

Section 1: Product & Company Information

Product Identifier: Sulfuric Acid 50% Solution

Other Means of Identification

Product Number: 125014

Recommended Use and Restrictions on Use

Recommended Use: Water treatment Chemical, Manufacture of pulp, paper, and paper products.

Restrictions on Use: None known.

Manufacturer / Importer / Supplier / Distributor Information

Company Name: CORECHEM Inc.

Address: 4320 Greenway Drive
Knoxville, TN 37918
USA

Information Telephone Number: 1-865-524-4239

Fax Number: 1-865-524-3375

Website: www.corecheminc.com

Contact Person: Regulatory Manager

E-mail: regulatory@corecheminc.com

Emergency Phone Number: Chemtrec® 1-800-424-9300 / Outside USA 1-703-527-3887 (monitored 24 hours/day)

Section 2: Hazards Identification

GHS Hazard Classification(s)

In accordance with OSHA Hazard Communication Standard 29 CFR 1910.1200 (HazCom 2012).

Physical Hazard(s)

Corrosive to Metals - 1

Health Hazard(s)

Corrosion/Irritation, Skin - 1A

(Corrosion) Damage/Irritation, Eye - 1

Specific Target Organ Toxicity (STOT)-Respiratory Irritation, Single exposure - 3

Environmental Hazard(s)

Not classified

Label Elements

Signal Word

DANGER

Hazard Symbol(s)



Hazard Statement(s)

H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage.

H318: Causes serious eye damage.

H335: May cause respiratory irritation.

Precautionary Statements

General

Not applicable.

Prevention

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe dust/fume/gas/mist/vapors/spray.

P264: Wash face, hands and any exposed skin thoroughly after handling.

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P271: Use only outdoors or in a well-ventilated area.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P281: Use personal protective equipment as required.
P284: Wear respiratory protection.

Response

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.
P304 + P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P308 + P313: IF exposed or concerned: Get medical advice/attention.
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.

Storage

P403 + P233: Store in a well-ventilated place. Keep container tightly closed.
P405: Store locked up.

Disposal

P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOG)

None known.

Section 3: Composition/Information on Ingredients

Substance

Chemical Identity ²	Common Name/Synonym(s)	CAS # ³	Weight %	Impurity or Stabilizing Additive
Water		7732-18-5	50 – 85%	
Sulfuric Acid	Drying Acid, Battery Acid, Oil of Vitriol, Dihydrogen Sulfate, Electrolyte Acid, Matting Acid	7664-93-9	15 – 50%	No

- Information regarding the composition and the percentage ranges of the mixtures ingredients are not presented as its Confidential Business Information (CBI). Where a medical emergency exists (as determined by medical professional), timely disclosure of CBI is assured. The information omitted pertains to only the names of the substances and the concentration in the mixture (product) and can only be requested by a doctor/physician or Local/State/Provincial or Federal Authority.
- Non-hazardous ingredients are not presented as to protect the proprietary formula of the product.
- “—” Indicates ingredient is a mixture and contains multiple ingredients or may have no identifying CAS number.

Section 4: First-Aid Measures

General Information

Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with labored breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.

Inhalation

Remove to fresh air. 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. Immediate medical attention is required. If not breathing, give artificial respiration.

Skin Contact

Immediately flush skin with plenty of water, for at least 15 minutes, while removing contaminated clothing and shoes. GET IMMEDIATE MEDICAL ATTENTION! Place contaminated clothing in closed container for storage until laundered or discarded. If clothing is to be laundered, inform person performing operation of contaminant's hazardous properties. Discard contaminated leather goods.

Eye Contact

Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with neutralization agent (BUMB, Diphoterine or equivalent neutralizing agent) for several minutes and continue rinsing with plenty of water for 10 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist.

Ingestion

If victim is conscious and alert, give 1-3 glasses of water to dilute stomach contents. Rinse mouth out with water. Do not induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting occurs keep head below hips to prevent aspiration and monitor for breathing difficulty.

Most important symptoms/effects, acute and delayed

Symptoms

Causes burns by all exposure routes. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Indication of immediate medical attention and special treatment needed

Hazards

No data available.

Treatment

Provide general supportive measures and treat symptomatically.

Section 5: Fire-Fighting Measures

General Fire Hazards

Material may react violently with water. Contact with moisture or water may generate sufficient heat to ignite nearby combustible

Suitable (and Unsuitable) Extinguishing Media

Suitable Extinguishing Media

Adapt extinguishing media to the environment.

Small fire: Use carbon dioxide or dry chemical to extinguish fire.

Large fire: Flood fire area with large quantities of water, while knocking down vapors with fog. If insufficient water supply, knock down vapors only

Tank fire: Cool containers with flooding quantities of water until well after fire is out. Do not get water inside containers. Evacuate immediately if sound from safety vents or discoloration of tank. Stay clear of tanks engulfed in fire.

Unsuitable Extinguishing Media

Water.

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Special Protective Equipment and Precautions for Firefighters

Special Fire-Fighting Equipment Procedures

Cool tanks/drums with water spray/remove them into safety. When cooling/extinguishing: no water in the substance. Dilute toxic gases with water spray. Heat exposure: dilute toxic gas/vapor with water spray. Take account of toxic/corrosive precipitation water.

Special Protective Equipment for Fire-Fighters

Gloves. Face-shield. Corrosion-proof suit. Large spills/in enclosed spaces: compressed air apparatus. Large spills/in enclosed spaces: gas-tight suit. Heat/fire exposure: compressed air/oxygen apparatus. Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Generates heat upon addition of water, with possibility of spattering. Wear full protective clothing. Runoff from fire control may cause pollution. Neutralize run-off with sodium bicarbonate or soda ash to prevent corrosion of metals and formation of hydrogen gas. Wear self-contained breathing apparatus if fumes or mists are present.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Keep people away from upwind of spill/leak. Evacuate personnel to safe areas.

Methods and Materials for Containment and Clean-Up

Soak up small spills with dry sand or diatomaceous earth. Contain large spills and cautiously dilute and neutralize with lime or soda ash. Caution should be exercised regarding personnel safety and exposure to the released product.

Notify local authorities and the National Response Center, if required. If the product is spilled and not recovered, or is recovered as a waste for treatment or disposal, the Reportable Quantity (US DOT) is 1,000 lbs (based on the sulfuric acid content of the solution spilled).

Notification Procedures

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

Environmental Precautions

Avoid discharge into drains, water courses or onto the ground.

Section 7: Handling and Storage

Precautions for Safe Handling

Keep away from naked flames/heat. Gas/vapor heavier than air at 20°C. Observe very strict hygiene - avoid contact. Keep container tightly closed. Remove contaminated clothing immediately. Do not discharge the waste into the drain. Never add water to this product. Never dilute by pouring water to the acid. Always add the acid to the water.

Conditions for Safe Storage, including any Incompatibilities

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Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8: Exposure Controls/Personal Protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Value	Source
Sulfuric Acid	TWA	1 mg/m3	OSHA
Sulfuric Acid	TWA	0.2 mg/m3	US. ACGIH Threshold Limit Values

Biological Limit Values

The product does not contain any relevant quantities of hazardous materials with assigned biological limit values.

Appropriate Engineering Controls

Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

Individual protection measures, such as personal protective equipment (PPE)

General Information

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Eye/Face Protection

Face shield. Protective goggles.

Skin Protection

Hand Protection

Wear appropriate chemical resistant gloves.

Other

Corrosion-proof clothing. An apron can be used in place of acid proof suit if the employer's risk assessment deems it is safe for the type of handling taking place (i.e. laboratories and small quantities). For emergencies where possibility of exposure is high, wear complete acid suit with hood, boots, and gloves. NIOSH approved respiratory protection should be worn if acid mist is present or exposure limits are exceeded.

Respiratory Protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge, or canister. Contact health and safety professional or manufacturer for specific information.

Hygiene Measures

When using, do not eat, drink, or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated footwear that cannot be cleaned. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing.

Section 9: Physical and Chemical Properties

Appearance:

Physical State: Liquid
Color: Colorless

Odor:

Odorless

Odor Threshold:

No data available.

pH:

~1

Melting Point/Freezing Point:

30°F - -40°F (6-85%), 46°F (85%), -20°F (93%), 5.5°F (96%), 51°F (99%)

Initial Boiling Point and Boiling

215° - 440°F (6-85%), 541°F (93%), 621°F (98%), 625°F (99%) @ 760 mmHg, 310 °C - 335 °C; 98 %

Range:

330 °C; 96 %

Flash Point:

Not applicable.

Evaporation Rate (butyl acetate=1):

No data available.

Flammability (solid, gas):

Noncombustible

Upper/Lower Limit on Flammability or Explosive Limits

Flammability Limit – Upper: No data available.

Flammability Limit – Lower: No data available.

Explosive Limit – Upper: No data available.

Explosive Limit – Lower:	No data available.
Vapor Pressure:	<0.3 mmHg @ 75°F (24°C), <0.6 mmHg @ 100°F (38°C)
Vapor Density (air = 1):	3.4
Relative Density (water=1):	1.1 – 1.3
Solubility(ies):	
Solubility in water:	Miscible
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-Ignition Temperature:	No data available.
Decomposition Temperature:	No data available.
Viscosity:	Dynamic viscosity 0.0225 Pa.s ; 20 °C ; 95 %
Other Information:	
Molecular Weight:	98.08
Formula:	H2SO4

Section 10: Stability and Reactivity

Reactivity

Reacts violently with water, organic substances and base solutions with evolution of heat and hazardous mists.

Chemical Stability

Stable under normal, ambient conditions.

Possibility of Hazardous Reactions

Violent exothermic reaction with water (moisture): release of corrosive gases/vapors. Reacts with many compounds: (increased) risk of fire/explosion. Reacts exothermically with organic material: risk of spontaneous ignition. Reacts violently with combustible materials: (increased) risk of fire/explosion. Reacts violently with (some) bases: heat release resulting in increased fire or explosion risk. Reacts with (strong) reducers: (increased) risk of fire/explosion.

Conditions to Avoid

Incompatible products. Excess heat.

Incompatible Materials

Water; alkaline solutions; metals, metal powder; carbides; chlorates; fulminates; nitrates; picrates; strong oxidizing, reducing or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

Hazardous Decomposition Products

Aqueous solution reacts with (some) metals: release of highly flammable gases/vapors (hydrogen). On burning release of toxic and corrosive gases/vapors (sulfur oxides).

Section 11: Toxicological Information

Information on routes of exposure

Ingestion: Causes digestive tract burns. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus, and possibly the digestive tract.

Inhalation: Vapors and mist will irritate throat and respiratory system and cause coughing.

Skin Contact: Highly corrosive

Eye Contact: Highly corrosive

Information on Toxicological Effects

Acute Toxicity (List all possible routes of exposure)

Oral

Sulfuric Acid: LD50 (Rat): 2140 mg/kg

Dermal

No data available.

Inhalation

Sulfuric Acid: LC50 (Rat, 1 h): .375 mg/l

Repeated Dose Toxicity

No data available.

Skin Corrosion/Irritation

Highly corrosive

Serious Eye Damage/Eye Irritation

Highly corrosive

Respiratory/Skin Sensitization

No data available.

Carcinogenicity

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

Group 1, Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens

Not classified for carcinogenicity

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Germ Cell Mutagenicity

In Vitro

No mutagenic components identified.

In Vivo

No mutagenic components identified.

Reproductive Toxicity

Not classified for reprotoxic or developmental toxicity.

Specific Target Organ Toxicity – Single Exposure

May cause respiratory irritation.

Specific Target Organ Toxicity – Repeated Exposure

None known.

Aspiration Hazard

Not classified.

Other Effects

Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated

Section 12: Ecological Information

Ecotoxicity

Acute Hazards to the Aquatic Environment

Fish

Sulfuric Acid: LC50 (Bluegill Sunfish) 500 mg/l, 96 hours

Aquatic Invertebrates

Sulfuric Acid: EC50 (Daphnia magna) > 29 mg/l, 24 hours

Toxicity to Aquatic Plants

Sulfuric Acid: LC50 (Shrimp) > 80-90 mg/l, 48 hours.

Chronic Hazards to the Aquatic Environment

Fish

NOEC (Jordanella Floridae) 0.025 mg/l

Aquatic Invertebrates

No data available.

Toxicity to Aquatic Plants

No data available.

Persistence and Degradability

Biodegradation

Not applicable, Hydrolysis in water.

BOD/COD Ratio

No data available.

Bioaccumulative Potential

Bioconcentration Factor (BCF)

The products of biodegradation may be more toxic than the original product.

Partition Coefficient n-octanol / water (log Kow)

No data available.

Mobility in Soil

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When released into the soil, this material may leach into groundwater. When released into the air, this material may be removed from the atmosphere to a moderate extent by dry deposition.

Other Adverse Effects

The product may affect the acidity (pH factor) in water with risk of harmful effects to aquatic organisms.

Section 13: Disposal Considerations

Disposal Instructions

Recycle/reuse. Remove for physio-chemical/biological treatment. Remove to an authorized dump (Class I). Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed with other waste. Different types of hazardous waste shall not be mixed if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment.

Contaminated Packaging

Handle contaminated packages in the same way as the substance itself. Emptied containers may retain hazardous residue and explosive vapors. Keep away from heat, sparks, and flames. Do not cut, puncture, or weld on or near this container. Follow label warnings until container is thoroughly cleaned or destroyed.

Section 14: Transportation Information

US Department of Transportation (DOT)

UN Number: UN2796
UN Proper Shipping Name: Sulfuric Acid with more than 51 percent acid
Technical Name: -
Hazard Class: 8
Subsidiary Hazard Risk: -
Packing Group: II
DOT Label/Placard Exemptions: Not determined
Special Provisions: 386, A3, A7, B2, B15, IB2, N6, N34, T8, TP2
Packaging Exceptions: 49CFR 173.154
Packaging Non-Bulk: 49CFR 173.202
Packaging Bulk: 49CFR 173.242
Reportable Quantity (RQ): 1,000lb (454kg)
Marine Pollutant: No
Poison Inhalation Hazard: No
Special precautions for user: Transport within the user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Emergency Response Guidebook (ERG) #: 157

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

Section 15: Regulatory Information

US Federal Regulations

Toxic Substance Control Act (TSCA), Chemical Substance Inventory, Section 8(b)

This product or ingredient(s) are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substance List (40 CFR 302.4)

The following chemical(s) in this material are subject to reporting levels established by CERCLA:
Sulfuric Acid (CAS# 7664-93-9)

Clean Air Act (CAA), Section 112(r)

No chemical(s) in this material are subject to the reporting requirements of CAA.

Emergency Planning and Community Right-To-Know Act (EPCRA)

EPCRA 302 Extremely Hazardous Substance

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 302:
Sulfuric Acid (CAS# 7664-93-9)

EPCRA 304 Emergency Response Notification

The following chemical(s) in this material are subject to reporting levels established by SARA Title III, Section 304:
Sulfuric Acid (CAS# 7644-93-9)

EPCRA 311/312 Emergency and Hazardous Materials Reporting

Fire Hazard: No
Sudden Release of Pressure: No
Reactive: No

Acute (Immediate) Health Hazard: Yes
Chronic (Delayed) Health Hazard: No

EPCRA 313 Toxic Chemical Release Inventory (TRI) Reporting

This material does not contain any chemical(s) with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)

This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Important Note: Due to the changing nature of regulatory requirements, the information in this document should NOT be considered all-inclusive or authoritative. Users should make their own investigations to determine the suitability of the information for their purposes. International, Federal, State and Local regulations should be consulted to determine compliance with all required reporting requirements.

Section 16: Other Information

Hazardous Materials Identification System (HMIS®) Classification

Health Hazard: 3

Chronic Health Hazard: /

Flammability: 1

Physical Hazard: 0

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

National Fire Protection Association (NFPA 704) Rating

Health Hazard: 3

Fire Hazard: 1

Reactivity Hazard: 0

Special: N/A

(Hazard Rating: 0 – Minimal / 1 – Slight / 2 – Moderate / 3 – Serious / 4 – Severe)

Prepared By: Regulatory Assistant C

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Last Revised By: -

Last Revision Date: -

Current Revision: -

Sections Revised: -

Key to Abbreviations and Acronyms

ATE - Acute Toxicity Estimate

BCF - Bioconcentration Factor

EC50 - Effective concentration, 50%

IDHL - Immediately Dangerous to Life and Health

Kg - Kilogram

l - Liter

lb - Pound

LC50 - Lethal Concentration, 50%

LD50 - Lethal Dose, 50%

mg - milligram

ml - milliliter

N/A - Not Applicable

N/D - Not Determined

PEL - Permissible Exposure Limit

REL - Recommended Exposure Limit

STEL - Short-term Exposure Limit

TWA - Time weighted average

ACGIH - American Conference of Industrial Hygienists

AIHA - American Industrial Hygiene Association

BEI - Biological Exposure Indices

CAS - Chemical Abstracts Service

DOT - US Department of Transportation

EPA - US Environmental Protection Agency

GHS - Globally Harmonized System of Classification and Labelling of Chemicals

IARC - International Agency for Research on Cancer

IATA - International Air Transport Association

IBC - Intermediate Bulk Container

IMDG - International Maritime Dangerous Goods

NIOSH - National Institute for Occupational Safety and Health

NTP - National Toxicology Program

OSHA - US Occupational Health and Safety Administration

SARA - US EPA Superfund Amendments and Reauthorization Act

TSCA - US EPA Toxic Substances Control Act

UN - United Nations

References

HSDB® - Hazardous Substances Data Bank

Disclaimer

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