



Be Right™

SAFETY DATA SHEET

Issue Date 21-Oct-2016

Revision Date 14-Oct-2015

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1. IDENTIFICATION

Product identifier

Product Name Sulfuric Acid Standard Solution, 1.00 N

Other means of identification

Product Code(s) 127053

Safety data sheet number M00436

UN/ID no UN3264

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory reagent. Standard solution.

Uses advised against None.

Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address

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

Emergency telephone number

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

2. HAZARDS IDENTIFICATION

Classification

Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|-----------------------------------|------------|
| Corrosive to metals | Category 1 |
| Serious eye damage/eye irritation | Category 1 |

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word - Danger

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Hazard statements

H290 - May be corrosive to metals
H318 - Causes serious eye damage EUH208 - May produce an allergic reaction

Precautionary statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection
P234 - Keep only in original container
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
P390 - Absorb spillage to prevent material damage
P406 - Store in corrosive resistant stainless steel container with a resistant inliner

Other Information

Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Chemical Family Mixture.

Percent ranges are used where confidential product information is applicable.

| Chemical Name | CAS No | Percent Range | HMRIC # |
|----------------|-----------|---------------|---------|
| Sulfuric acid | 7664-93-9 | 3 - 7% | - |
| Glutaraldehyde | 111-30-8 | <0.1% | - |

4. FIRST AID MEASURES

Description of first aid measures

| | |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| General advice | In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). |
| Eye contact | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately. |
| Skin contact | IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If symptoms persist, call a physician. |
| Inhalation | IF INHALED: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician. |
| Ingestion | IF SWALLOWED: Rinse Mouth. If symptoms persist, call a physician. |
| Self-protection of the first aider | Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. |

Most important symptoms and effects, both acute and delayed

Symptoms See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Dry chemical. Do NOT use water.

Unsuitable extinguishing media Do NOT use water.

Flammable properties

Substance does not burn.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products This material will not burn.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

EC 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.

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, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Avoid release to the environment. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up Take necessary precautions in observance of pertinent physical hazards. Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number 154

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Keep/store only in original container.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

| Chemical Name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|-------------------------|----------------------------|------------------------------------------------------------------------|--------------------------------------------------------|
| Sulfuric acid 3 - 7% | 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 |
| Glutaraldehyde <0.1% | Ceiling: 0.05 ppm | (vacated) Ceiling: 0.2 ppm (vacated) Ceiling: 0.8 mg/m ³ | Ceiling: 0.2 ppm Ceiling: 0.8 mg/m ³ |

| Chemical Name | Alberta OEL | British Columbia OEL | Manitoba OEL | New Brunswick OEL | New Foundland & Labrador OEL |
|-------------------------|-------------------------------------------------------|----------------------------|----------------------------|-------------------------------------------------------|------------------------------|
| Sulfuric acid 3 - 7% | 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 |

| | | | | | |
|-------------------------|-----------------------------------------------------|---------------------------|-------------------|-----------------------------------------------------|-----------------------------------|
| Glutaraldehyde <0.1% | Ceiling: 0.05 ppm Ceiling: 0.2 mg/m ³ | Ceiling: 0.05 ppm SKN+ | Ceiling: 0.05 ppm | Ceiling: 0.05 ppm Ceiling: 0.2 mg/m ³ | RSP+ Ceiling: 0.05 ppm SKN+ |
|-------------------------|-----------------------------------------------------|---------------------------|-------------------|-----------------------------------------------------|-----------------------------------|

| Chemical Name | Northwest Territories OEL | Nova Scotia OEL | Nunavut OEL | Ontario TWA | Prince Edward Island OEL |
|-------------------------|-----------------------------------------------------------|-----------------------------------|-----------------------------------------------------------|----------------------------|----------------------------|
| Sulfuric acid 3 - 7% | 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 |
| Glutaraldehyde <0.1% | Ceiling: 0.05 ppm SKN+ | RSP+ Ceiling: 0.05 ppm SKN+ | Ceiling: 0.05 ppm | Ceiling: 0.05 ppm | Ceiling: 0.05 ppm |

| Chemical Name | Quebec OEL | Saskatchewan OEL | Yukon OEL |
|-------------------------|-------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------|
| Sulfuric acid 3 - 7% | 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 |
| Glutaraldehyde <0.1% | Ceiling: 0.1 ppm Ceiling: 0.41 mg/m ³ SKN+ | Ceiling: 0.05 ppm SKN+ | Ceiling: 0.25 mg/m ³ |

Other Information Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

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

Eye/face protection Wear tight sealing safety goggles and/or face protection shield.

Skin and body protection Wear protective gloves and protective clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off all contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Regular cleaning of equipment, work area and clothing is recommended.

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 aqueous solution **Color** colorless

Odor None **Odor threshold** No data available

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| <u>Property</u> | <u>Values</u> | <u>Remarks • Method</u> |
|-------------------------------------------------|------------------------------------------|---------------------------------------------|
| Molecular weight | No data available | |
| pH | < 0.5 | |
| Melting point/freezing point | ~ -2 °C / 28 °F | Estimation based on theoretical calculation |
| Boiling point / boiling range | ~ 100 °C / 212 °F | Estimation based on theoretical calculation |
| Evaporation rate | 0.56 (water = 1) | |
| Vapor pressure | 23.552 mm Hg / 3.14 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) | 0.990 | |
| 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 | Classified as corrosive to metal according to GHS criteria |
| GHS Metal Corrosivity Classification | Category 1, H290 |
| Steel Corrosion Rate | 29.5 mm/yr / 1.16 in/yr |
| Aluminum Corrosion Rate | 10.16 mm/yr / 0.4 in/yr |
| Volatile Organic Compounds (VOC) Content | See ingredients information below. |
| Bulk density | Not applicable |
| Explosive properties | Not classified according to GHS criteria. |

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| | |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Explosion data | During a fire, corrosive and toxic gases may be generated by thermal decomposition. |
| Upper explosion limit | No data available |
| Lower explosion limit | No data available |
| Flammable properties | Not classified as flammable according to GHS criteria. |
| Flammability Limit in Air | |
| Upper flammability limit: | No data available |
| Lower flammability limit: | No data available |
| Flash point | No data available |
| Method | No information available |
| 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

Extreme temperatures. Heating to decomposition. Exposure to air or moisture over prolonged periods.

Incompatible materials

Caustics. Incompatible with strong acids and bases. Incompatible with oxidizing agents.

Hazardous Decomposition Products

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

Explosive properties

Not classified according to GHS criteria. During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Upper explosion limit No data available

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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

NIOSH (RTECS) Number None reported

Information on Likely Routes of Exposure

| | |
|----------------------------------------------------|-------------------------------------------------------------------------------------------|
| Product Information | Corrosive to eyes. |
| Inhalation | No known effect based on information supplied. |
| Eye contact | Corrosive to the eyes and may cause severe damage including blindness. Corrosive to eyes. |
| Skin contact | No known effect based on information supplied. |
| Ingestion | No known effect based on information supplied. |
| Aggravated Medical Conditions | Eye disorders. |
| Toxicologically synergistic products | None known. |
| Toxicokinetics, metabolism and distribution | See ingredients information below. |

| Chemical Name | Toxicokinetics, metabolism and distribution |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sulfuric acid (3 - 7%) 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. |

Product Acute 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 Acute Toxicity Data

Oral Exposure Route

| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|----------------------------------------------|-------------------------|---------------|---------------|-----------------------|---------------------------------------------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | Rat LD ₅₀ | 134 mg/kg | None reported | None reported | GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance) |
| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Rat LD ₅₀ | 2140 mg/kg | None reported | None reported | IUCLID (The International Uniform Chemical Information Database) |

Dermal Exposure Route

Toxicological data for ingredients is not indicative of likely harm.

| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|------------------------------------------|-------------------------|---------------|---------------|-----------------------|----------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | Rabbit LD ₅₀ | 594 mg/kg | None reported | None reported | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Dust/Mist) Exposure Route

| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|------------------------------------------|----------------------|---------------|---------------|-----------------------|------------------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | Rat LC ₅₀ | 0.48 mg/L | 4 hours | None reported | IUCLID (The International Uniform Chemical Information Database) |

Inhalation (Vapor) Exposure Route

| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|-------------------------------------------|------------------------|---------------|---------------|------------------------------------------|----------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | None reported | None reported | None reported | None reported | No information available |
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Rat LC ₅₀ | 0.510 mg/L | None reported | None reported | LOLI |
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Human TD _{Lo} | 0.144 mg/L | 4 hours | Lungs, Thorax, or Respiration Dyspnea | RTECS (Registry of Toxic Effects of Chemical Substances) |

Inhalation (Gas) Exposure Route

No data available

Product Skin Corrosion/Irritation Data

No data available.

| |
|--------------------------------------------------------------------------|
| Key literature references and sources for data Outside testing |
|--------------------------------------------------------------------------|

Ingredient Skin Corrosion/Irritation Data

| Chemical Name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|-------------------------------------------|---------------------------|---------|---------------|---------------|-------------------|----------------------------------------------------------|
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Existing human experience | Human | None reported | None reported | Corrosive to skin | HSDB (Hazardous Substances Data Bank) |
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | Standard Draize Test | Human | 6 mg | 72 hours | Corrosive to skin | RTECS (Registry of Toxic Effects of Chemical Substances) |

Product Serious Eye Damage/Eye Irritation Data

No data available.

Ingredient Eye Damage/Eye Irritation Data

| Chemical Name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and |
|---------------|-------------|---------|---------------|---------------|---------|-------------------------------|
|---------------|-------------|---------|---------------|---------------|---------|-------------------------------|

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| Chemical Name | Test method | Species | Reported dose | Exposure time | Results | Key literature references and sources for data |
|-------------------------------------------|---------------------------|---------|---------------|---------------|-------------------|-----------------------------------------------------------|
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Existing human experience | Human | None reported | None reported | Corrosive to eyes | sources for data HSDB (Hazardous Substances Data Bank) |
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | Standard Draize Test | Rabbit | 0.250 mg | 24 hours | Corrosive to eyes | RTECS (Registry of Toxic Effects of Chemical Substances) |

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 No data available.

Respiratory Sensitization Exposure Route No data available.

Chronic Toxicity Information

Product Repeat Dose 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 Repeat Dose 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 Toxicological data for ingredients is not indicative of likely harm.

| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|-------------------------------------------|------------------------|---------------|---------------|---------------------------------------------------------------|----------------------------------------------------------|
| Sulfuric acid (3 - 7%) 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 No data available

| Chemical Name | CAS No | ACGIH | IARC | NTP | OSHA |
|----------------|-----------|-------|---------|-------|------|
| Sulfuric acid | 7664-93-9 | A2 | Group 1 | Known | X |
| Glutaraldehyde | 111-30-8 | - | - | - | - |

Legend

| | |
|-------------------------------------------------------------------------------------------|----------------------------------|
| ACGIH (American Conference of Governmental Industrial Hygienists) | A2 - Suspected Human 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 |

Product Carcinogenicity Data No data available

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

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

Product Germ Cell Mutagenicity *invitro* Data

No data available.

Ingredient Germ Cell Mutagenicity *invitro* Data

Toxicological data for ingredients is not indicative of likely harm.

| Chemical Name | Test | Cell Strain | Reported dose | Exposure time | Results | Key literature references and sources for data |
|----------------------------------------------|----------------------|---------------|---------------|---------------|---------------------------------------|------------------------------------------------|
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Cytogenetic analysis | Hamster ovary | 4 mmol/L | None reported | Positive test result for mutagenicity | No information available |

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 No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

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

Inhalation (Vapor) Exposure Route Toxicological data for ingredients is not indicative of likely harm.

| Chemical Name | Endpoint type | Reported dose | Exposure time | Toxicological effects | Key literature references and sources for data |
|----------------------------------------------|----------------------------|---------------|---------------|-----------------------------------------------------------------------|------------------------------------------------|
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Rabbit TC _{Lo} | .02 mg/L | 7 hours | Specific Developmental Abnormalities Musculoskeletal system | No information available |

Inhalation (Gas) Exposure Route No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity Based on the classification principles, not classified as hazardous to the environment.

Product Ecological Data

Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Terrestrial toxicity

Soil No data available
Vertebrates No data available
Invertebrates No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

| Chemical Name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
|---------------|---------------|---------|---------------|---------------|------------------------------------------------|
|---------------|---------------|---------|---------------|---------------|------------------------------------------------|

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| | | | | | |
|----------------------------------------------|----------------------|----------------------------|----------------------|----------------------|------------------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | 96 hours | None reported | LC ₅₀ | 3.5 mg/L | NIH (National Institutes of Health) |
| Chemical Name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | 96 hours | <i>Lepomis macrochirus</i> | LC ₅₀ | > 16 mg/L | IUCLID (The International Uniform Chemical Information Database) |

Crustacea

| | | | | | |
|----------------------------------------------|----------------------|------------------------|----------------------|----------------------|---------------------------------------------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | 48 Hours | None reported | EC ₅₀ | 0.75 mg/L | GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance) |
| Chemical Name | Exposure time | Species | Endpoint type | Reported dose | Key literature references and sources for data |
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | 48 hours | <i>Crangon crangon</i> | EC ₅₀ | > 70 mg/L | IUCLID (The International Uniform Chemical Information Database) |

Algae

No data available

Terrestrial toxicity

Soil

No data available

Vertebrates

No data available

Invertebrates

No data available

Other Information

Persistence and degradability

None known.

Product Biodegradability Data

No data available.

Ingredient Biodegradability Data

No data available

Bioaccumulation

None known.

Product Bioaccumulation Data

Test data reported below.

Ingredient Bioaccumulation Data

No data available

Additional information

Product Information

Partition Coefficient (n-octanol/water)

Not applicable

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Ingredient Information

| Chemical Name | Partition Coefficient (n-octanol/water) | Method |
|------------------------------------------|-----------------------------------------|--------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | log K _{ow} = -0.33 | No information available |

Mobility

Mobility in soil: High mobility. If available, see ingredient data below.

Product Information

Soil Organic Carbon-Water Partition Coefficient Not applicable

Ingredient Information

| Chemical Name | Soil Organic Carbon-Water Partition Coefficient | Method |
|------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------|
| Glutaraldehyde (<0.1%) CAS#: 111-30-8 | log K _{oc} = 0.28 | Estimation through KOCWIN v2.00 part of the Estimation Programs Interface (EPI) Suite™ |

Additional information

Water solubility

Product Information

| 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 |
| Glutaraldehyde CAS#: 111-30-8 | Soluble | > 1000 mg/L | 25 °C | 77 °F |

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

| | |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Disposal of wastes | Disposal should be in accordance with applicable regional, national, and local laws and regulations. |
| Contaminated packaging | Do not reuse container. |
| US EPA Waste Number | D002 |
| Special instructions for disposal | Work in an approved fume hood. Dilute material with excess water making a weaker than 5% solution. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium |

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bicarbonate. Open cold water tap completely, slowly pour the reacted material to the drain.
Allow cold water to run for 5 minutes to completely flush the system.

14. TRANSPORT INFORMATION

DOT

| | |
|----------------------------------------|---------------------------------------------|
| UN/ID no | UN3264 |
| Proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. |
| 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. |
| Hazard Class | 8 |
| Packing Group | III |

IATA

| | |
|-----------------------------|---------------------------------------------|
| UN/ID no | UN3264 |
| Proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. |
| Hazard Class | 8 |
| Packing Group | III |
| ERG Code | 154 |

IMDG

| | |
|-----------------------------|---------------------------------------------|
| UN/ID no | UN3264 |
| Proper shipping name | Corrosive Liquid, Acidic, Inorganic, N.O.S. |
| Hazard Class | 8 |
| Packing Group | III |

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

National Inventories

| | |
|-----------------|----------|
| TSCA | Complies |
| DSL/NDSL | Complies |

TSCA- United States Toxic Substances Control Act Section 8(b) Inventory

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

International Inventories

| | |
|----------------------|----------|
| EINECS/ELINCS | Complies |
| ENCS | Complies |
| IECSC | Complies |
| KECL | Complies |
| PICCS | Complies |
| TCSI | Complies |
| AICS | Complies |
| NZIoC | Complies |

EINECS/ELINCS- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

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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

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical Name | SARA 313 - Threshold Values % |
|----------------------------------|-------------------------------|
| Sulfuric acid (CAS #: 7664-93-9) | 1.0 |

SARA 311/312 Hazard Categories

| | |
|------------------------------------------|-----|
| Acute health hazard | Yes |
| Chronic Health Hazard | Yes |
| Fire hazard | No |
| Sudden release of pressure hazard | No |
| Reactive Hazard | No |

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

| Chemical Name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|----------------------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Sulfuric acid 7664-93-9 | 1000 lb | - | - | X |

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

| Chemical Name | Hazardous Substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|----------------------------|--------------------------|----------------|-------------------------------------------|
| Sulfuric acid 7664-93-9 | 1000 lb | 1000 lb | RQ 1000 lb final RQ RQ 454 kg final RQ |

U.S. - DEA (Drug Enforcement Administration) List I & List II

| Chemical Name | U.S. - DEA (Drug Enforcement Administration) - List I or Precursor Chemicals | U.S. - DEA (Drug Enforcement Administration) - List II or Essential Chemicals |
|----------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Sulfuric acid (3 - 7%) CAS#: 7664-93-9 | Not Listed | 50 gallon Export Volume (exports, transshipments and international transactions to designated countries) |

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

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| Chemical Name | New Jersey | Massachusetts | Pennsylvania |
|----------------------------|------------|---------------|--------------|
| Sulfuric acid 7664-93-9 | X | X | X |
| Glutaraldehyde 111-30-8 | X | X | X |

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

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

NFPA and HMIS Classifications

| | | | | |
|------|--------------------|------------------|----------------------|-----------------------------------------------------------------|
| NFPA | Health hazards - 3 | Flammability - 0 | Instability - 0 | Physical and Chemical Properties - |
| HMIS | Health hazards - 3 | Flammability - 0 | 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 ACGIH (American Conference of Governmental Industrial Hygienists)
 NDF *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 21-Oct-2016

Revision Date 14-Oct-2015

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