversible effects on the eye  
OECD Test Guideline 405

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SO<sub>4</sub>-1

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Version 1.1

### *Sensitization*

Maximization Test Guinea pig

Result: Does not cause skin sensitization.

Method: OECD Test Guideline 406

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## SECTION 12. Ecological information

### Ecotoxicity

No information available.

### Persistence and degradability

No information available.

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

### Ingredients

ethanol

#### *Toxicity to fish*

flow-through test EC50 Pimephales promelas (fathead minnow): 15,300 mg/l; 96 h

Analytical monitoring: yes

US-EPA

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 9,268 - 14,221 mg/l; 48 h (IUCLID)

#### *Toxicity to algae*

IC5 Scenedesmus quadricauda (Green algae): 5,000 mg/l; 7 d (Lit.)

#### *Toxicity to bacteria*

EC5 Pseudomonas putida: 6,500 mg/l; 16 h (IUCLID)

#### *Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

semi-static test NOEC Daphnia magna (Water flea): 9.6 mg/l; 9 d

(ECHA)

#### *Biodegradability*

94 %

OECD Test Guideline 301E

Readily biodegradable.

#### *Biochemical Oxygen Demand (BOD)*

930 - 1,670 mg/g (5 d)

(Lit.)

#### *Theoretical oxygen demand (ThOD)*

2,100 mg/g

(Lit.)

#### *Ratio COD/ThBOD*

90 %

(Lit.)

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*Partition coefficient: n-octanol/water*  
log Pow: -0.31  
(experimental)  
(Lit.) Bioaccumulation is not expected.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

## glycerine

*Toxicity to fish*  
static test LC50 *Oncorhynchus mykiss* (rainbow trout): 54,000 mg/l; 96 h (ECHA)

*Toxicity to daphnia and other aquatic invertebrates*  
static test EC50 *Daphnia magna* (Water flea): > 10,000 mg/l; 24 h (ECHA)

*Biodegradability*  
63 %; 14 d  
OECD Test Guideline 301C  
Readily biodegradable.

*Biochemical Oxygen Demand (BOD)*  
870 mg/g (5 d)  
(External MSDS)

*Chemical Oxygen Demand (COD)*  
1,160 mg/g  
(External MSDS)

*Theoretical oxygen demand (ThOD)*  
1,217 mg/g  
(Lit.)

*Ratio BOD/ThBOD*  
BOD5 71 %  
(Lit.)

*Ratio COD/ThBOD*  
95 %  
(Lit.)

*Partition coefficient: n-octanol/water*  
log Pow: -1.8 (25 °C)  
(experimental)  
Bioaccumulation is not expected. (Lit.)

## hydrochloric acid

*Toxicity to fish*  
*Lepomis macrochirus* (Bluegill sunfish): 20.5 mg/l; 96 h  
OECD Test Guideline 203

*Toxicity to daphnia and other aquatic invertebrates*  
EC50: 1.3 mg/l; 48 h  
OECD Test Guideline 202

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN3316
Proper shipping name	CHEMICAL KIT
Class	9
Packing group	III
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 3316
Proper shipping name	CHEMICAL KIT
Class	9
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

### Sea transport (IMDG)

UN number	UN 3316
Proper shipping name	CHEMICAL KIT
Class	9
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-P

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

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## SECTION 15. Regulatory information

### United States of America

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

#### *Ingredients*

hydrochloric acid

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### SARA 302

The following components are subject to reporting levels established by SARA Title III, Section 302:

#### *Ingredients*

hydrochloric acid

### Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

#### *Ingredients*

hydrochloric acid

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

#### *Ingredients*

hydrochloric acid

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

### DEA List I

Not listed

### DEA List II

Listed

#### *Ingredients*

hydrochloric acid

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

ethanol

glycerine

hydrochloric acid

### Pennsylvania Right To Know

#### *Ingredients*

ethanol

glycerine

hydrochloric acid

### New Jersey Right To Know

#### *Ingredients*

ethanol

glycerine

hydrochloric acid

### California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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## Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Labeling

*Hazard pictograms*



### *Signal Word*

Warning

### *Hazard Statements*

H226 Flammable liquid and vapor.

H290 May be corrosive to metals.

### *Precautionary Statements*

Prevention

P210 Keep away from heat.

### Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapor.

H290 May be corrosive to metals.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date08/10/2018

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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Revision Date 08/10/2018

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**SECTION 1. Identification****Product identifier**

Catalog No. 101812

Product name Sulfate Test Method: photometric 0.50 - 50.0 mg/l SO<sub>4</sub><sup>2-</sup>  
Spectroquant®

SO<sub>4</sub>-2

CAS-No. 10326-27-9

**Relevant identified uses of the substance or mixture and uses advised against**

Identified uses Reagent for analysis

**Details of the supplier of the safety data sheet**

Company EMD Millipore Corporation | 400 Summit Drive | Burlington |  
Massachusetts 01803 | United States of America | General Inquiries:  
+1 800-645-5476 | Monday to Friday, 9:00 AM to 4:00 PM Eastern  
Time (GMT-5)

MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.

**Emergency telephone** 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

**SECTION 2. Hazards identification****GHS Classification**

Acute toxicity, Category 3, Oral, H301

Acute toxicity, Category 4, Inhalation, H332

For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS-Labeling***Hazard pictograms*

*Signal Word*  
Danger

*Hazard Statements*

H301 Toxic if swallowed.

H332 Harmful if inhaled.

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---

## *Precautionary Statements*

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

P321 Specific treatment (see supplemental first aid instructions on this label).

P330 Rinse mouth.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula	BaCl <sub>2</sub> * 2 H <sub>2</sub> O (Hill)
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Molar mass	244.28 g/mol
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## **Hazardous ingredients**

*Chemical name (Concentration)*

CAS-No.

*barium chloride dihydrate (>= 90 % - <= 100 % )*

10326-27-9

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*General advice*

First aider needs to protect himself.

*Inhalation*

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration.

Oxygen if necessary. Immediately call in physician.

*Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

*Eye contact*

After eye contact: rinse out with plenty of water. Remove contact lenses.

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## *Ingestion*

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

## **Most important symptoms and effects, both acute and delayed**

The following applies to soluble barium compounds in general: after swallowing: mucosal irritation, nausea, salivation, vomiting, dizziness, pain, colics, and diarrhea. Systemic effects include: cardiac dysrhythmias, bradycardia (subdued cardiac activity), rise in blood pressure, shock and circulatory collapse as well as muscular rigidity. Irritant effects, conjunctivitis, Cough, respiratory paralysis, Shortness of breath, Dermatitis, cardiac arrest, death

## **Indication of any immediate medical attention and special treatment needed**

Subsequently administer: Sodium sulfate (1 tablespoon/1/4 l water).

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Hydrogen chloride gas

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

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# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 101812  
Product name Sulfate Test Method: photometric 0.50 - 50.0 mg/l SO<sub>4</sub><sup>2-</sup> Spectroquant®  
SO<sub>4</sub>-2

Version 1.1

## Environmental precautions

Do not let product enter drains.

## Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

### Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

The data applies to the entire pack.

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Ingredients

Basis	Value	Threshold limits	Remarks
<i>barium chloride dihydrate (10326-27-9)</i>			
ACGIH	Time Weighted Average (TWA):	0.5 mg/m <sup>3</sup>	Expressed as: as Ba
NIOSH/GUIDE	Recommended exposure limit (REL):	0.5 mg/m <sup>3</sup>	Expressed as: as Ba
	Recommended exposure limit (REL):	0.5 mg/m <sup>3</sup>	Expressed as: as Ba
OSHA_TRANS	PEL:	0.5 mg/m <sup>3</sup>	Expressed as: as Ba
Z1A	Time Weighted Average (TWA):	0.5 mg/m <sup>3</sup>	Expressed as: as Ba

### Engineering measures

#### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

#### Hygiene measures

Change contaminated clothing. Application of skin- protective barrier cream recommended. Wash hands after working with substance.

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### *Eye/face protection*

Safety glasses

### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### *Other protective equipment:*

protective clothing

### *Respiratory protection*

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## **SECTION 9. Physical and chemical properties**

Physical state	solid
Color	white
Odor	odorless
Odor Threshold	Not applicable
pH	5.2 - 8.0 at 50 g/l 77 °F (25 °C)
Melting point	No information available.
Boiling point	No information available.
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.
Density	3.86 g/cm <sup>3</sup> at 68 °F (20 °C)

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Relative density	No information available.
Water solubility	No information available.
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	> 212 °F (> 100 °C) Elimination of water of crystallization
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	not combustible
Bulk density	ca.1,200 - 1,400 kg/m <sup>3</sup>

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## SECTION 10. Stability and reactivity

### Reactivity

See below

### Chemical stability

releases water of crystallization when heated.

### Possibility of hazardous reactions

Risk of explosion with:

furan-2-percarbonic acid

Violent reactions possible with:

halogen-halogen compounds, Strong oxidizing agents, strong reducing agents, acids

### Conditions to avoid

Strong heating (decomposition).

### Incompatible materials

various metals, (generation of hydrogen)

### Hazardous decomposition products

in the event of fire: See section 5.

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Version 1.1

## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Eye contact, Skin contact, Ingestion

#### *Acute oral toxicity*

LD50 Rat: 118 mg/kg (anhydrous substance) (IUCLID)

#### *Acute inhalation toxicity*

Acute toxicity estimate: 1.6 mg/l

Expert judgment

Symptoms: mucosal irritations, Cough, Shortness of breath

#### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

#### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

#### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

### Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

### Further information

After uptake:

Possible damages:

respiratory paralysis, cardiac arrest, death

Chronic intoxication:

damage of respiratory tract, conjunctivitis, Dermatitis, Cardio-vascular system

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The following applies to soluble barium compounds in general: after swallowing: mucosal irritation, nausea, salivation, vomiting, dizziness, pain, colics, and diarrhea. Systemic effects include: cardiac dysrhythmias, bradycardia (subdued cardiac activity), rise in blood pressure, shock and circulatory collapse as well as muscular rigidity.  
Other dangerous properties can not be excluded.  
This substance should be handled with particular care.

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## SECTION 12. Ecological information

### Ecotoxicity

No information available.

### Persistence and degradability

#### *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

### Bioaccumulative potential

No information available.

### Mobility in soil

No information available.

#### *Additional ecological information*

Formation of health-hazardous mixtures possible with water. Endangers drinking-water supplies if allowed to enter soil or water.

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN3316
Proper shipping name	CHEMICAL KIT
Class	9
Packing group	III
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 3316
Proper shipping name	CHEMICAL KIT
Class	9

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<b>Packing group</b>	III
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	no

## Sea transport (IMDG)

<b>UN number</b>	UN 3316
<b>Proper shipping name</b>	CHEMICAL KIT
<b>Class</b>	9
<b>Packing group</b>	III
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	yes
<b>EmS</b>	F-A S-P

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

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## SECTION 15. Regulatory information

### United States of America

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

#### *Ingredients*

barium chloride dihydrate	10326-27-9
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#### SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

#### DEA List I

Not listed

#### DEA List II

Not listed

### US State Regulations

#### Massachusetts Right To Know

Remarks

No components are subject to the Massachusetts Right to Know Act.

#### New Jersey Right To Know

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---

## *Ingredients*

barium chloride dihydrate

## **California Prop 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

## **Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL

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## **SECTION 16. Other information**

### **Training advice**

Provide adequate information, instruction and training for operators.

### **Labeling**

*Hazard pictograms*



### *Signal Word*

Danger

### *Hazard Statements*

H301 Toxic if swallowed.

H332 Harmful if inhaled.

### *Precautionary Statements*

Response

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

### **Full text of H-Statements referred to under sections 2 and 3.**

H301 Toxic if swallowed.

H332 Harmful if inhaled.

### **Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date08/10/2018

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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