The following list contains the Material Safety Data Sheets you requested. Please scoll down to view the requested MSDS(s).

Product	MSDS	Distributor	Format	Language	Quantity
1438901	N/A	Hach Company	ROWGHS	English	1

Total Enclosures: 1

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

MSDS No: M00299

SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sulfuric Acid 1.600 ± 0.008 N
Catalog Number: 1438901

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

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00299
Chemical Name: Not applicable
CAS Number: Not applicable
Additional CAS No. (for hydrated forms): Not applicable
Chemical Formula: Not applicable
Chemical Family: Mixture
Intended Use: Laboratory Use Alkalinity determination

2. HAZARDS IDENTIFICATION

GHS Classification:
Hazard categories: Corrosive to Metals: Met. Corr. 1 Skin Corrosion/Irritation: Skin Corr. 1C
GHS Label Elements:
DANGER

Hazard statements: May be corrosive to metals. Causes severe skin burns and eye damage.
Precautionary statements: Wear protective gloves / protective clothing / eye protection / face protection. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove victim/person to fresh air and keep at rest in a position comfortable for breathing. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.
HMIS:
Health: 3
Flammability: 0
Reactivity: 1
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 3
Flammability: 0
Reactivity: 0
Symbol: Not applicable
WHMIS Hazard Classification: Class E - Corrosive material
WHMIS Symbols: Corrosive

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Components according to GHS:

Sulfuric Acid

CAS Number: 7664-93-9
Chemical Formula: H_2SO_4
GHS Classification: Met. Corr. 1 H290; Skin Corr. 1A, H314; Aquatic Acute 3, H402
Percent Range (Trade Secret): 1.0 - 10.0
Percent Range Units: weight / weight
PEL: 1 mg/m^3
TLV: 1 mg/m^3

WHMIS Symbols: Acute PoisonCorrosive

Formaldehyde

CAS Number: 50-00-0
Chemical Formula: CH_2O
GHS Classification: Flam. Liq. 4, H227; Acute Tox. 3 -Orl, H301; Acute Tox. 3 -Derm, H311; Skin Corr. 1B, H314; Skin Sens. 1, H317; Acute Tox. 3-Inh, H331; Resp. Sens. 1, H334; Muta. 2, H341; Carc. 2, H351; Repr. 2, H361; STOT Single 1, H370; Aquatic Acute 2, H401
Percent Range (Trade Secret): < 0.1
Percent Range Units: weight / weight
PEL: 0.75 ppm
TLV: 0.3 ppm

WHMIS Symbols: Acute PoisonOther Toxic Effects

Methyl Alcohol

CAS Number: 67-56-1
Chemical Formula: CH_3OH
GHS Classification: Flam. Liq 2, H225; Acute Tox 3 -Orl, H301; Acute Tox 3 -Derm, H311; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Acute Tox 3 -Inh, H331; Muta. 2, H341; Repr. 2, H361; STOT SE1, H370
Percent Range (Trade Secret): < 0.1
Percent Range Units: weight / weight
PEL: 200 ppm
TLV: 200 ppm

WHMIS Symbols: Acute PoisonFlammable / CombustibleOther Toxic Effects

Hazardous Components according to GHS: No

Demineralized Water

CAS Number: 7732-18-5
Chemical Formula: H_2O
GHS Classification: Not a dangerous substance according to GHS.
Percent Range (Trade Secret): > 90.0
Percent Range Units: weight / weight
PEL: Not established
TLV: Not established

WHMIS Symbols: Not applicable

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4. FIRST AID MEASURES

General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.
Advice to doctor: Treat symptomatically.
Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician immediately.
Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.
Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.
Ingestion (First Aid): Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with plenty of water. Give large quantities of water. Call physician immediately.

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5. FIRE FIGHTING MEASURES

Flammable Properties: Material is not classified as flammable according to GHS criteria. Material will not burn. During a fire, corrosive and toxic gases may be generated by thermal decomposition.
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.
Extinguishing Media: Alcohol-resistant foam Alkali dry chemical. Carbon dioxide Water.
Extinguishing Media NOT To Be Used: Not applicable
Fire / Explosion Hazards: This product will not burn or explode. Contact with metals gives off hydrogen gas which is flammable May react violently with: strong acids strong bases strong oxidizers strong reducers
Hazardous Combustion Products: This material will not burn.

6. ACCIDENTAL RELEASE MEASURES

Spill Response 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.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Releases of this material may contaminate the environment.
Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation, Flush reacted material to the drain with a large excess of water. Otherwise, Decontaminate the area of the spill with a soap solution. Pick up spill for disposal and place in a closed container Dispose of in accordance with local, state and federal regulations or laws.
Evacuation Procedure: Evacuate local area (15 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled.
DOT Emergency Response Guide Number: 154

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Use with adequate ventilation. Do not breathe mist or vapors. Maintain general industrial hygiene practices when using this product. Wash thoroughly after handling.
Storage: Keep this product in its original container when not in use. Store in a cool, dry place. Store between 10° and 25°C. Protect from: heat moisture metals Keep away from: acids alkalies oxidizers reducers
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use general ventilation to minimize exposure to mist, vapor or dust. Have an eyewash station nearby. Have a safety shower nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles Suitable facilities (eyewash station or bottle) for flushing of the eyes
Skin Protection: lab coat neoprene latex gloves
Inhalation Protection: adequate ventilation and / or laboratory fume hood
Precautionary Measures: Avoid contact with: eyes skin clothing Wash thoroughly after handling. Use with adequate ventilation. Do not breathe: mist/vapor Protect from: heat metals moisture Keep away from: acids/acid fumes alkalies oxidizers reducers
TLV: Not established
PEL: Not established
For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients.:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, colorless
Physical State: Liquid
Molecular Weight: Not applicable
Odor: Acidic
Odor Threshold: Sulfuric Acid: 1 mg/m^3

pH: < 0.5
Metal Corrosivity:
Corrosivity Classification: Classified as corrosive to metals.
Steel: 0.096 in/yr
Aluminum: 0.441 in/yr (11 mm/yr) (Calculated from corrosivity to metals for a 0.16 N Sulfuric Acid Solution)
Specific Gravity/ Relative Density (water = 1; air =1): 1.047
Viscosity: Estimation: 2 mPa∗s
Solubility:
Water: Soluble
Acid: Soluble
Other: Not determined
Partition Coefficient (n-octanol / water): Not applicable
Coefficient of Water / Oil: Not applicable
Melting Point: Estimation: -6 °C (20 °F)
Decomposition Temperature: Not applicable
Boiling Point: Estimation: 102 °C (215 °F)
Vapor Pressure: Estimation: 17.2 mm Hg (2.24 kPa) at 20 °C (68 °F)
Vapor Density (air = 1): 0.62
Evaporation Rate (water = 1): 0.53
Volatile Organic Compounds Content: Not applicable
Flammable Properties: Material is not classified as flammable according to GHS criteria. Material will not burn. During a fire, corrosive and toxic gases may be generated by thermal decomposition.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Explosive Properties:
Not classified according to GHS criteria.
Oxidizing Properties:
Not classified according to GHS criteria.
Reactivity Properties:
Not classifed as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.
Gas under Pressure:
Not classified according to GHS criteria.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Mechanical Impact: None reported
Static Discharge: None reported.
Reactivity / Incompatibility: May react violently in contact with: alkalies oxidizers reducers acids metals
Hazardous Decomposition: Contact with metals may release flammable hydrogen gas. Heating to decomposition releases toxic and/or corrosive fumes of: sulfur oxides
Conditions to Avoid: Extreme temperatures Exposure to air. Heating to decomposition. Contact with oxidizers Poor Ventilation Incompatibles Metal contamination Contact with acid or acid fumes

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No information available for mixture.
Toxicologically Synergistic Products: None reported
Acute Toxicity: Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data Practically Non-toxic Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met. Summary of findings reported in the literature follow.
Sulfuric Acid: Inhalation Human TCLo = 3 mg/m^3/5 min; Methanol: Oral Human LDLo = 143 mg/kg/Optic nerve neuropathy, dyspnea, vomiting; Oral Human TDLo = 3.57 mL/kg/Visual field changes, dyspnea; Inhalation Human TCLo = 300 ppm/Visual field changes

Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met. Summary of findings reported in the literature follow.

Sulfuric Acid: Inhalation Human TCLo = 3 mg/m^3/24 wk/Changes in teeth and supporting structure; Formaldehyde: Inhalation Human TCLo = 17 mg/m^3/30 min/Lacrimation; Inhalation Human TCLo = 2 ppm/40 min/Respiratory depression

Skin Corrosion/Irritation: Corrosive to skin.

Eye Damage: Corrosive to eyes.

Sensitization: Based on classification principles, the classification criteria are not met. Contains a sensitizing compound. Testing data given below.

Formaldehyde: Skin - Human - 1 pph/48 hr/Allergic dermatitis; In sensitized subjects specific late asthmatic reactions may be provoked by brief exposures of 3 ppm.

CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): Contains Listed Carcinogen Developmental toxicity associated with the substance or an ingredient of the mixture have been reported. Reported impairment of fertility by substance or ingredient of mixture. Based on classification principles, the classification criteria are not met.

Formaldehyde: Inhalation Rat TCLo = 15 ppm/6 hr/78 wk/Olfaction tumors; Inhalation Human Sister Chromatid Exchange, Micronucleous Test 0.985 mg/m^3/8 hr/8.5 yr; Inhalation Human Micronucleus Test 2 ppm/15 min

Methanol: Oral Rat TDLo = 5.2 mL/kg/Fetotoxicity, Specific Developmental Abnormalitites: Eye, ear, urogenital system; Inhalation Rat TCLo = 2.6 mg/m^3/Fetotoxicity; Inhalation Mouse TCLo = 1500 ppm/6 hr/Specific Developmental Abnormalities: CNS

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen

Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes. Formaldehyde

An ingredient of this mixture is: NTP Listed Group 1: Recognized Carcinogen

Sulfuric Acid Mist or Vapor Formaldehyde

An ingredient of this product is an OSHA listed carcinogen.

Formaldehyde

Symptoms/Effects:

Ingestion: Causes: irritation of the mouth and esophagus May cause: vomiting diarrhea burns of the mouth, esophagus and stomach

Inhalation: May cause: respiratory tract irritation teeth erosion mouth soreness difficult breathing

Skin Absorption: No effects anticipated

Chronic Effects: Chronic overexposure may cause erosion of the teeth chronic irritation or inflammation of the lungs destruction of any tissue contacted cancer

Medical Conditions Aggravated: Allergies or sensitivity to formaldehyde. Pre-existing: Eye conditions Respiratory conditions Skin conditions

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product. Mobility in soil: Highly mobile No bioaccumulation potential Based on classification principles, not classified as hazardous to the environment.

Method Used for Estimation of Aquatic Toxicity of Mixture Summation Method M-factor (Multiplier) for highly toxic ingredients: 1

Ingredient Ecological Information: Sulfuric Acid: 96 hr Lepomis macrochirus LC50 = 16 - 28 mg/L; 48 hr Crangon crangon EC50 = 70 - 80 mg/L; Methanol: 96 hr Fatheadminnow LC50 = 15000 mg/L; 48 hr Daphnia magna LC50 = 2500 mg/L; 48 hr Crustaceans EC50 = 22200 mg/L

Formaldehyde: 96 hr Morone saxatilis LC50 = 6.7 mg/L; 96 hr Fish LC50 = 52.5 mg/L; 48 hr Daphnia pulex EC50 = 5.8 mg/L; 48 hr Daphnia magna EC50 = 29 mg/L; 48 hr Crustacea EC50 = 14 mg/L

CEPA categorization for ingredients are as follows:

Sulfuric Acid, Water: Persistent, not bioaccumulative or inherently toxic to aquatic organisms; Formaldehyde: Not persistent or bioaccumulative. Inherently toxic to aquatic organisms

Methanol: Not persistent, bioaccumualtive or inherently toxic to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: D002 U122 U154

Special Instructions (Disposal): Work in an approved fume hood. Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation, 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. Otherwise, Check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

Empty Containers: Working in a well-ventilated area, Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P. A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
< 10% Sulfuric Acid Solution
Hazard Class: 8
Subsidiary Risk: NA
ID Number: UN3264
Packing Group: II

T.D.G.:
Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
< 10% Sulfuric Acid Solution
Hazard Class: 8
Subsidiary Risk: NA
UN Number/PIN: 3264
Packing Group: II

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
< 10% Sulfuric Acid Solution
Hazard Class: 8
Subsidiary Risk: NA
ID Number: UN3264
Packing Group: II

I.M.O.:
Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S.
< 10% Sulfuric Acid Solution
Hazard Class: 8
Subsidiary Risk: NA
ID Number: UN3264
Packing Group: 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 set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard
S.A.R.A. Title III Section 313 (40 CFR 372): This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.
Sulfuric acid (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size.); Formaldehyde; Methyl Alcohol
302 (EHS) TPQ (40 CFR 355): Sulfuric Acid 1000 lbs. Formaldehyde 500 lbs.
304 CERCLA RQ (40 CFR 302.4): Sulfuric Acid 1000 lbs. Formaldehyde 100 lbs. Methanol 5000 lbs.
304 EHS RQ (40 CFR 355): Sulfuric Acid - RQ 1000 lbs. Formaldehyde - RQ 100 lbs
Clean Water Act (40 CFR 116.4): Sulfuric acid - RQ 1000 lbs. Formaldehyde - RQ 100 lbs.
RCRA: Contains RCRA regulated substances. See Section 13, EPA Waste ID Number.

State Regulations:

California Prop. 65: WARNING - This product contains a chemical known to the State of California to cause cancer. WARNING - This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Identification of Prop. 65 Ingredient(s): Formaldehyde; Methyl Alcohol

California Perchlorate Rule CCR Title 22 Chap 33: Not applicable

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

CAS Number: Not applicable

Canadian Inventory Status: All ingredients of this product are DSL Listed.

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.

Australian Inventory (AICS) Status: All ingredients are listed.

New Zealand Inventory (NZIoC) Status: All components either listed or exempt.

Korean Inventory (KECI) Status: All components of this product are either listed, listed as the anhydrous compound or exempt.

Japan (ENCS) Inventory Status: All components either listed or exempt.

China (PRC) Inventory (MEP) Status: All components either listed or exempt.

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16. OTHER INFORMATION

References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. In-house information. Technical Judgment. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. Vendor Information. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987.

Complete Text of H phrases referred to in Section 3: H315 Causes skin irritation. H319 Causes serious eye irritation.

Revision Summary: . Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

Date of MSDS Preparation:

Day: 06

Month: March

Year: 2014

MSDS Prepared: MSDS prepared by Product Compliance Department extension 3350

CCOHS Evaluation Note: This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

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.