**VIKING CHEMICAL COMPANY**
1827 - 18th Avenue
P.O. Box 1595
Rockford, IL 61110
(815) 397-0500

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# MATERIAL SAFETY DATA SHEET

## A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME: Sulfuric Acid – All grades - =>51%
and 66 Degree Baume

APPEARANCE / ODOR: Clear to amber, heavy, oily liquid /
May have a sharp penetrating SO2 odor.

EMERGENCY TELEPHONE NUMBER:
CHEMTREC - 800/424-9300
VIKING CHEMICAL COMPANY - 815/397-0500



## B. COMPONENTS AND HAZARD INFORMATION

Hazard Components (Specific Chemical Identity):

| (Common Name (s) | CAS # | OSHA PEL | ACGIH TLV | PERCENT |
|---|---|---|---|---|
| Sulfuric Acid | 7664-93-9 | 1 mg/m³ | 1 mg/m³ | =>51%-95% |
| Water | 7732-18-5 | | | =>5%-49% |

Hazardous Materials Identification System (HMIS):
Health = 3 Flammability = 0 Reactivity = 2

## C. EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT:
Flush eyes with large amounts of water for at least 30 minutes, lifting upper and lower lids occasionally. Remove contact lenses if applicable. SEEK IMMEDIATE MEDICAL ATTENTION.

SKIN CONTACT:
Flush area with large amounts of water for at least 30 minutes. Remove contaminated clothing and shoes. Clean contaminated clothing and shoes before reuse. If irritation develops or persists, SEEK MEDICAL ATTENTION.

INHALATION:
Remove person to fresh air at once. If breathing is difficult, give oxygen by trained personnel. If not breathing, give artificial respiration. SEEK MEDICAL ATTENTION IMMEDIATELY.

INGESTION:
Do NOT induce vomiting. Vomiting will cause further damage to the throat. If the person is conscious and has no trouble breathing, a small (no more than one glass) amount of water may be given. Thoroughly rinse mouth with large amounts of water. Do not leave the victim unattended. To prevent aspiration of the swallowed product, lay victim on side with head lower than waist. If vomiting occurs, do not re-administer water. NEVER give anything by mouth to an unconscious person. SEEK MEDICAL ATTENTION IMMEDIATELY.

NOTE TO PHYSICIAN:
Medical conditions that may be aggravated by exposure include asthma, bronchitis, emphysema and other lung diseases, chronic nose, sinus or throat conditions, and existing skin diseases. In the event of eye or skin contact, rapid and thorough flushing is essential.



All treatments should be based on observed signs and symptoms of distress in the patient. Considerations should be given to the possibility that overexposure to materials other than this product may have occurred.

This material is an acid. The primary toxicity of this product is due to its irritant effects on mucous membranes.

EYES:
Irrigate eyes for 15 minutes with sterile saline. If irritation, pain, swelling, photophobia or lacrimation persist, examination by an ophthalmologist is recommended.

SKIN:
Washed exposed area thoroughly with soap and water. Chemical burns from strong acids are generally treated the same as thermal burns.

INHALATION:
If cough or shortness of breath occurs, evaluate the possibility of bronchitis or pneumonitis. Chest x-ray and arterial blood gases can be used to determine the presence of pulmonary edema. In severe cases, use of humidified oxygen and assisted

ventilation including positive end expiratory pressure (PEEP) may be needed. Parenteral steroids may be useful in limiting the extent of pulmonary damage.
INGESTION:
If not already performed by first aid personnel, irrigate mouth with large amounts of water and dilute the acid by having victim drink 4 to 8 ounces of water or milk. Do NOT induce vomiting. Use of gastric lavage is controversial. The advantage of removal acid must be weighed against the risk of perforation or bleeding. If a large amount of acid (> 1 ml/kg body weight) has been recently ingested, cautious gastric lavage is generally advised if the patient is alert and there is little risk of convulsions. Consultation with a gastroenterologist and/or surgeon is advised. Serious complications such as perforation or stricture of the esophagus may occur requiring care by specialists. Laryngeal edema may develop requiring intubation or tracheostomy.

## D. FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT: N. A. METHOD USED: N. A.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR):

Estimated values: Lower Flammable Limit: N. A.
Upper Flammable Limit: N. A.

National Fire Protection Association Rating (NFPA):
Health = 3 Flammability = 0 Reactivity = 2 0 * No Water

EXTINGUISHING MEDIA:
This product is not flammable or combustible. Use appropriate media to extinguish source of fire. A fire involving small amount of combustibles may be smothered with suitable dry chemical. Use water on combustibles burning in vicinity of this material with care. Water applied directly will cause evolution of heat and cause spattering.

SPECIAL FIRE FIGHTING PROCEDURES:
Full protective equipment including NIOSH/MSHA approved positive pressure breathing apparatus with full face-piece and full acid-resistant protective clothing should be worn. Fight fire from maximum distance.

UNUSUAL FIRE & EXPLOSION HAZARDS:
This material is not considered flammable or combustible, but is highly reactive; capable of igniting finely divided combustible materials on contact. Strong oxidizers can react with reducing agents or combustibles producing heat and causing ignition. Reacts violently with water and organic materials with evolution of heat and corrosive material. Extremely hazardous in contact with many materials particularly carbides, chlorates, fulminates, nitrates, picrates, powdered metals, releasing hydrogen. Hydrogen gas can

accumulate to explosive concentrations inside steel tanks. Dike or retain dilution water or water from fire fighting for later disposal.

HAZARDOUS DECOMPOSITION MATERIALS UNDER FIRE CONDITIONS:
Oxides of sulfur.

'EMPTY' CONTAINER WARNING:
'Empty' containers retain residue (liquid and/or vapor) and may be dangerous. Do not attempt to clean since residue is difficult to remove. 'Empty' drums should be completely drained, properly bunged and should be disposed of in an environmentally safe manner and in accordance with local, state and governmental regulations. For further information, please refer to Occupational Safety and health Administration regulations. ANSI Z49.1.

## E. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Personnel handling this material should be thoroughly trained to handle spills and releases.

Do not direct hose streams into an un-ignited transportation spill (tank truck or tank car). Remove all ignition sources. Ventilate area.

Stop and contain leak or spill if it can be done without risk. Dike spill using absorbent inert material (sand, earth, clay, etc.). Dike or retain dilution water or water from fire fighting for later disposal. Pump any free liquid into an appropriate closed container.

Lime, limestone, sodium carbonate (soda ash), sodium bicarbonate, dilute sodium hydroxide, dilute aqua ammonia may be used to deactivate the spill area. Carefully neutralize spill. Carefully neutralize spill with soda ash. Absorb neutralized spill with an inert absorbent. Collect into appropriate containers for reclaim or approved disposal.

DISPOSAL METHOD:
Do NOT flush into drain. Run off from fire control or dilution water may cause pollution. Dispose of as a hazardous waste. Package, store, transport and dispose of all cleanup materials in accordance with all local, state and federal regulations. Spill may be reportable to the National Response Center (800/424-8802) and to state and/or local authorities. Large spill should be handled according to a predetermined plan.

## F. HANDLING AND STORAGE

HANDLING:
Do not breathe vapors and mists. Do not get on skin or in eyes. This product reacts violently with bases liberating heat and causing spattering. When diluting an acid, ALWAYS add the acid slowly to water and stir well to avoid spattering. NEVER add water to acid.

STORAGE:
Store in a dry, well ventilated, above freezing, diked with impermeable material location away from combustibles, oxidizers, bases or metallic powders. Freezing point varies with concentration. Maximum recommended storage temperature is 120ºF (49ºC). Do NOT store near strong alkalines or reactive materials.

Store in tightly closed, properly labeled, rubber-lined steel, acid-resistant plastic, or glass containers. Sulfuric Acid will attack some forms of plastics and coatings. DO NOT remove or deface label or tag.



## G. PROTECTION AND PRECAUTIONS

EYE PROTECTION:
Splash goggles or full-face shield are recommended at all times in the area where this product is used or stored. Do not get in eyes.

SKIN PROTECTION:
Neoprene chemical-resistant gloves are recommended to avoid prolonged or repeated skin contact. Do not get on skin. Remove contaminated clothing and discard shoes.

RESPIRATORY PROTECTION:
NIOSH/MSHA approved air-purifying respirator equipped with acid gas/fume, dust, and mist cartridges for concentrations up to 10 mg/m3. Air-supplied respirator for high or unknown concentrations. Do not breath vapors or mists. Under normal conditions, general area ventilation is sufficient.

INGESTION PROTECTION:
Cleanse skin (hands and face) thoroughly after contact, before breaks and meals, and at end of work period.

PERSONAL HYGIENE:
Maintain good personal hygiene.

OTHER PROTECTIVE EQUIPMENT:
Use chemical-resistant apron, PVC rain suit or other impervious clothing at all times when using or transporting this product to avoid contact.

WORK PRACTICES / ENGINEERING CONTROLS:
If kept in upper floors of building, floors should be acid proof with drains to a recovery tank. Where engineering controls are indicated by use conditions or a potential for excessive exposure exists, the following traditional exposure control techniques may be used to effectively minimize employee exposures: local exhaust ventilation at the point of generation.

The recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and piping systems for maintenance and repairs. Waste resulting from these practices should be handled in accordance with Section E, Disposal considerations.

Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.

## H. PHYSICAL DATA

The following data is approximate or typical values and should not be used for precise design purposes:

| | | |
|---|---|---|
| BOILING POINT; | 93.19% | 529 deg. F. 276 deg. C. |
| | 98% | 626 deg. F. 330 deg. C. |
| SPECIFIC GRAVITY: | 93.19% | 1.8354 |
| (@ 15 deg. C.) | 98% | 1.8437 |
| VAPOR PRESSURE: | 93.19% | 0.0018 mmHg |
| (mmHg at 20 deg. C.) | 98% | 0.001 mmHg |
| VAPOR DENSITY: | N.D. | |
| (Air = 1) | | |
| PERCENT VOLATILE: | 0% at room temperature | |
| (by volume) | | |

SOLUBILITY IN WATER: miscible

## I. STABILITY AND REACTIVITY

STABILITY:
Under normal conditions this product is considered stable. Under fire conditions it decomposes to SOx. This product reacts violently with bases liberating heat and causing spattering.

INCOMPATIBILITY:
Temperatures which may affect the materials used in equipment. Contact of acid with organic materials (such as chlorates, carbides, fulminates and picrates) may cause fire and explosions. Contact of acid with metals may form toxic sulfur dioxide gas and flammable hydrogen gas.

HAZARDOUS DECOMPOSITION PRODUCTS:
Toxic gases and vapors may be released when sulfuric acid decomposes.

HAZARDOUS POLYMERIZATION: Will not occur.



## J. HEALTH AND HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE:
The primary toxicity of this product is due to its irritant effects on mucous membranes.

MEDICAL CONDITIONS GENERALLY AGGRAVATED:
Inhalation of product may aggravate asthma, bronchitis, emphysema and other lung diseases and chronic nose, sinus or throat conditions. Skin contact may aggravate existing skin disease.

EYE CONTACT:
The greatest hazard is the corrosive action. This product is very destructive to eyes and eye tissue on contact. It could cause severe burns that result in eye damage and even blindness.

SKIN CONTACT:
This product is highly corrosive and is destructive to all tissue contacted and is likely to cause severe burns.

INHALATION:
Causes severe irritation of the respiratory tract, may cause increased pulmonary resistance, transient cough and bronchia-constriction. Severe over-exposure may result

in lung collapse and pulmonary edema, which can be fatal. Prolonged or repeated exposure may result in impaired lung function or discoloration and erosion of teeth.

INGESTION:
May cause severe burns and complete perforations of the mucous membranes of the mouth, throat, esophagus and stomach. Nausea, pain and vomiting frequently occur. Depending upon amount swallowed, holes in the intestinal tract, kidney inflammation, shock and death can occur.

## K. ECOLOGICAL AND DISPOSAL INFORMATION

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## L. TRANSPORTATION INFORMATION

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TRANSPORTATION INCIDENT INFORMATION:
For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents. DOT P 5800.3.

DOT SHIPPING INFORMATION:
Sulfuric Acid,8,UN1830,II



## M. REGULATORY INFORMATION

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## N. OTHER INFORMATION

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THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH
BUT NO WARRANTY, EXPRESSED OR IMPLIED IS MADE

N.A. (not applicable)
N.D. (not determined)

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