



Be Right™

SAFETY DATA SHEET

Issue Date 14-03-2019

Revision Date 06-Oct-2020

Version 3.4

Section 1: Identification: Product identifier and chemical identity

Product identifier

Product Name Molybdovanadate Reagent
Product Code(s) 2076053

Other means of identification

Safety data sheet number M00297

Recommended use of the chemical and restrictions on use

Recommended Use Indicator for phosphate.

Uses advised against Consumer use

Details of manufacturer or importer

Manufacturer

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

Supplier

HACH Pacific 26 Brindley Street Dandenong South, 3175 AU Tel: 1300 887 735

Emergency telephone number

13 11 26

Section 2: Hazard(s) identification

GHS Classification

Corrosive to metals	Category 1 - (H290)
Acute toxicity - Inhalation (Dusts/Mists)	Category 4 - (H332)
Skin corrosion/irritation	Category 1 - (H314)
Serious eye damage/eye irritation	Category 1 - (H318)

Label elements

Corrosion
Exclamation mark



Signal word - Danger

Hazard statements

H290 - May be corrosive to metals
 H314 - Causes severe skin burns and eye damage
 H332 - Harmful if inhaled

EU Specific Hazard Statements

Not applicable

Precautionary statements

P271 - Use only outdoors or in a well-ventilated area
 P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P280 - Wear protective gloves, protective clothing, eye protection, and 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
 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

Harmful to aquatic life

None known

Section 3: Composition and information on ingredients, in accordance with Schedule 8

Chemical Family Mixture

Substance

Not applicable

Mixture

Chemical nature Aqueous solution of inorganic acids and salts.

Chemical name	Formula	CAS No.	EC No.	Percent Range
Sulfuric acid	H ₂ SO ₄	7664-93-9	231-639-5	40 - 50%
Molybdate (Mo7O246-), hexaammonium	(NH ₄) ₆ Mo ₇ O ₂₄	12027-67-7	234-722-4	1 - 5%
Diammonium sulfate	(NH ₄) ₂ SO ₄	7783-20-2	231-984-1	1 - 5%
Ammonium vanadate	NH ₄ VO ₃	7803-55-6	232-261-3	<1%
Dipotassium peroxodisulphate	K ₂ S ₂ O ₈	7727-21-1	231-781-8	<0.1%

Section 4: FIRST AID MEASURES

Emergency telephone number

Poisons Information Center, Australia: 13 11 26

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. Avoid breathing vapors or mists. Use personal protective equipment as required. See section 8 for more information.

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

Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.

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

pressure may occur with moist rales, frothy sputum, and high pulse pressure.

Section 5: Firefighting measures

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

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Flammable properties

Not classified as flammable according to GHS criteria Combustion generates toxic fumes. During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Contact with metals may evolve flammable hydrogen gas

Explosive properties

Not classified according to GHS criteria.

Hazardous combustion products

Ammonia. Nitrogen oxides. Sulfur oxides.

Specific/special fire-fighting measures

No information available.

Special protective equipment and precautions 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**

Evacuate personnel to safe areas. Remove all sources of ignition. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as

required. 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. Avoid breathing vapors or mists.

Other Information Use personal protective equipment as required. Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Do not allow into any sewer, on the ground or into any body of water. Should not be released into the environment. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information. 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 Keep out of drains, sewers, ditches and waterways.

Methods for cleaning up Use personal protective equipment as required. Place in appropriate chemical waste container.

Precautions to prevent secondary hazards

Clean contaminated objects and areas thoroughly observing environmental regulations. See section 8 for more information. See section 13 for more information.

Section 7: Handling and storage, including how the chemical may be safely used

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. Avoid breathing vapors or mists.

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 and personal protection

Control parameters

Exposure Limits

Chemical name	Australia
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	TWA: 1 mg/m ³ STEL: 3 mg/m ³
Molybdate (Mo7O246-), hexaammonium	TWA: 5 mg/m ³

(1 - 5%) CAS#: 12027-67-7	
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	0.1 mg/m ³ Peak

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.

Other Protective Equipment None.

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

Physical state	Liquid	Color	light yellow
Appearance	clear	Odor threshold	Not applicable
Odor	Odorless		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Molecular weight	Not applicable	
pH	< 0.5	@ 20 °C
Melting point/freezing point	~ -33 °C / -27.4 °F	
Boiling point / boiling range	~ 109 °C / 228.2 °F	
Evaporation rate	0.06 (water = 1)	
Vapor pressure	21.827 mm Hg / 2.91 kPa at 25 °C / 77 °F	
Vapor density (air = 1)	0.62 (Air = 1)	
Specific gravity (water = 1 / air = 1)	1.375	
Partition Coefficient (n-octanol/water)	No data available	

Soil Organic Carbon-Water Partition Coefficient	No data available
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

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

286.33 mm/yr / 11.27 in/yr

Aluminum Corrosion Rate

No data available

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	-
Molybdate (Mo7O246-), hexaammonium	12027-67-7	No data available	-
Diammonium sulfate	7783-20-2	No data available	-
Ammonium vanadate	7803-55-6	Not applicable	-
Dipotassium peroxodisulphate	7727-21-1	Not applicable	-

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

Not applicable

Section 10: STABILITY AND REACTIVITY

Reactivity

Not applicable.

Chemical stability

Stable under normal conditions.

Explosion data

Sensitivity to Mechanical Impact None.

Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions

None under normal processing.

Hazardous polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Exposure to air or moisture over prolonged periods. Excessive heat.

Incompatible materials

Oxidizing agent. Acids. Bases.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Nitrogen oxides (NOx). Ammonia. Sulfur oxides.

Section 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation	Corrosive by inhalation. ate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. Harmful by inhalation.
Eye contact	Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Corrosive. Causes severe burns. Avoid contact with skin and clothing.
Ingestion	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

Harmful if inhaled

Product Acute Toxicity Data

No data available.

Ingredient Acute Toxicity Data

Test data reported below.

Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	Rat LD ₅₀	333 mg/kg	None reported	None reported	Vendor SDS
Diammonium sulfate (1 - 5%) CAS#: 7783-20-2	Rat LD ₅₀	2840 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Ammonium vanadate (<1%) CAS#: 7803-55-6	Rat LD ₅₀	58.1 mg/kg	None reported	Behavioral Somnolence (general depressed activity) Gastrointestinal Hypermotility Diarrhea Nutritional and Gross Metabolic Body temperature decrease	ChemADVISOR
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Rat LD ₅₀	802 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Dermal Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium vanadate (<1%) CAS#: 7803-55-6	Rat LD ₅₀	2102 mg/kg	None reported	Behavioral Somnolence (general depressed activity) Gastrointestinal Hypermotility Diarrhea Nutritional and Gross Metabolic Body temperature decrease	HSDB (Hazardous Substances Data Bank)

Inhalation (Dust/Mist) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium vanadate (<1%) CAS#: 7803-55-6	Rat LC ₅₀	0.0078 mg/L	4 hours	None reported	LOLI

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

ATEmix (oral)	6,873.20 mg/kg
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	3.57 mg/L
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	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 (40 - 50%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB (Hazardous Substances Data Bank)
Diammonium sulfate (1 - 5%) CAS#: 7783-20-2	Standard Draize Test	Rabbit	800 mg	20 hours	Not corrosive or irritating to skin	ECHA (The European Chemicals Agency)

Serious eye damage/eye 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 (40 - 50%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB (Hazardous Substances Data Bank)
Diammonium sulfate (1 - 5%) CAS#: 7783-20-2	Standard Draize Test	Rabbit	0.050 mL	None reported	Not corrosive or irritating to eyes	ECHA (The European Chemicals Agency)

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.

Chemical name	Test method	Species	Results	Key literature references and sources for data
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Local Lymph Node Assay	Mouse	Confirmed to be a skin sensitizer	ECHA (The European Chemicals Agency)

STOT - single exposure

Substances known to be carcinogenic to man.

Product Specific Target Organ Toxicity Single Exposure Data

No data available.

Ingredient Specific Target Organ Toxicity Single Exposure Data

Test data reported below.

Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Diammonium sulfate (1 - 5%) CAS#: 7783-20-2	Man TD _{Lo}	1500 mg/kg	None reported	Gastrointestinal Gas	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (40 - 50%) 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)

STOT - repeated exposure

Substances known to be carcinogenic to man.

Product Specific Target Organ Toxicity Repeat Dose Data

No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Test data reported below.

Oral Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium vanadate (<1%) CAS#: 7803-55-6	Rat TD _{Lo}	4630 mg/kg	90 days	Behavioral Food intake Blood Pigmented or nucleated red blood cells Changes in erythrocyte (RBC) count	RTECS (Registry of Toxic Effects of Chemical Substances)
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Rat NOAEL	131.5 mg/kg	28 days	No toxicological effects observed	ECHA (The European Chemicals Agency)

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Rat NOAEL	91 mg/kg	90 days	No toxicological effects observed	ECHA (The European Chemicals Agency)

Inhalation (Dust/Mist) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium vanadate (<1%) CAS#: 7803-55-6	Rat TC _{Lo}	4.59 mg/m ³	4 days	Lungs, Thorax, or Respiration Other changes Immunological Including Allergic	RTECS (Registry of Toxic Effects of Chemical Substances)

				Decrease in cellular immune response	
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Rat NOAEC	10.3 mg/m ³	90 days	No toxicological effects observed	ECHA (The European Chemicals Agency)

Inhalation (Vapor) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Human TC _{Lo}	0.003 mg/L	168 days	Musculoskeletal Changes in teeth and supporting structures	RTECS (Registry of Toxic Effects of Chemical Substances)

Carcinogenicity

Substances known to be carcinogenic to man.

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
Molybdate (Mo7O246-), hexaammonium	12027-67-7	A3	-	-	-
Diammonium sulfate	7783-20-2	-	-	-	-
Ammonium vanadate	7803-55-6	-	-	-	-
Dipotassium peroxodisulphate	7727-21-1	-	-	-	-

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

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 (40 - 50%) CAS#: 7664-93-9	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available
Ammonium vanadate (<1%) CAS#: 7803-55-6	DNA damage	Human lymphocyte	0.2 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Mutation in microorganisms	<i>Salmonella typhimurium</i>	10 mg/plate	None reported	Negative test result for mutagenicity	ECHA (The European Chemicals Agency)
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Product Germ Cell Mutagenicity *in vivo* Data

No data available.

Ingredient Germ Cell Mutagenicity *in vivo* Data

Test data reported below.

Oral Exposure Route

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Ammonium vanadate (<1%) CAS#: 7803-55-6	Micronucleus test	Mouse	50 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Reproductive toxicity

Substances known to be carcinogenic to man.

Product Reproductive Toxicity Data

No data available.

Ingredient Reproductive Toxicity Data

Test data reported below.

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Ammonium vanadate (<1%) CAS#: 7803-55-6	Rat	20 mg/kg	70 days	Death Post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants) Female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated) Male fertility index (e.g. # males impregnating females per # males exposed to fertile nonpregnant females)	No information available
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	Rat NOAEL	>= 250 mg/kg	Single generation	No reproductive or developmental toxic effects observed	ECHA (The European Chemicals Agency)

Inhalation (Vapor) Exposure Route

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (40 - 50%) CAS#: 7664-93-9	Rabbit TC _{Lo}	0.02 mg/L	7 hours	Specific Developmental Abnormalities Musculoskeletal system	RTECS (Registry of Toxic Effects of Chemical Substances)

Aspiration hazard

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

Section 12: ECOLOGICAL INFORMATION

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

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

Test data reported below.

Fish

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	320 mg/L	Vendor SDS
Diammonium sulfate (1 - 5%) CAS#: 7783-20-2	96 hours	<i>Oncorhynchus mykiss</i>	LC ₅₀	36.7 mg/L	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Ammonium vanadate (<1%) CAS#: 7803-55-6	96 hours	None reported	LC ₅₀	2.6 mg/L	EPA (United States Environmental Protection Agency)
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	96 hours	None reported	LC ₅₀	>= 76.3 mg/L	FIFRA

Crustacea

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Molybdate (Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7	48 Hours	<i>Daphnia magna</i>	EC ₅₀	140 mg/L	Vendor SDS
Diammonium sulfate (1 - 5%) CAS#: 7783-20-2	48 Hours	None reported	LC ₅₀	14 mg/L	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Dipotassium peroxodisulphate (<0.1%) CAS#: 7727-21-1	48 Hours	<i>Daphnia magna</i>	EC ₅₀	92 mg/L	EPA (United States Environmental Protection Agency)

Algae

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Molybdate	72 Hours	<i>Desmodesmus subspicatus</i>	EC ₅₀	41 mg/L	Vendor SDS

(Mo7O246-), hexaammonium (1 - 5%) CAS#: 12027-67-7					
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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)

No data available

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

No data available

Other adverse effects

Contains a substance with an endocrine-disrupting potential.

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.

Contaminated packaging

Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION

ADG

UN Number	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S.
Hazard Class	8
Packing Group	II
Special Provisions	274
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid), 8, II

IATA

UN/ID no	UN3264
Proper shipping name	Corrosive Liquid, Acidic, Inorganic, N.O.S.
Hazard Class	8
Packing Group	II
ERG Code	8P
Special precautions for user	A3, A803
Description	UN3264, Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid), 8, II

IMDG

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

EmS-No F-A, S-B
Special precautions for user 274
Description UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Sulfuric acid), 8, II

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****Australia**

Model Work Health and Safety Regulations

[NOHSC:2011(2003) National Code of Practice for the Preparation of Material Safety Data Sheets

Labelling of Workplace Hazardous Chemicals Code of Practice

See section 8 for national exposure control parameters

Poison Schedule Number 6

National pollutant inventory

Subject to reporting requirement

Chemical name	National pollutant inventory
Sulfuric acid - 7664-93-9	10 tonne/yr Threshold category 1

Banned and/or restricted

No Products Listed.

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
Existing substances	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: Any other relevant 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)
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		

Prepared By Hach Product Compliance Department

Issue Date 14-03-2019

Revision Date 06-Oct-2020

Revision Note

16
(M)SDS sections updated

Reference Sources for Section 11

See Section 11: TOXICOLOGICAL INFORMATION

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