



Be Right™

# SAFETY DATA SHEET

Issue Date 14-Mar-2019

Revision Date 14-Mar-2019

Version 4.3

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## Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product identifier

Product Code(s) 181632

Safety data sheet number M00213

Product Name Sulfide 1 Reagent

Contains Contains Sulfuric acid, 1,4-Benzenediamine, N,N-dimethyl-, sulfate (2:1)

### Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent. Determination of sulfides.

Uses advised against No information available

### Details of the supplier of the safety data sheet

Manufacturer Address Hach Company P.O. Box 389 Loveland, CO 80539 USA +1(970) 669-3050

### Emergency telephone number

+1 (303) 623-5716 - 24 Hour Service +1 (515)232-2533 - 8am - 4pm CST  
Chemtrec 1-800-424-9300

E-mail address seasia@hach.com

## Section 2: HAZARDS IDENTIFICATION

### GHS Classification

Corrosive to metals	Category 1
Skin corrosion/irritation	Category 1 Sub-category A
Serious eye damage/eye irritation	Category 1

### Label elements



Signal word - Danger

### Hazard statements

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

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#### **Precautionary statements**

P260 - Do not breathe dust/fume/gas/mist/vapors/spray  
P280 - Wear protective gloves/protective clothing/eye protection/face protection  
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting  
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor/physician  
P363 - Wash contaminated clothing before reuse  
P405 - Store locked up  
P501 - Dispose of contents/ container to an approved waste disposal plant  
P234 - Keep only in original container  
P390 - Absorb spillage to prevent material damage

#### **Other Hazards Known**

No information available

### **Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**

#### **Substance**

Not applicable

#### **Mixture**

Chemical name	Formula	EC No.	CAS No.	Percent Range	Malaysia ICOP GHS Classification
Sulfuric acid	H <sub>2</sub> SO <sub>4</sub>	231-639-5	7664-93-9	60 - 70%	Eye Dam. 1, H318 Skin Corr. 1A, H314

### **Section 4: FIRST AID MEASURES**

#### **Description of necessary first aid measures**

##### **General advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

##### **Inhalation**

Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.

##### **Skin contact**

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.

##### **Eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.

##### **Ingestion**

Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.

**For emergency responders**

**Self-protection of the first aider** Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Most important symptoms/effects, acute and delayed**

**Symptoms** Burning sensation.

**Indication of immediate medical attention and special treatment needed, if necessary**

**Note to physicians** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

## Section 5: FIRE FIGHTING MEASURES

**Suitable Extinguishing Media**

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media** No information available

**Specific hazards arising from the chemical**

**Specific hazards arising from the chemical** The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

**Explosive properties**

Not classified according to GHS criteria.

**Hazardous combustion products** This material will not burn. May emit acrid smoke and fumes.

**Specific/special fire-fighting measures**

**Specific/special fire-fighting measures** No information available.

**Special protective equipment and precautions for fire-fighters**

**Special protective equipment for fire-fighters** Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## Section 6: ACCIDENTAL RELEASE MEASURES

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

**Personal precautions** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**For emergency responders**

Use personal protective equipment as required.

**Environmental precautions**

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up**

Pick up and transfer to properly labeled containers.

**Prevention of secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

**Other Information** Refer to protective measures listed in Sections 7 and 8.

**Reference to other sections** See section 8 for more information.  
See section 13 for more information.

## Section 7: HANDLING AND STORAGE

### Preventive measures for safe handling

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

### Precautions for safe handling

**General Hygiene Considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

### Conditions for safe storage, including any incompatibilities

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

**Incompatible materials** Oxidizing agent. Acids. Bases.

## Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### Exposure Limits

Chemical name	Malaysia
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	TWA: 1 mg/m <sup>3</sup>

**Legend** See section 16 for terms and abbreviations

### Appropriate engineering controls

**Engineering Controls** Showers  
Eyewash stations  
Ventilation systems.

### Individual protection measures, such as personal protective equipment

**Respiratory protection** No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Hand Protection** Wear suitable gloves. Impervious gloves.

**Eye/face protection** Face protection shield.

**Skin and body protection** Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**General Hygiene Considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this

product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

**Environmental exposure controls** Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

**Thermal hazards** None under normal processing.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical state</b>	Liquid	<b>Color</b>	colorless
<b>Appearance</b>	aqueous solution	<b>Odor threshold</b>	No data available
<b>Odor</b>	None		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
<b>Molecular weight</b>	No data available	
<b>pH</b>	No data available	
<b>Melting point/freezing point</b>	~ -8 °C / 18 °F	
<b>Boiling point / boiling range</b>	~ 100 °C / 212 °F	
<b>Evaporation rate</b>	0.18 (water = 1)	
<b>Vapor pressure</b>	2.775 mm Hg / 0.37 kPa at 25 °C / 77 °F	
<b>Vapor density (air = 1)</b>	0.03 (air = 1)	
<b>Specific gravity (water = 1 / air = 1)</b>	1.500	
<b>Partition Coefficient (n-octanol/water)</b>	Not applicable	
<b>Soil Organic Carbon-Water Partition Coefficient</b>	Not applicable	
<b>Autoignition temperature</b>	No data available	
<b>Decomposition temperature</b>	No data available	
<b>Dynamic viscosity</b>	No data available	
<b>Kinematic viscosity</b>	No data available	

### Solubility(ies)

#### **Water solubility**

<u>Water solubility classification</u>	<u>Water solubility</u>	<u>Water Solubility Temperature</u>
Soluble	> 1000 mg/L	25 °C / 77 °F

#### **Solubility in other solvents**

Acid	Soluble	> 1000 mg/L	25 °C / 77 °F
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### Other Information

#### **Metal Corrosivity**

Classified as corrosive to metal according to GHS criteria

**Steel Corrosion Rate**

1.22 mm/yr / 0.05 in/yr

**Aluminum Corrosion Rate**

#### **Volatile Organic Compounds (VOC) Content**

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Sulfuric acid	7664-93-9	No data available	-

#### **Explosive properties**

**Upper explosion limit**

No data available

**Lower explosion limit**

No data available

#### **Flammable properties**

**Flash point**

No data available

#### **Flammability Limit in Air**

**Upper flammability limit**

No data available

**Lower flammability limit**

No data available

#### **Oxidizing properties**

No data available.

#### **Bulk density**

No data available

## **Section 10: STABILITY AND REACTIVITY**

#### Reactivity

Not applicable.

#### Chemical stability

##### **Stability**

Stable under normal conditions.

#### **Explosion data**

**Sensitivity to Mechanical Impact** None

**Sensitivity to Static Discharge** None.

#### Possibility of Hazardous Reactions

**Possibility of Hazardous Reactions** None under normal processing.

#### Hazardous polymerization

None under normal processing.

#### Conditions to avoid

##### **Conditions to avoid**

Exposure to air or moisture over prolonged periods.

#### Incompatible materials

##### **Incompatible materials**

Oxidizing agent. Acids. Bases.

#### Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

## Section 11: TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure

#### Product Information

<b>Inhalation</b>	Corrosive by inhalation. Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
<b>Eye contact</b>	Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
<b>Skin contact</b>	Corrosive. Causes severe burns. Avoid contact with skin and clothing.
<b>Ingestion</b>	Causes burns. Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

#### Acute toxicity

Based on available data, the classification criteria are not met

#### Product Acute Toxicity Data

No data available.

#### Ingredient Acute Toxicity Data

No data available.

#### Unknown Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity.

- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

#### Acute Toxicity Estimations (ATE)

The following values are calculated based on chapter 3.1 of the GHS document

<b>ATEmix (oral)</b>	47,619.00
<b>ATEmix (dermal)</b>	No information available
<b>ATEmix (inhalation-dust/mist)</b>	No information available
<b>ATEmix (inhalation-vapor)</b>	No information available
<b>ATEmix (inhalation-gas)</b>	No information available

#### Skin corrosion/irritation

Causes severe burns.

#### Product Skin Corrosion/Irritation Data

No data available.

#### Ingredient Skin Corrosion/Irritation Data

Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB (Hazardous Substances Data Bank)

#### Serious eye damage/irritation

Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

#### Product Serious Eye Damage/Eye Irritation Data

No data available.

#### Ingredient Eye Damage/Eye Irritation Data

Test data reported below.

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB (Hazardous Substances Data Bank)

#### Respiratory or skin sensitization

Based on available data, the classification criteria are not met.

#### Product Sensitization Data

No data available.

#### Ingredient Sensitization Data

No data available.

#### STOT - single exposure

Based on available data, the classification criteria are not met.

#### Product Specific Target Organ Toxicity Single Exposure Data

No data available.

#### Ingredient Specific Target Organ Toxicity Single Exposure Data

Test data reported below.

#### Inhalation (Vapor) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	Human TD <sub>Lo</sub>	0.144 mg/L	5 minutes	Lungs, Thorax, or Respiration Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

#### STOT - repeated exposure

Based on available data, the classification criteria are not met.

#### Product Specific Target Organ Toxicity Repeat Dose Data

No data available.

#### Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Test data reported below.



**Inhalation (Vapor) Exposure Route**

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	Human TC <sub>Lo</sub>	.003 mg/L	168 days	<b>Musculoskeletal</b> Changes in teeth and supporting structures	RTECS (Registry of Toxic Effects of Chemical Substances)

**Carcinogenicity**

Based on available data, the classification criteria are not met.

**Product Carcinogenicity Data**

No data available.

**Ingredient Carcinogenicity Data**

No data available.

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Sulfuric acid	7664-93-9	A2	Group 1	Known	X

**Legend**

<b>ACGIH (American Conference of Governmental Industrial Hygienists)</b>	A2 - Suspected Human Carcinogen
<b>IARC (International Agency for Research on Cancer)</b>	Group 1 - Carcinogenic to Humans
<b>NTP (National Toxicology Program)</b>	Known - Known Carcinogen
<b>OSHA (Occupational Safety and Health Administration of the US Department of Labor)</b>	X - Present

**Germ cell mutagenicity**

Based on available data, the classification criteria are not met.

**Product Germ Cell Mutagenicity invitro Data**

No data available.

**Ingredient Germ Cell Mutagenicity invitro Data**

Test data reported below.

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available

**Product Germ Cell Mutagenicity invivo Data**

No data available.

**Ingredient Germ Cell Mutagenicity invivo Data**

No data available.

**Reproductive toxicity**

Based on available data, the classification criteria are not met.

**Product Reproductive Toxicity Data**

No data available.

**Ingredient Reproductive Toxicity Data**

Test data reported below.

#### Inhalation (Vapor) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (60 - 70%) CAS#: 7664-93-9	Rabbit TC <sub>Lo</sub>	.02 mg/L	7 hours	Specific Developmental Abnormalities Musculoskeletal system	No information available

#### Aspiration hazard

Based on available data, the classification criteria are not met.

### Section 12: ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Unknown aquatic toxicity

0% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

#### Product Ecological Data

##### Aquatic Acute Toxicity

No data available.

##### Aquatic Chronic Toxicity

No data available.

#### Ingredient Ecological Data

##### Aquatic Acute Toxicity

No data available.

##### Aquatic Chronic Toxicity

No data available.

#### Persistence and degradability

##### Product Biodegradability Data

No data available.

#### Bioaccumulation

##### Product Bioaccumulation Data

No data available.

##### Partition Coefficient (n-octanol/water)

Not applicable

#### Mobility

##### Soil Organic Carbon-Water Partition Coefficient

Not applicable

#### Other adverse effects

No information available.

### Section 13: DISPOSAL CONSIDERATIONS

#### Disposal methods

##### Waste from residues/unused products

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

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**Contaminated packaging** Do not reuse empty containers.

## Section 14: TRANSPORT INFORMATION

### IMDG

<b>UN/ID no</b>	UN1830
<b>Proper shipping name</b>	Sulphuric acid
<b>Hazard Class</b>	8
<b>Packing Group</b>	II
<b>Description</b>	UN1830, Sulphuric acid, 8, II
<b>Marine pollutant</b>	Not applicable
<b>Special precautions for user</b>	Not applicable
<b>EmS-No</b>	F-A, S-B

### ADR

<b>UN/ID no</b>	UN1830
<b>Proper shipping name</b>	Sulphuric acid
<b>Hazard Class</b>	8
<b>Labels</b>	8
<b>Packing Group</b>	II
<b>Description</b>	UN1830, Sulphuric acid, 8, II, (E)
<b>Environmental hazard</b>	Not applicable
<b>Special precautions for user</b>	None
<b>Classification code</b>	C1
<b>Tunnel restriction code</b>	(E)

### IATA

<b>UN/ID no</b>	UN1830
<b>Proper shipping name</b>	Sulphuric acid
<b>Hazard Class</b>	8
<b>Packing Group</b>	II
<b>Description</b>	UN1830, Sulphuric acid, 8, II
<b>Environmental hazard</b>	Not applicable
<b>Special precautions for user</b>	None
<b>ERG Code</b>	8L

### **Additional information**

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.

If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

## Section 15: REGULATORY INFORMATION

### Regulatory information

#### National regulations

##### Malaysia

GHS-Specification for Classification, Labeling and Formulation of Safety Data Sheet for Chemical Products (MS1804:2008)  
Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) (CLASS Regulations)  
Industry Code of Practice on Chemical and Hazard Communication (ICOP)  
Guidance for the Industry on the Notification and Registration Scheme for Environmentally Hazardous Substances in Malaysia (EHSNR Guidance)

See section 8 for national exposure control parameters

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#### International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**TCSI** - Taiwan Chemical Substances Inventory  
**AICS** - Australian Inventory of Chemical Substances  
**NZIoC** - New Zealand Inventory of Chemicals

#### International Regulations

**The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable

**The Stockholm Convention on Persistent Organic Pollutants** Not applicable

**The Rotterdam Convention** Not applicable

### Section 16: OTHER INFORMATION

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

NIOSH IDLH	<i>Immediately Dangerous to Life or Health</i>
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	<i>no data</i>

#### Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Ceiling Limit Value	MAC	Maximum Allowable Concentration
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

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**Prepared By** Hach Product Compliance Department  
**Issue Date** 14-Mar-2019  
**Revision Date** 14-Mar-2019  
**Revision Note** None

**Disclaimer**

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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**End of Safety Data Sheet**