SAFETY DATA SHEET

M47040 - ANSI - EN

SPENT SULFURIC ACID (FROM CHLOROMETHANES PRODUCTION)

SDS No.: M47040 **Rev. Date:** 03-Jul-2014 **Rev. Num.** 2

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, TX 75380-9050 1-800-752-5151
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (USA); CHEMTREC (within USA and Canada): 1-800-424-9300; CHEMTREC (outside USA and Canada): +1 703-527-3887; CHEMTREC Contract No: CCN16186
To Request an SDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Product Identifier:	**SPENT SULFURIC ACID (FROM CHLOROMETHANES PRODUCTION)**
Synonyms:	Spent Sulfuric Acid
Product Use:	Process chemical
Uses Advised Against:	None identified.

2. HAZARDS IDENTIFICATION

SPENT SULFURIC ACID (FROM CHLOROMETHANES PRODUCTION)

OSHA REGULATORY STATUS: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

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EMERGENCY OVERVIEW:

Color: Slight yellow to dark amber
Physical state Liquid
Appearance: Turbid
Odor: Pungent, Biting, Organic

Signal Word: **DANGER**

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES SEVERE SKIN BURNS AND EYE DAMAGE. CAUSES SERIOUS EYE DAMAGE. FATAL IF INHALED. CAUSES DAMAGE TO THE RESPIRATORY SYSTEM, NERVOUS SYSTEM, AND CARDIOVASCULAR SYSTEM. MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: LIVER, KIDNEYS. MAY CAUSE DROWSINESS OR DIZZINESS. CAUSES DAMAGE TO THE RESPIRATORY SYSTEM, TEETH, LIVER, KIDNEYS, AND NERVOUS SYSTEM THROUGH PROLONGED OR REPEATED EXPOSURE. MAY CAUSE CANCER. MAY CAUSE GENETIC DEFECTS. MAY DAMAGE FERTILITY OR THE UNBORN CHILD.

PHYSICAL HAZARDS: STRONG OXIDIZER. MAY BE CORROSIVE TO METALS. Contact with metals may evolve flammable hydrogen gas. May spatter or generate heat when mixed with water.

AQUATIC TOXICITY: HARMFUL TO AQUATIC LIFE.

PRECAUTIONARY STATEMENTS: Do not get in eyes, on skin, or on clothing. Wear protective gloves, protective clothing, eye, and face protection as appropriate. Do not breathe mists or spray. Use outdoors or in a well-ventilated area. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Oxidizer, keep separated from incompatible substances.

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GHS CLASSIFICATION:

GHS: PHYSICAL HAZARDS:	Corrosive to Metals
GHS: CONTACT HAZARD - SKIN:	Category 1A - Causes severe skin burns and eye damage
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - INHALATION:	Category 2 - Fatal if inhaled
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 1 - Causes damage to: Respiratory System, Nervous System, Cardiovascular System
GHS: TARGET ORGAN TOXICITY (SINGLE EXPOSURE):	Category 2 - May cause damage to: Liver, Kidneys Category 3 - May cause drowsiness or dizziness
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to Respiratory system, Teeth, Liver, Kidneys, Nervous System through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Category 1 - May cause cancer
GHS: GERM CELL MUTAGENICITY:	Category 1B - May cause genetic defects

GHS: REPRODUCTION TOXIN:	Category 1B - May damage fertility or the unborn child
GHS: HAZARDOUS TO AQUATIC ENVIRONMENT - ACUTE HAZARD:	Category 3 - Harmful to aquatic life

UNKNOWN ACUTE TOXICITY:
Not applicable. This product was tested as a whole. This information only pertains to untested mixtures.

GHS SYMBOL:
Corrosive, Health hazards, Skull and Crossbones

GHS SIGNAL WORD: **DANGER**

GHS HAZARD STATEMENTS:

GHS - Physical Hazard Statement(s)
May be corrosive to metals

GHS - Health Hazard Statement(s)
Fatal if inhaled
Causes severe skin burns and eye damage
Causes serious eye damage
Causes damage to organs: (Respiratory System, Nervous System, Cardiovascular System)
May cause damage to organs: (Liver, Kidneys)
May cause drowsiness or dizziness
Causes damage to organs through prolonged or repeated exposure : (Respiratory System, Teeth, Liver, Kidneys, Nervous System)
May cause genetic defects
May damage fertility or the unborn child

GHS - Environmental Hazard Statement(s)
Harmful to aquatic life

GHS - Precautionary Statement(s) - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Do not breathe mists or vapors
In case of inadequate ventilation, wear respiratory protection
Wear protective gloves, protective clothing, eye, and face protection
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Avoid release to the environment

GHS - Precautionary Statement(s) - Response
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Specific treatment is urgent (see Section 4 of SDS or first aid information on this label)
IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
Wash contaminated clothing before reuse
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
IF exposed or concerned: Get medical advice/attention
Call a POISON CENTER or doctor/physician if you feel unwell

GHS - Precautionary Statement(s) - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

GHS - Precautionary Statement(s) - Disposal
Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

Hazards Not Otherwise Classified (HNOC)
None identified

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Spent Sulfuric Acid

Component	Percent [%]	CAS Number
Sulfuric acid	70 - 85	7664-93-9
Dimethyl ether	5 - 15	115-10-6
Methylsulfuric acid	0 - 3	75-93-4
Methyl Chloride	0 - 1.5	74-87-3

4. FIRST AID MEASURES

INHALATION: If inhaled and adverse effects occur, remove victim to fresh air and keep at rest in a position comfortable for breathing. Evaluate ABC's (is Airway constricted, is Breathing occurring, and is blood Circulating) and treat symptomatically. If you feel unwell, GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT: If on skin or hair, immediately flush contaminated areas with water. Remove immediately all contaminated clothing, jewelry, and shoes. Rinse skin with large amounts of water. Thoroughly clean and dry contaminated clothing and shoes before reuse. If you feel unwell, immediately contact a poison center, physician, or get medical attention. The specific treatment is dilution with water. There is no antidote.

EYE CONTACT: Immediately flush contaminated eyes with a directed stream of water for as long as possible. Remove contact lenses, if present and easy to do. Continue rinsing. Continued irrigation may be necessary to ensure neutral pH. Water or saline may be used. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: If swallowed: Rinse mouth. Do NOT induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. Never give anything by mouth to an unconscious or convulsive person. GET MEDICAL ATTENTION IMMEDIATELY.

Most Important Symptoms/Effects (Acute and Delayed)
This material may be corrosive to any tissue it comes in contact with. It can cause serious burns and extensive tissue destruction resulting in: liquefaction, necrosis, and/or perforation.

Acute Symptoms/Effects:
Inhalation (Breathing): Respiratory System Effects: Acute inhalation may cause: sever irritation of the respiratory tract with sore throat, coughing, shortness of breath, bronchospasm and pulmonary edema. It may cause central nervous system depression (narcotic effects). Causes chemical burn and dehydration of the respiratory tract. Measurements of distress include increased respiration rate and decreased tidal volume, decreased forces expiratory volume, increased airway resistance, and reduced vital capacity. Death has been reported and is usually due to sudden circulatory collapse, glottis or esophageal edema.
Skin: Skin Corrosion: Concentrated sulfuric acid is corrosive to tissue. Concentrated acid destroys tissues as a result of its severe dehydrating action, whereas dilute solutions act as milder irritants due to acid properties. Severe burns have been fatal. Sudden circulatory collapse can occur with shock if large areas of the skin have been burned.
Eye: Serious Eye Damage: Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye, including perforation of the globe.
Ingestion (Swallowing): Gastrointestinal System Effects: Acute ingestion of concentrated sulfuric acid can cause nausea, vomiting, abdominal pain, perforation of the stomach, gastrointestinal bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse.
Other Health Effects: Narcotic Effects (Central Nervous System Depression): Ataxia or dizziness, drowsiness or fatigue, loss of consciousness, headache, euphoria and irritability, visual or hearing disturbances, nausea, memory loss. A single exposure may cause damage to: (Respiratory System, nervous system, cardiovascular system, liver, kidneys).

Delayed Symptoms/Effects:
- Respiratory System Effects: Both acute high exposures and long-term moderate exposures to mists have been associated with the occurrence of respiratory disease. Long-term exposures have been associated with bronchitis, emphysema, and frequent respiratory infections. Long-term exposure has also been associated with laryngeal and lung cancer in humans
- Skin: Repeated and prolonged skin contact may cause dermatitia
- Eyes: Blindness resulting from corneal burns, damage/loss of internal contents of the eye, and perforation of the globe
- Gastrointestinal System Effects: Delayed effects have been noted and may include: perforation, GI hemorrhage, fistula formation or delayed stricture. Effects are typically more severe in the stomach and intestinal tract than the esophagus
- Repeated or prolonged exposure to this material may cause genetic defects
- Repeated or prolonged exposure to this material may damage fertility or the unborn child
- Repeated or prolonged contact may damage the following organs: (Respiratory System, Teeth, Liver, Kidneys, Nervous system)

Interaction with Other Chemicals Which Enhance Toxicity: None known.

Medical Conditions Aggravated by Exposure: May aggravate preexisting conditions, such as: eye disorders that decrease tear production or have reduced integrity; skin disorders that compromise the integrity of the skin; and respiratory conditions including asthma and other breathing disorders.

Protection of First-Aiders: Protect yourself by avoiding contact with this material. Use personal protective equipment. Refer to Section 8 for specific personal protective equipment recommendations. Avoid contact with skin and eyes. Do not ingest. At minimum, treating personnel should utilize PPE sufficient for prevention of bloodborne pathogen transmission.

Notes to Physician: Treat as a corrosive substance. Concentrated acid destroys tissue by severe dehydrating action. Sudden circulatory collapse can occur. Sulfuric acid mist may produce bronchoconstriction in asthmatics. Concentrated acid is more toxic than pH alone. Do not attempt to neutralize pH with sodium bicarbonate. Treat via dilution. Water or milk may be used. There is no antidote. Severe burns have been fatal. Treatment is supportive care. Follow normal parameters for airway, breathing, and circulation.

5. FIRE-FIGHTING MEASURES

Fire Hazard: May release toxic gases. Containers may explode when heated or contaminated with water. Dimethyl ether vapors are heavier than air. Dimethyl ether vapors may ignite at distant sources and flash back.

Extinguishing Media: Use water fog, alcohol foam, dry chemical, carbon dioxide.

Fire Fighting: Wear special protective clothing as listed in Section 8. Wear NIOSH approved positive-pressure self-contained breathing apparatus operated in pressure demand mode. Move container from fire area if it can be done without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Cool containers with water. Do not get water inside container.

Component	Immediately Dangerous to Life/ Health (IDLH)
Sulfuric acid 7664-93-9	15 mg/m^3 IDLH
Methyl Chloride 74-87-3	2000 ppm IDLH

Hazardous Combustion Products: Oxides of sulfur, Hydrogen chloride, Chlorine

Sensitivity to Mechanical Impact: Not sensitive.

Sensitivity to Static Discharge: Not sensitive.

Lower Flammability Level (air): 3.4% (for dimethyl ether)

Upper Flammability Level (air): 27.0% (for dimethyl ether)

Flash point: < 141 °F (< 60.6 °C)

Auto-ignition Temperature: Not applicable

GHS: PHYSICAL HAZARDS:
- Corrosive to Metals

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Eliminate all sources of heat and ignition. Evacuation of surrounding area may be necessary for large spills. Keep unnecessary and unprotected persons away. Isolate hazard area and deny entry. Do not get in eyes, on skin or on clothing. Do not breathe fumes, mist, or spray. Wear appropriate personal protective equipment recommended in Section 8, Exposure Controls / Personal Protection, of the SDS.

Methods and Materials for Containment and Cleaning Up:
Completely contain spilled materials with dikes, sandbags, etc. Shut off ventilation system if needed. Reuse or reprocess where possible. Neutralize with soda ash or limestone. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck.

Environmental Precautions:
Keep out of water supplies and sewers. This material is acidic and may lower the pH of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

7. HANDLING AND STORAGE

Precautions for Safe Handling:
Use only equipment and hoses approved for this material. Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering. Water or caustic solutions should never be added directly to this product because of violent reaction and spattering. Try to avoid ignition by static electricity discharge, equipment must be bonded and grounded. Do not use spark-producing tools as flammable hydrogen gas may be present in the container and head space. Transport and storage may result in degassing, causing buildup of dimethyl ether in vapor space. Levels of dimethyl ether may reach explosive concentrations.

Safe Storage Conditions:
Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Keep separated from incompatible substances (see below or Section 10 of the Safety Data Sheet). Do not store at temperatures above 125 °F (51.7 °C). Prolonged storage of dimethyl ether or exposure to sunlight may result in formation of peroxides which can explode spontaneously when heated.

Incompatibilities/ Materials to Avoid:
many organic and inorganic materials including, ammonia, amines, strong alkali, combustible materials, nitrites, reducing agents, metals, carbides, alcohols, chlorates, oxidizing materials, permanganates, Dimethyl ether reacts with aluminum hydride and lithium aluminum hydride

GHS: PHYSICAL HAZARDS:
- Corrosive to Metals

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure Limit(s): As listed below

OEL: Occupational Exposure Limit; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Limit; TWA: Time Weighted Average; STEL: Short Term Exposure Limit

NON-REGULATORY EXPOSURE LIMIT(S): As listed below

- *The Non-Regulatory United States Occupational Safety and Health Administration (OSHA) limits, if shown, are the Vacated 1989 PEL's (vacated by 58 FR 35338, June 30, 1993).*

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ENGINEERING CONTROLS: Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Wear chemical safety goggles with a face-shield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists.

Hand Protection: Wear appropriate chemical resistant gloves. Consult a glove supplier for assistance in selecting an appropriate chemical resistant glove.

Protective Material Types: Butyl rubber, Polyethylene (PE), Teflon®, Saranex(TM), 4H®/Silver Shield®, CPF® 3, Responder®, Trellchem® HPS, Tychem® 10000, Viton®

Component	Immediately Dangerous to Life/ Health (IDLH)
Sulfuric acid 7664-93-9	15 mg/m^3 IDLH
Methyl Chloride 74-87-3	2000 ppm IDLH

Respiratory Protection: Where vapor or mist concentration exceeds or is likely to exceed applicable exposure limits, a NIOSH approved respirator with acid gas cartridge in combination with a N100, R100 or P100 filter is required. When an air-purifying respirator is not adequate or for spills and/or emergencies of unknown concentrations, a NIOSH approved self-contained breathing apparatus or airline respirator with full-face piece is required. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Appearance:	Turbid
Color:	Slight yellow to dark amber
Odor:	Pungent, Biting, Organic
Odor Threshold [ppm]:	>1 mg/m^3
Molecular Weight:	98.04
Molecular Formula:	H2SO4
Boiling Point/Range:	330.1 - 450 °F (165.6 - 232 °C)
Freezing Point/Range:	-63.8 to 50.4 °F (-53.2 to 10.2 °C)
Vapor Pressure:	0.05 psia @ 70 °F
Vapor Density (air=1):	1.62 for dimethyl ether
Relative Density - Specific Gravity (water=1):	1.58 - 1.75
Water Solubility:	No data available
pH:	<1
Volatility:	No data available
Evaporation Rate (ether=1):	No data available
Partition Coefficient (n-octanol/water):	Log Kow = 1.92
Flash point:	< 141 °F (< 60.6 °C)
Flammability (solid, gas):	Not applicable
Lower Flammability Level (air):	3.4% (for dimethyl ether)
Upper Flammability Level (air):	27.0% (for dimethyl ether)
Auto-ignition Temperature:	Not applicable
Viscosity:	No data available

10. STABILITY AND REACTIVITY

Reactivity: Highly reactive. Reacts with alkalis and many other substances. Generates heat when diluted with water.

Chemical Stability: Stable at normal temperatures and pressures.

Possibility of Hazardous Reactions:
This product is a strong oxidizer and is highly reactive. Avoid heat, flames, sparks and other sources of ignition. Mixing with water, acid, or incompatible materials may cause splattering and release of large amounts of heat. Will react with some metals forming flammable hydrogen gas.

Conditions to Avoid:
(e.g., static discharge, shock, or vibration) -. Dimethyl ether may accumulate static electricity. To avoid ignition by static discharge, equipment must be bonded and grounded.

Incompatibilities/ Materials to Avoid:
many organic and inorganic materials including, ammonia, amines, strong alkali, combustible materials, nitrites, reducing agents, metals, carbides, alcohols, chlorates, oxidizing materials, permanganates, Dimethyl ether reacts with aluminum hydride and lithium aluminum hydride

Hazardous Decomposition Products: Oxides of sulfur

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

PRODUCT TOXICITY DATA: Spent Sulfuric Acid (from chloromethanes production)

LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
2140 mg/kg (Rat)	No data available	0.375 mg/L (4 hr - Rat)

COMPONENT TOXICITY DATA:

Component	LD50 Oral:	LD50 Dermal:	LC50 Inhalation:
Sulfuric acid 7664-93-9	2140 mg/kg (Rat)	-----	320 mg/m^3 (2 hr-Mouse) 347 ppm (1 hr-Rat) 510 mg/m^3 (2 hr-Rat)
Dimethyl ether 115-10-6	-----	-----	308.5 mg/L (4 hr-Rat)
Methyl Chloride 74-87-3	1800 mg/kg (Rat)	-----	5.3 mg/L (4 hr-Rat)

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POTENTIAL HEALTH EFFECTS:

Eye contact: Causes serious eye damage. Corrosive to the eyes and may cause severe damage including blindness. Eye exposure may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn.

Skin contact: Can cause severe skin burns. If skin is exposed to mild concentrations, it can cause redness and irritation. Skin contact with liquid can rapidly cause burns. Concentrated sulfuric acid is corrosive to tissue, causing burns, necrosis, and scarring. Sudden circulatory collapse can occur with shock if large areas of skin have been burned. Severe burns have been fatal.

Inhalation: Inhalation may cause: severe irritation of the respiratory tract with sore throat, coughing, shortness of breath, bronchospasm, and pulmonary edema. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness. Exposure can cause chemical burns and dehydration of the respiratory tract. Measurements of distress include increased respiration rate and decreased tidal volume, decreased forces expiratory volume, increased airway resistance, and reduced vital capacity. Death has been reported and is usually due to sudden circulatory collapse, glottis or esophageal edema.

Ingestion: Corrosive. Ingestion may cause immediate burns of the mouth, esophagus, and stomach. Ingestion may cause nausea, vomiting, abdominal pain, perforation of the stomach, edema of the glottis, necrosis and scarring, acidosis and sudden circulatory collapse.

Chronic Effects: Causes damage to the respiratory system and teeth through prolonged or repeated exposure. May cause cancer. Both acute high exposures and long-term moderate exposures to sulfuric acid mists have been associated with the occurrence of respiratory disease. Long-term exposures have been associated with bronchitis, emphysema, and frequent respiratory infections. Long-term exposure has been associated with laryngeal and lung cancer in humans. Repeated or prolonged skin contact may result in dermatitis. Chronic eye exposure can cause blindness resulting from corneal burns, damage/loss of internal eye contents, and perforation of the globe. Delayed gastrointestinal (GI) effects have been noted as include: perforation, GI hemorrhage, fistula formation, or delayed stricture. Effects are typically more severe in the stomach and intestinal tract than in the esophagus. Sulfuric acid exposure can cause etching of dental enamel of the teeth that are exposed directly to acid mist. Etching typically occurs after years of occupational exposure.

SIGNS AND SYMPTOMS OF EXPOSURE:

Inhalation (Breathing): Respiratory System Effects: Acute inhalation may cause: sever irritation of the respiratory tract with sore throat, coughing, shortness of breath, bronchospasm and pulmonary edema. It may cause central nervous system depression (narcotic effects). Causes chemical burn and dehydration of the respiratory tract. Measurements of distress include increased respiration rate and decreased tidal volume, decreased forces expiratory volume, increased airway resistance, and reduced vital capacity. Death has been reported and is usually due to sudden circulatory collapse, glottis or esophageal edema.

Skin: Skin Corrosion: Concentrated sulfuric acid is corrosive to tissue. Concentrated acid destroys tissues as a result of its severe dehydrating action, whereas dilute solutions act as milder irritants due to acid properties. Severe burns have been fatal. Sudden circulatory collapse can occur with shock if large areas of the skin have been burned.

Eye: Serious Eye Damage: Exposure to eyes may cause irritation and burns to the eye lids, conjunctivitis, corneal edema, and corneal burn. Significant and prolonged contact may cause damage to the internal contents of the eye, including perforation of the globe.

Ingestion (Swallowing): Gastrointestinal System Effects: Acute ingestion of concentrated sulfuric acid can cause nausea, vomiting, abdominal pain, perforation of the stomach, gastrointestinal bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse.

Other Health Effects: Narcotic Effects (Central Nervous System Depression): Ataxia or dizziness, drowsiness or fatigue, loss of consciousness, headache, euphoria and irritability, visual or hearing disturbances, nausea, memory loss. A single exposure may cause damage to: (Respiratory System, nervous system, cardiovascular system, liver, kidneys).

ACUTE TOXICITY:

Only one acute oral toxicity study is currently available for sulfuric acid. This study indicates an LD50 = 2140 mg/kg in the rat. However, due to irritant and/or corrosive effects of sulfuric acid, the oral route of exposure is not appropriate for testing possible toxic endpoints. Gavage dosing of animals will not represent oral exposures in humans, which itself will be limited. Toxic signs of oral exposure in humans are of irritation/corrosion of the gastrointestinal tract [OECD-SIDS].

Interaction with Other Chemicals Which Enhance Toxicity: None known

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GHS HEALTH HAZARDS:

GHS: ACUTE TOXICITY - INHALATION: Category 2 - Fatal if inhaled

GHS: CONTACT HAZARD - SKIN: Category 1A - Causes severe skin burns and eye damage

GHS: CONTACT HAZARD - EYE: Category 1 - Causes serious eye damage

GHS: CARCINOGENICITY: Category 1 - May cause cancer

Component	NTP:	IARC (GROUP 1):	IARC (GROUP 2):	OSHA:
Sulfuric acid	Known Human Carcinogen	Group 1	Not listed	Listed

SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):
Category 1 - Respiratory System, Nervous System, Cardiovascular System
Category 2 - Liver, Kidneys
Category 3 - Narcotic Effects

SPECIFIC TARGET ORGAN TOXICITY (Repeated or Prolonged Exposure):
Category 1 - Respiratory System, Teeth, Liver, Kidneys, Nervous System

MUTAGENIC DATA:
Category 1B - May cause genetic defects. Methyl chloride is a somatic cell mutagen and possibly a weak germ cell mutagen. Dominant lethal mutations observed in rats are likely the result of a cytotoxic versus genotoxic event.

REPRODUCTIVE TOXICITY:
Category 1B - May damage fertility or the unborn child
Methyl chloride causes testicular toxicity in rats. In one study of mice, fetal heart malformations were observed; however, this result could not be duplicated by other researchers. There are no human data

DEVELOPMENTAL TOXICITY:
Not classified as a developmental or reproductive toxin per GHS criteria. The inhalation of sulfuric acid fumes did not increase congenital anomalies in the offspring of treated pregnant mice or rabbits.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

Aquatic Toxicity:
The toxicity of sulfuric acid to aquatic life is a function of the resulting pH.

LC50 (bluegill): 3.0 - 3.5 (concentration of hydrogen ion/96 hour)
LC50 (flounder): 100 - 330 ppm/48 hr
LC50 (mosquito fish): 42 ppm/96 hr
EC50 (shrimp): 70 - 80 ppm/48 hr
EC50 (crab): 70 - 80 ppm/48 hr.

FATE AND TRANSPORT:

BIODEGRADATION: Sulfuric acid will ultimately react with calcium and magnesium in water to form sulfate salts.

PERSISTENCE: This material has not been tested, but based on the components it is believed not to persist in the environment.

BIOCONCENTRATION: This material has not been tested, but based on the components it is believed not to bioconcentrate.

13. DISPOSAL CONSIDERATIONS

Waste from material:
Reuse or reprocess, if possible. May be subject to disposal regulations. Dispose in accordance with all applicable regulations.

Container Management:
Dispose of container in accordance with applicable local, regional, national, and/or international regulations. Container rinsate must be disposed of in compliance with applicable regulations.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

UN NUMBER:	UN2920
PROPER SHIPPING NAME:	Corrosive Liquid, Flammable, N.O.S.(contains Sulfuric Acid, Spent, and Dimethyl Ether)
HAZARD CLASS/ DIVISION:	8(3)
PACKING GROUP:	II
LABELING REQUIREMENTS:	8(3)
RQ (lbs):	RQ 1,000 Lbs. (Sulfuric acid)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER:	UN2920
SHIPPING NAME:	Corrosive Liquid, Flammable, N.O.S.(contains Sulfuric Acid, Spent, and Dimethyl Ether)
CLASS OR DIVISION:	8(3)
PACKING/RISK GROUP:	II
LABELING REQUIREMENTS:	8(3)

15. REGULATORY INFORMATION

U.S. REGULATIONS

OSHA REGULATORY STATUS:
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):
If a release is reportable under CERCLA section 103, notify the state emergency response commission and local emergency planning committee. In addition, notify the National Response Center at (800) 424-8802 or (202) 426-2675.

Component	CERCLA Reportable Quantities:
Sulfuric acid	1000 lb (final RQ)
Methyl Chloride	1 lb (final RQ) 100 lb (final RQ)

SARA EHS Chemical
If a release is reportable under EPCRA, notify the state emergency response commission and local emergency planning committee. If the TPQ is met, facilities are subject to reporting requirements under EPCRA Sections 311 and 312.

Component	EPCRA RQs	Section 302 Threshold Planning Quantity (TPQs)
Sulfuric acid	1000 lb (EPCRA RQ)	1000 lb TPQ

EPCRA SECTIONS 311/312 HAZARD CATEGORIES (40 CFR 370.10):
Acute Health Hazard, Chronic Health Hazard, Reactive Hazard

EPCRA SECTION 313 (40 CFR 372.65):
The following chemicals are listed in 40 CFR 372.65 and may be subject to Community Right-to Know Reporting requirements.

OSHA PROCESS SAFETY (PSM) (29 CFR 1910.119):
Not regulated

NATIONAL INVENTORY STATUS

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA): All components are listed or exempt.

TSCA 12(b): This product is not subject to export notification.

Canadian Chemical Inventory: All components of this product are listed on either the DSL or the NDSL.

STATE REGULATIONS

Component	California Proposition 65 Cancer WARNING:	California Proposition 65 CRT List - Male reproductive toxin:	California Proposition 65 CRT List - Female reproductive toxin:	Massachusetts Right to Know Hazardous Substance List	New Jersey Right to Know Hazardous Substance List	New Jersey Special Health Hazards Substance List
Sulfuric acid 7664-93-9	Listed	Not Listed	Not Listed	Listed	1761	corrosive; reactive - second degree
Dimethyl ether 115-10-6	Not Listed	Not Listed	Not Listed	Listed	0758	flammable - fourth degree

Methyl Chloride 74-87-3	developmental toxicity	Not Listed	Not Listed	Listed	1235	flammable - fourth degree

Component	New Jersey - Environmental Hazardous Substance List	Pennsylvania Right to Know Hazardous Substance List	Pennsylvania Right to Know Special Hazardous Substances	Pennsylvania Right to Know Environmental Hazard List	Rhode Island Right to Know Hazardous Substance List
Sulfuric acid 7664-93-9	Listed	Listed	Not Listed	Present	Listed
Dimethyl ether 115-10-6	Listed	Listed	Not Listed	Not Listed	Listed
Methyl Chloride 74-87-3	Listed	Listed	Not Listed	Present	Listed

CANADIAN REGULATIONS
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

WHMIS - Classifications of Substances:
- D2A - Poisonous and Infectious Material; Materials causing other toxic effects - Very toxic material
- E - Corrosive material

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Product Stewardship

SDS Revision Date: 03-Jul-2014

HMIS: (SCALE 0-4) (Rated using National Paint & Coatings Association HMIS: Rating Instructions, 2nd Edition)

Health Rating: 3* **Flammability Rating:** 2 **Reactivity Rating:** 2

NFPA 704 - Hazard Identification Ratings (SCALE 0-4)
Health Rating: 3 **Flammability:** 2 **Reactivity Rating:** 2

SPENT SULFURIC ACID (FROM CHLOROMETHANES PRODUCTION)

Reason for Revision:

• Changed the SDS format to meet the GHS requirements of the revised 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200}
• Updated the (M)SDS header
• Updated 24 Hour Emergency Telephone Number: SEE SECTION 1
• Product Identifier has been added or updated: SEE SECTION 1
• Updated Uses Advised Against information: SEE SECTION 1
• Revised Hazard(s) Identification information: SEE SECTION 2
• Emergency Overview was revised: SEE SECTION 2
• Added GHS Information: SEE SECTION 2
• Updated First Aid Measures: SEE SECTION 4
• Modified Fire Fighting Measure Recommendations: SEE SECTION 5
• Revised Accidental Release Measures: SEE SECTION 6
• Revised Handling and Storage Recommendations: SEE SECTION 7
• Updated Physical and Chemical Properties. SEE SECTION 9
• Stability and Reactivity recommendations: SEE SECTION 10
• Toxicological Information has been revised: SEE SECTION 11
• Updated Disposal Considerations. SEE SECTION 13
• Added SDS Revision Date: SEE SECTION 16

IMPORTANT:

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OSHA Standard 29 CFR 1910.1200 requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, safety data sheets, training and access to written records. We request that you, and it is your legal duty to, make all information in this Safety Data Sheet available to your employees

End of Safety Data Sheet