



Be Right™

SAFETY DATA SHEET

Issue Date 14-Sep-2016

Revision Date 30-Nov-2017

Version 1.4

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Molybdate 3 Reagent for Silica

Other means of identification

Product Code(s) 199549

Safety data sheet number M00187

UN/ID no UN3264

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent Silica determination

Uses advised against No information available

Details of the supplier of the safety data sheet

Initial Supplier Identifier

Hach Sales & Service LP.
3020 Gore Road, London, Ontario N5V
4T7 Canada
1-800-665-7635

Manufacturer Address

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

Emergency telephone number

Emergency Telephone +1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

| | |
|--|------------|
| Corrosive to metals | Category 1 |
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/eye irritation | Category 1 |
| Respiratory sensitization | |
| Skin sensitization | |
| Germ cell mutagenicity | |
| Carcinogenicity | |
| Reproductive toxicity | |
| Specific target organ toxicity (single exposure) | |
| Specific target organ toxicity (repeated exposure) | Category 1 |

Label elements**Signal word - Danger****Hazard statements**

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

H372 - Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements**

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]

P363 - Wash contaminated clothing before reuse

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P405 - Store locked up

P280 - Wear protective gloves/protective clothing/eye protection/face protection

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

P260 - Do not breathe dust/fume/gas/mist/vapors/spray

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

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

P234 - Keep only in original packaging

P390 - Absorb spillage to prevent material damage

Other Information**3. COMPOSITION/INFORMATION ON INGREDIENTS****Substance**

Not applicable

Mixture**Chemical Family**

Mixture.

| Chemical name | CAS No. | Percent Range | Units | HMIRA # |
|---|-----------|---------------|-------|---------|
| Sulfuric acid | 7664-93-9 | 7 - 13% | g | - |
| Sodium bisulfate | 7681-38-1 | 7 - 13% | g | - |
| Molybdate (MoO4 ²⁻), dihydrogen, (T-4)- | 7782-91-4 | 5 - 10% | g | - |

Synonyms

| Chemical name | CAS No. | Percent Range | Units | HMIRA # |
|---|-----------|---------------|-------|---------|
| Sulfuric acid | 7664-93-9 | 7 - 13% | g | - |
| Sodium bisulfate | 7681-38-1 | 7 - 13% | g | - |
| Molybdate (MoO4 ²⁻), dihydrogen, (T-4)- | 7782-91-4 | 5 - 10% | g | - |

4. FIRST AID MEASURES

Description of 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. |
| 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. |
| Skin contact | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. 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. |
| Self-protection of the first aider | Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). 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 and effects, both acute and delayed

| | |
|-----------------|--------------------|
| Symptoms | Burning sensation. |
|-----------------|--------------------|

Indication of any immediate medical attention and special treatment needed

| | |
|---------------------------|--|
| 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. |
|---------------------------|--|

5. FIRE-FIGHTING MEASURES

| | |
|---|--|
| Suitable Extinguishing Media | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable Extinguishing Media | Caution: Use of water spray when fighting fire may be inefficient. |
| 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. |
| Hazardous combustion products | Sulfur oxides. Sodium oxides. |
| Special protective equipment for fire-fighters | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

| | |
|---------------------|--|
| WHMIS Notice | Only persons properly qualified to respond to an emergency involving hazardous |
|---------------------|--|

substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

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.

Other Information

Refer to protective measures listed in Sections 7 and 8.

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.

7. HANDLING AND STORAGE

Precautions 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.

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters**Exposure Limits**

| Chemical name | Alberta OEL | British Columbia OEL | Manitoba OEL | New Brunswick OEL | New Foundland & Labrador OEL |
|---|---|----------------------------|----------------------------|---|------------------------------|
| Sulfuric acid 7 - 13% | TWA: 1 mg/m ³ STEL: 3 mg/m ³ | TWA: 0.2 mg/m ³ | TWA: 0.2 mg/m ³ | TWA: 1 mg/m ³ STEL: 3 mg/m ³ | TWA: 0.2 mg/m ³ |
| Molybdate (MoO4 ²⁻), dihydrogen, (T-4)- 5 - 10% | TWA: 0.5 mg/m ³ | TWA: 0.5 mg/m ³ | TWA: 0.5 mg/m ³ | TWA: 5 mg/m ³ | TWA: 0.5 mg/m ³ |

| Chemical name | Northwest Territories OEL | Nova Scotia OEL | Nunavut OEL | Ontario TWA | Prince Edward Island OEL |
|--|---|----------------------------|---|----------------------------|----------------------------|
| Sulfuric acid 7 - 13% | TWA: 0.2 mg/m ³ STEL: 0.6 mg/m ³ | TWA: 0.2 mg/m ³ | TWA: 0.2 mg/m ³ STEL: 0.6 mg/m ³ | TWA: 0.2 mg/m ³ | TWA: 0.2 mg/m ³ |
| Molybdate (MoO4 ²⁻), dihydrogen, (T-4)- | TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³ | TWA: 0.5 mg/m ³ | TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³ | TWA: 0.5 mg/m ³ | TWA: 0.5 mg/m ³ |

| | | | | |
|---------|--|--|--|--|
| 5 - 10% | | | | |
|---------|--|--|--|--|

| Chemical name | Quebec OEL | Saskatchewan OEL | Yukon OEL |
|---|---|---|--|
| Sulfuric acid 7 - 13% | TWA: 1 mg/m ³ STEL: 3 mg/m ³ | TWA: 0.2 mg/m ³ STEL: 0.6 mg/m ³ | STEL: 1 mg/m ³ TWA: 1 mg/m ³ |
| Molybdate (MoO ₄ ²⁻), dihydrogen, (T-4)- 5 - 10% | TWA: 5 mg/m ³ | TWA: 0.5 mg/m ³ STEL: 1.5 mg/m ³ | STEL: 10 mg/m ³ TWA: 5 mg/m ³ |

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|----------------------------|--|--|
| Sulfuric acid 7 - 13% | TWA: 0.2 mg/m ³ | TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³ | IDLH: 15 mg/m ³ TWA: 1 mg/m ³ |
| Molybdate (MoO ₄ ²⁻), dihydrogen, (T-4)- 5 - 10% | TWA: 0.5 mg/m ³ | TWA: 5 mg/m ³ (vacated) TWA: 5 mg/m ³ | IDLH: 1000 mg/m ³ Mo |

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls If no local exhaust use approved fume hood and/or respirator
Showers
Eyewash stations

Individual protection measures, such as personal protective equipment

Eye/face protection Wear tight sealing safety goggles and/or face protection shield. Avoid contact with eyes.

Skin and body protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection Do not breathe gas/fumes/vapor/spray. If no local exhaust use approved fume hood and/or respirator. In case of inadequate ventilation wear respiratory protection.

General Hygiene Considerations Avoid breathing (dust, vapor, mist, gas). Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse.

Environmental exposure controls

Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Liquid

Gas Under Pressure Not classified according to GHS criteria

Appearance clear aqueous solution **Color** Colorless to light yellow

Odor Odorless **Odor threshold** No data available

| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|-------------------------|-------------------|-------------------------|
| Molecular weight | No data available | |
| pH | < 2 | |

| | | |
|---|--|---|
| Melting point/freezing point | ~ -13 °C / 9 °F | Estimation based on theoretical calculation |
| Boiling point / boiling range | ~ 100 °C / 212 °F | Estimation based on theoretical calculation |
| Evaporation rate | 1.17 (water = 1) | Estimation based on theoretical calculation |
| Vapor pressure | 22.127 mm Hg / 2.95 kPa at 25 °C / 77 °F | Estimation based on theoretical calculation |
| Vapor density (air = 1) | 0.62 (air = 1) | |
| Specific gravity (water = 1 / air = 1) | 1.2 | |
| Partition Coefficient (n-octanol/water) | Not applicable | |
| Soil Organic Carbon-Water Partition Coefficient | Not applicable | |
| Autoignition temperature | No data available | |
| Decomposition temperature | No data available | |
| Dynamic viscosity | No data available | |
| Kinematic viscosity | 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

| <u>Chemical Name</u> | <u>Solubility classification</u> | <u>Solubility</u> | <u>Solubility Temperature</u> |
|----------------------|----------------------------------|-------------------|-------------------------------|
| Acid | Soluble | > 1000 mg/L | 25 °C / 77 °F |

Other Information**Metal Corrosivity**

GHS Metal Corrosivity Classification
Steel Corrosion Rate

Classified as corrosive to metal according to GHS criteria
 Category 1, H290
 151.6 mm/yr / 5.97 in/yr

Aluminum Corrosion Rate**Bulk density**

Not applicable

Explosive properties

Not classified according to GHS criteria.

Explosion data

No data available

Upper explosion limit

No data available

Lower explosion limit

No data available

Flammable properties

During a fire, irritating and highly toxic gases may be generated by thermal decomposition.

Flammability Limit in Air**Upper flammability limit:**

No data available

Lower flammability limit:

No data available

Flash point

> 100 °C / 212 °F

| | |
|------------------------------|--|
| Method | CC (closed cup) |
| Oxidizing properties | Not classified according to GHS criteria. |
| Reactivity properties | Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria. |

10. STABILITY AND REACTIVITY

Reactivity properties

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria

Chemical stability

Stable under recommended storage conditions.

Special dangers of the product

None reported

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

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

Explosive properties

Not classified according to GHS criteria.

Upper explosion limit

No data available

Lower explosion limit

No data available

Autoignition temperature

No data available

Sensitivity to Static Discharge

None reported

Sensitivity to Mechanical Impact

None reported

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation

Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). 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.

Eye contact

Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact

Specific test data for the substance or mixture is not available. May cause irritation.

Ingestion

Specific test data for the substance or mixture is not available. Causes burns. (based on components). 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.

Aggravated Medical Conditions

Eye disorders. Skin disorders. Respiratory disorders.

Toxicologically synergistic products

None known.

Toxicokinetics, metabolism and distribution

See ingredients information below.

| Chemical name | Toxicokinetics, metabolism and distribution |
|---|---|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | The corrosivity of sulfuric acid makes it difficult to assess its effects on metabolism. Its corrosivity is also the main contributor to acute deaths, therefore it is not classified for acute toxicity. |

Symptoms related to the physical, chemical and toxicological characteristics**Symptoms**

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

Product Acute Toxicity Data

Test data reported below

Oral Exposure Route

| Endpoint type | Reported dose | Key literature references and sources for data |
|-------------------------|---------------|--|
| Rat LD ₅₀ | 7099 mg/kg | Outside testing |

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

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 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

| | |
|-----------------------------|-----------------|
| ATE _{mix} (dermal) | 30,012.00 mg/kg |
|-----------------------------|-----------------|

Ingredient Acute Toxicity Data

Oral Exposure Route

If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|-----------------------|--|
| Sodium bisulfate (7 - 13%) CAS#: 7681-38-1 | Rat LD ₅₀ | 2490 mg/kg | None reported | None reported | IUCLID (The International Uniform Chemical Information Database) |
| Molybdate (MoO ₄ ²⁻), dihydrogen, (T-4)- (5 - 10%) CAS#: 7782-91-4 | Rat LD ₅₀ | 2689 mg/kg | None reported | None reported | Vendor SDS |
| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Rat LD ₅₀ | 2140 mg/kg | None reported | None reported | IUCLID (The International Uniform Chemical Information Database) |

Dermal Exposure Route

If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|-----------------------|--|
| Molybdate (MoO ₄ ²⁻), dihydrogen, (T-4)- (5 - 10%) CAS#: 7782-91-4 | Rat LD ₅₀ | > 2000 mg/kg | None reported | None reported | IUCLID (The International Uniform Chemical Information Database) |

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|-------------------------|---------------|---------------|-----------------------|--|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Rat LC ₅₀ | 0.510 mg/L | None reported | None reported | LOLI |

Inhalation (Gas) Exposure Route

If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data**Oral Exposure Route****Dermal Exposure Route**

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data**Oral Exposure Route**

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---------------------------|---------------|---------------|---|--|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Human TD _{Lo} | 0.144 mg/L | 5 minutes | Lungs, Thorax, or Respiration Dyspnea | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Gas) Exposure Route

If available, see data below

Aspiration toxicity

No data available

Product Skin Corrosion/Irritation Data

No data available.

Ingredient Skin Corrosion/Irritation Data

If available, see data below

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|---------------|-------------|---------|---------------|---------------|---------|--|
| | | | | | | |

| | | | | | | |
|--|------------------------------|--------|------------------|------------------|--|---|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Existing human experience | Human | None reported | None reported | Corrosive to skin | HSDB (Hazardous Substances Data Bank) |
| Sodium bisulfate (7 - 13%) CAS#: 7681-38-1 | Standard Draize Test | Rabbit | 500 mg | 4 hours | Not corrosive or irritating to skin | ECHA (The European Chemicals Agency) |

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

| Chemical name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|------------------------------|---------|------------------|------------------|-------------------|--|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Existing human experience | Human | None reported | None reported | Corrosive to eyes | HSDB (Hazardous Substances Data Bank) |
| Sodium bisulfate (7 - 13%) CAS#: 7681-38-1 | Standard Draize Test | Rabbit | 100 mg | None reported | Eye irritant | ECHA (The European Chemicals Agency) |

Sensitization Information**Product Sensitization Data****Skin Sensitization Exposure Route**

No data available.

Respiratory Sensitization Exposure Route

No data available.

Ingredient Sensitization Data**Skin Sensitization Exposure Route**

If available, see data below.

Respiratory Sensitization Exposure Route

If available, see data below.

Chronic Toxicity Information**Product Specific Target Organ Toxicity Repeat Dose Data****Oral Exposure Route**

No data available.

Dermal Exposure Route

No data available.

Inhalation (Dust/Mist) Exposure Route

No data available.

Inhalation (Vapor) Exposure Route

No data available.

Inhalation (Gas) Exposure Route

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data**Oral Exposure Route**

If available, see data below

Dermal Exposure Route

If available, see data below

Inhalation (Dust/Mist) Exposure Route

If available, see data below

Inhalation (Vapor) Exposure Route

If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|---|---------------------------|------------------|------------------|---|--|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Human TC _{Lo} | .003 mg/L | 168 days | Musculoskeletal Changes in teeth and supporting structures | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Gas) Exposure Route

If available, see data below

Product Carcinogenicity Data**Oral Exposure Route**

No data available

Dermal Exposure Route

No data available

Inhalation (Dust/Mist) Exposure Route

No data available

Inhalation (Vapor) Exposure Route

No data available

Inhalation (Gas) Exposure Route

No data available

Ingredient Carcinogenicity Data

| Chemical name | CAS No. | ACGIH | IARC | NTP | OSHA |
|---------------|---------|-------|------|-----|------|
|---------------|---------|-------|------|-----|------|

| | | | | | |
|---|-----------|----|---------|-------|---|
| Sulfuric acid | 7664-93-9 | A2 | Group 1 | Known | X |
| Sodium bisulfate | 7681-38-1 | - | - | - | - |
| Molybdate (MoO4 ²⁻), dihydrogen, (T-4)- | 7782-91-4 | A3 | - | - | - |

Legend

| | |
|---|---|
| ACGIH (American Conference of Governmental Industrial Hygienists) | A2 - Suspected Human Carcinogen A3 - Animal Carcinogen |
| IARC (International Agency for Research on Cancer) | Group 1 - Carcinogenic to Humans |
| NTP (National Toxicology Program) | Known - Known Carcinogen |
| OSHA (Occupational Safety and Health Administration of the US Department of Labor) | X - Present |

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Germ Cell Mutagenicity *invitro* Data
 No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data
 If available, see data below

| Chemical name | Test | Cell Strain | Reported dose | Exposure time | Results | Key literature references and sources for data |
|--|----------------------|---------------|---------------|---------------|---------------------------------------|--|
| Sulfuric acid (7 - 13%) 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

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

| Chemical name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|--|-------------------------|---------------|---------------|---|--|
| Sulfuric acid (7 - 13%) CAS#: 7664-93-9 | Rabbit TC _{Lo} | .02 mg/L | 7 hours | Specific Developmental Abnormalities Musculoskeletal system | No information available |

Inhalation (Gas) Exposure Route

If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity**Product Ecological Data****Aquatic toxicity**

| | |
|-----------|-------------------|
| Fish | No data available |
| Crustacea | No data available |
| Algae | No data available |

Ingredient Ecological Data**Aquatic toxicity**

| | |
|-----------|---|
| Fish | If available, see ingredient data below |
| Crustacea | If available, see ingredient data below |

| Chemical name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|--|---------------|----------------------|------------------|---------------|--|
| Sodium bisulfate (7 - 13%) CAS#: 7681-38-1 | 48 Hours | <i>Daphnia magna</i> | EC ₅₀ | 190 mg/L | IUCLID (The International Uniform Chemical Information Database) |

| | |
|-------|-------------------|
| Algae | No data available |
|-------|-------------------|

Other InformationPersistence and degradability**Product Biodegradability Data**

No data available.

Ingredient Biodegradability Data

No data available

Bioaccumulation**Product Bioaccumulation Data**

No data available.

Partition Coefficient (n-octanol/water)

Not applicable

Ingredient Bioaccumulation Data

No data available

| Chemical name | Partition Coefficient (n-octanol/water) | Method |
|---|---|--|
| Molybdate (MoO ₄ ²⁻), dihydrogen, (T-4)- (5 - 10%) CAS#: 7782-91-4 | log K _{ow} = 1.93 | Estimation through KOWWIN v1.68 part of the Estimation Programs Interface (EPI) Suite™ |

Mobility**Product Information****Soil Organic Carbon-Water Partition Coefficient**

Not applicable

Water solubility

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

Ingredient Information

| Chemical name | Water solubility classification | Water solubility | Water solubility temperature °C | Water solubility temperature °F |
|--|---------------------------------|------------------|---------------------------------|---------------------------------|
| Sulfuric acid CAS#: 7664-93-9 | Soluble | > 1000 mg/L | 25 °C | 77 °F |
| Sodium bisulfate CAS#: 7681-38-1 | Soluble | > 1000 mg/L | 20 °C | 68 °F |
| Molybdate (MoO4 ²⁻), dihydrogen, (T-4)- CAS#: 7782-91-4 | Slightly soluble | > 0.1 mg/L | 25 °C | 77 °F |

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS**Waste treatment methods**

Waste from residues/unused products
Contaminated packaging

Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Do not reuse empty containers.

14. TRANSPORT INFORMATION**U.S. DOT**

UN/ID no UN3264
Proper shipping name Corrosive Liquid, Acidic, Inorganic, N.O.S.
DOT Technical Name (Sulfuric acid solution)
Hazard Class 8
Packing Group III
Emergency Response Guide Number 154

TDG

UN/ID no UN3264
Proper shipping name Corrosive Liquid, Acidic, Inorganic, N.O.S.
TDG Technical Name (Sulfuric acid solution)
Hazard Class 8
Packing Group III

IATA

UN/ID no UN3264
Proper shipping name Corrosive Liquid, Acidic, Inorganic, N.O.S.
IATA Technical Name (Sulfuric acid solution)
Hazard Class 8
Packing Group III
ERG Code 154

IMDG

UN/ID no UN3264
Proper shipping name Corrosive Liquid, Acidic, Inorganic, N.O.S.
IMDG Technical Name (Sulfuric acid solution)
Hazard Class 8
Packing Group III
Marine pollutant No

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.

15. REGULATORY INFORMATION

Regulatory information

National Inventories

DSL/NDSL Complies

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

TSCA 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

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

Canada - CEPA - Mercury Containing Products

None

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments

None

NFPA and HMIS Classifications

| | | | | |
|-------------|---------------------------|-------------------------|-----------------------------|--|
| NFPA | Health hazards - 3 | Flammability - 1 | Instability - 0 | Physical and Chemical Properties - |
| HMIS | Health hazards - 3 | Flammability - 1 | Physical Hazards - 0 | Personal protection - X - See section 8 for more information |

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

NIOSH IDLH

Immediately Dangerous to Life or Health

ACGIH
NDFACGIH (American Conference of Governmental Industrial Hygienists)
no data**Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

| | | | |
|------|---------------------------------|---------|---|
| TWA | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| MAC | Maximum Allowable Concentration | Ceiling | Ceiling Limit Value |
| 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 | | |

Prepared By Hach Product Compliance Department**Issue Date** 14-Sep-2016**Revision Date** 30-Nov-2017**Revision Note**
SDS sections updated**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.**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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End of Safety Data Sheet