SAFETY DATA SHEET

1. IDENTIFICATION

Product identifier
Product Name Sulfuric Acid Standard Solution 0.020N (N/50)

Other means of identification
Product Code(s) 20353

Safety data sheet number M00347

Recommended use of the chemical and restrictions on use
Recommended Use 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 +1(970) 669-3050

Emergency telephone number
+1(303) 623-5716 - 24 Hour Service +1(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)

Serious eye damage/eye irritation	Category 1
Respiratory sensitization	
Skin sensitization	
Mutagenicity	
Carcinogenicity	
Reproductive toxicity	

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Signal word - Danger

Hazard statements

H318 - Causes serious eye damage

Precautionary statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

Other Information
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

Chemical name	CAS No.	Percent Range	HMRIC #
Sulfuric acid	7664-93-9	<1%	-
Formaldehyde	50-00-0	<0.1%	-
Methyl alcohol	67-56-1	<0.1%	-

4. FIRST AID MEASURES

Description of first aid measures

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

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Get immediate medical advice/attention. 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.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

5. FIRE-FIGHTING MEASURES

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

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical No information available.

Hazardous combustion products This material will not burn.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout 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.

Personal precautions, protective equipment and emergency procedures

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

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

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

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

Methods for cleaning up Pick up and transfer to properly labeled containers.

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

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Flammability class Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sulfuric acid CAS#: 7664-93-9	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
Formaldehyde CAS#: 50-00-0	STEL: 0.3 ppm TWA: 0.1 ppm	TWA: 0.75 ppm (vacated) TWA: 3 ppm (vacated) STEL: 10 ppm (vacated) Ceiling: 5 ppm STEL: 2 ppm	IDLH: 20 ppm Ceiling: 0.1 ppm 15 min TWA: 0.016 ppm
Methyl alcohol CAS#: 67-56-1	STEL: 250 ppm TWA: 200 ppm S*	TWA: 200 ppm TWA: 260 mg/m^3 (vacated) TWA: 200 ppm (vacated) TWA: 260 mg/m^3 (vacated) STEL: 250 ppm (vacated) STEL: 325 mg/m^3 (vacated) SKN*	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m^3 STEL: 250 ppm STEL: 325 mg/m^3

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.
Eye/face protection	Tight sealing safety goggles.
Skin and body protection	Wear suitable protective clothing.
General Hygiene Considerations	Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.
Environmental exposure controls	Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.
Thermal hazards	None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	aqueous solution	**Color**	colorless
Odor	None	**Odor threshold**	No data available

Property	**Values**	**Remarks • Method**
Molecular weight	No data available	
pH	1.8	
Melting point/freezing point	~ 0 °C / 32 °F	Estimation based on theoretical calculation
Boiling point / boiling range	~ 100 °C / 212 °F	Estimation based on theoretical calculation
Evaporation rate	1 (water = 1)	Estimation based on theoretical calculation
Vapor pressure	23.777 mm Hg / 3.17 kPa at 25 °C / 77 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.03 (air = 1)	
Specific gravity (water = 1 / air = 1)	0.985	
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

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

Solubility in other solvents

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

Other Information

Metal Corrosivity

Steel Corrosion Rate 0.87 mm/yr / 0.03 in/yr
Aluminum Corrosion Rate 1.02 mm/yr / 0.04 in/yr

Volatile Organic Compounds (VOC) Content
See ingredients information below

Chemical name	CAS No.	CAA (Clean Air Act)
Sulfuric acid	7664-93-9	-
Formaldehyde	50-00-0	X
Methyl alcohol	67-56-1	X

Explosive properties

Upper explosion limit No data available
Lower explosion limit No data available

Flammable properties

Flash point No data available
Method No information 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
Particle Size No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

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

Hazardous polymerization
None under normal processing.

Conditions to avoid
Conditions to avoid None known based on information supplied.

Incompatible materials
Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

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

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available. Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. May cause irritation.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Symptoms	Redness. Burning. May cause blindness.

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 (<1%) 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.
Formaldehyde (<0.1%) CAS#: 50-00-0	Readily Absorbed via the respiratory and gastrointestinal routes. Absorbed formaldehyde can be oxidized to formate and carbon dioxide. Half-life of formaldehyde is 1 min in rat plasma.
Methyl alcohol (<0.1%) CAS#: 67-56-1	Metabolism of methanol appears to be similar regardless of administrative route. Methanol is converted to formaldehyde, which is converted to formate which is oxidized to carbon dioxide in primates.

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

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

Acute Toxicity Estimations (ATE)

Ingredient Acute Toxicity Data
Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat LD_{50}	100 mg/kg	None reported	None reported	No information available
Methyl alcohol (<0.1%) CAS#: 67-56-1	Human LD_{50}	300 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Sulfuric acid (<1%) CAS#: 7664-93-9	Rat LD_{50}	2140 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Rat LD_{50}	5628 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rabbit LD_{50}	270 mg/kg	None reported	None reported	GESTIS (Information System on Hazardous Substances of the German Social Accident Insurance)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Human LD_{50}	1000 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Methyl alcohol (<0.1%) CAS#: 67-56-1	Rabbit LD_{50}	15800 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

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

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat LC_{50}	250 mg/L	4 hours	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Human LC_{50}	10 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Sulfuric acid (<1%) CAS#: 7664-93-9	Rat LC_{50}	0.510 mg/L	None reported	None reported	LOLI
Methyl alcohol (<0.1%) CAS#: 67-56-1	Rat LC_{50}	64000 mg/L	6 hours	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

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

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Human LD_{Lo}	70 mg/kg	None reported	**Gastrointestinal** **Kidney, Ureter, or Bladder** **Liver** Other changes Ulcerated stomach Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Human LD_{Lo}	143 mg/kg	None reported	**Lungs, Thorax, or Respiration** Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TD_{Lo}	643 mg/kg	None reported	**Gastrointestinal** **Lungs, Thorax, or Respiration** Nausea or vomiting Respiratory obstruction Ulcerated stomach	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Man LD_{Lo}	3.571 mg/kg	None reported	**Lungs, Thorax, or Respiration** Dyspnea	RTECS (Registry of Toxic Effects of Chemical Substances)

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

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (<1%) 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)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Human TC_{Lo}	300 mg/L	None reported	**Lungs, Thorax, or Respiration** Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
No data available

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (<1%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to skin	HSDB (Hazardous Substances Data Bank)
Formaldehyde (<0.1%) CAS#: 50-00-0	Standard Draize Test	Human	0.150 mg	72 hours	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Standard Draize Test	Rabbit	20 mg	24 hours	Skin irritant	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data

If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (<1%) CAS#: 7664-93-9	Existing human experience	Human	None reported	None reported	Corrosive to eyes	HSDB (Hazardous Substances Data Bank)
Formaldehyde (<0.1%) CAS#: 50-00-0	Rinse Test	Human	1 ppm	6 minutes	Corrosive to eyes	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Standard Draize Test	Rabbit	40 mg	None reported	Eye irritant	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 If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Patch test	Human	Confirmed to be a skin sensitizer	ERMA (New Zealands Environmental Risk Management Authority)

Respiratory Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	IgE Specific Immune Response Test	Guinea pig	Confirmed to be a respiratory sensitizer	CICAD (Concise International Chemical Assessment Documents)

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

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

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

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

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (<1%) 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)
Formaldehyde (<0.1%) CAS#: 50-00-0	Human TC_{Lo}	0.017 mg/L	0.5 days	**Eye** **Lungs, Thorax, or Respiration** Lacrimation Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**

Formaldehyde (<0.1%) CAS#: 50-00-0	Human TC_{Lo}	2 mg/L	40 minutes	**Lungs, Thorax, or Respiration** Other changes Respiratory depression	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

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

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Sulfuric acid	7664-93-9	A2	Group 1	Known	X
Formaldehyde	50-00-0	A1	Group 1	Known	X
Methyl alcohol	67-56-1	-	-	-	-

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

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

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat	15 mg/L	78 weeks	**Olfaction** Tumors	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

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

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

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Sulfuric acid (<1%) CAS#: 7664-93-9	Cytogenetic analysis	Hamster ovary	4 mmol/L	None reported	Positive test result for mutagenicity	No information available
Methyl alcohol (<0.1%) CAS#: 67-56-1	DNA inhibition	Human lymphocyte	300 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity *invivo* **Data**

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

Ingredient Germ Cell Mutagenicity *invivo* Data

Oral Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Methyl alcohol (<0.1%) CAS#: 67-56-1	DNA damage	Rat	0.405 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Methyl alcohol (<0.1%) CAS#: 67-56-1	Cytogenetic analysis	Mouse	1000 mg/kg	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below

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

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Micronucleus test	Human	.000985 mg/L	8.5 years	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Chemical name	Test	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	Micronucleus test	Human	2 mg/L	15 minutes	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route No data available

Dermal Exposure Route No data available

Inhalation (Dust/Mist) Exposure Route No data available

Inhalation (Vapor) Exposure Route No data available

Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (<0.1%) CAS#: 67-56-1	Rat TD_{Lo}	4118 mg/kg	10 days	**Effects on Embryo or Fetus** **Specific Developmental Abnormalities** Ear Eye Fetotoxicity (except death e.g. stunted fetus) Urogenital System	RTECS (Registry of Toxic Effects of Chemical Substances)

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

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Methyl alcohol (<0.1%)	Rat TC_{Lo}	0.0026 mg/L	22 days	**Effects on Embryo or Fetus** Fetotoxicity (except death e.g.	RTECS (Registry of Toxic Effects of Chemical

CAS#: 67-56-1				stunted fetus)	Substances)

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Sulfuric acid (<1%) CAS#: 7664-93-9	Rabbit TC_{Lo}	.02 mg/L	7 hours	**Specific Developmental Abnormalities** Musculoskeletal system	No information available
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat TC_{Lo}	40 mg/L	14 days	**Effects on Embryo or Fetus** Fetotoxicity (except death e.g. stunted fetus)	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Formaldehyde (<0.1%) CAS#: 50-00-0	Rat TC_{Lo}	.001 mg/L	24 weeks	**Effects on Embryo or Fetus** Cytological changes (including somatic cell genetic material)	RTECS (Registry of Toxic Effects of Chemical Substances)
Methyl alcohol (<0.1%) CAS#: 67-56-1	Mouse TC_{Lo}	1500 mg/L	7-9 days	**Specific Developmental Abnormalities** Central Nervous System	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data

Aquatic toxicity

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

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	96 hours	*Morone saxatilis*	LC_{50}	6.7 mg/L	PEEN (Pan European Ecological Network)
Methyl alcohol (<0.1%) CAS#: 67-56-1	96 hours	*Pimephales promelas*	LC_{50}	15000 mg/L	IUCLID (The International Uniform Chemical Information Database)

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Formaldehyde (<0.1%) CAS#: 50-00-0	48 Hours	*Daphnia pulex*	EC_{50}	5.8 mg/L	PEEN (Pan European Ecological Network)
Methyl alcohol (<0.1%) CAS#: 67-56-1	48 Hours	*Daphnia magna*	EC_{50} LC_{50}	2500 mg/L	IUCLID (The International Uniform Chemical Information Database)

Algae No data available

Other Information

Persistence and degradability

Product Biodegradability Data
If available, see ingredient data below.

Ingredient Biodegradability Data
Test data reported below

Bioaccumulation

Product Bioaccumulation Data If available, see ingredient data below.

Partition Coefficient (n-octanol/water) Not applicable

Ingredient Bioaccumulation Data No data available

Chemical name	Test method	Exposure time	Species	Bioconcentration factor (BCF)	Results
Formaldehyde (<0.1%) CAS#: 50-00-0	None reported	None reported	None reported	None reported	Does not have the potential to bioaccumulate

Chemical name	Partition Coefficient (n-octanol/water)	Method
Formaldehyde (<0.1%) CAS#: 50-00-0	log K_{ow} = 0.35	No information available
Methyl alcohol (<0.1%) CAS#: 67-56-1	log K_{ow} = -0.7	No information available

Mobility

Product Information

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

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

Ingredient Information

Chemical name	Soil Organic Carbon-Water Partition Coefficient	Method
Formaldehyde (<0.1%) CAS#: 50-00-0	log K_{oc} = 0.89	No information available
Methyl alcohol (<0.1%) CAS#: 67-56-1	log K_{oc} = 0.44	No information available

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
Formaldehyde	Completely soluble	> 40000 mg/L	20 °C	68 °F

CAS#: 50-00-0				
Methyl alcohol CAS#: 67-56-1	Soluble	> 1000 mg/L	25 °C	77 °F

Other adverse effects
Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

Waste treatment 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.

US EPA Waste Number D002, U154 U122

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Formaldehyde 50-00-0	U122	Included in waste streams: K009, K010, K038, K040, K156, K157	-	U122
Methyl alcohol 67-56-1	-	Included in waste stream: F039	-	U154

Special instructions for disposal If permitted by regulation. 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. Open cold water tap completely, slowly pour the reacted material to the drain. Flush system with plenty of water. Dispose of material in an E.P.A. approved hazardous waste facility.

14. TRANSPORT INFORMATION

U.S. DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

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
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 does not contain any 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
Formaldehyde (CAS #: 50-00-0)	0.1
Methyl alcohol (CAS #: 67-56-1)	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
Formaldehyde 50-00-0	100 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
Formaldehyde 50-00-0	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ

Methyl alcohol 67-56-1	5000 lb	-	RQ 5000 lb final RQ RQ 2270 kg final RQ

U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues

Chemical name	U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues
Formaldehyde (<0.1%) CAS#: 50-00-0	Release - Toxic (solution)

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 (<1%) 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 contains the following Proposition 65 chemicals

Chemical name	California Proposition 65
Formaldehyde (CAS #: 50-00-0)	Carcinogen
Methyl alcohol (CAS #: 67-56-1)	Developmental

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Sulfuric acid 7664-93-9	X	X	X
Formaldehyde 50-00-0	X	X	X
Methyl alcohol 67-56-1	X	X	X

U.S. EPA Label Information

Chemical name	FIFRA	FDA
Sulfuric acid	180.0910	21 CFR 184.1095
Methyl alcohol	180.0910	-

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

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)

Chemical name	Global Automotive Declarable Substance List Classifications	Global Automotive Declarable Substance List Thersholds

Formaldehyde 50-00-0	Declarable Substance (FI) Prohibited Substance (LR) Declarable Substance (LR)	0.0 % 0.1 %
Methyl alcohol 67-56-1	Declarable Substance (FI)	0.1 %

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
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Disclaimer

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

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

End of Safety Data Sheet