XYZ Corporation
MSDS for SULFURIC ACID, FUMING

SECTION I: CHEMICAL PRODUCT IDENTIFICATION

PRODUCT NAME: SULFURIC ACID, FUMING
FORMULA: H2SO4 + SO3

FORMULA WT: 178.14
CAS NO.: 7664-93-9

NIOSH/RTECS NO.: WS5605000
COMMON SYNONYMS: OLEUM; DISULFURIC ACID

PRODUCT CODES: 9705,9699,9703
EFFECTIVE: 11/24/86

REVISION #03: 12/07/96

PRECAUTIONARY LABELLING

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>REACTIVITY</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 4 EXTREME (POISON)</td>
<td>- 0 NONE</td>
<td>- 3 SEVERE (WATER REACTIVE)</td>
<td>- 4 EXTREME (CORROSIVE)</td>
</tr>
</tbody>
</table>

HAZARD RATINGS ARE 0 TO 4 (0=NO HAZARD; 4=EXTREME HAZARD).

LABORATORY PROTECTIVE EQUIPMENT
GOGGLES & SHIELD
LAB COAT & APRON
VENT HOOD
PROPER GLOVES

PRECAUTIONARY LABEL STATEMENTS
POISON DANGER
HARMFUL IF INHALED
CAUSES SEVERE BURNS
MAY BE FATAL IF SWALLOWED
REACTS VIOLENTLY WITH WATER.

DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
DO NOT BREATHE VAPOR.
KEEP IN TIGHTLY CLOSED CONTAINER.
LOOSEN CLOSURE CAUTIOUSLY.
USE WITH ADEQUATE VENTILATION.
WASH THOROUGHLY AFTER HANDLING.
IN CASE OF SPILL NEUTRALIZE WITH SODA ASH OR LIME AND PLACE IN DRY CONTAINER.

STORAGE COLOR CODE:
WHITE (CORROSIVE)
SECTION II: HAZARD INGREDIENTS/IDENTITY INFORMATION

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>Percentage</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFURIC ACID (AS SULFUR TRIOXIDE)</td>
<td>12-35</td>
<td>7664-93-9</td>
</tr>
<tr>
<td>SULFURIC ACID (AS H2SO4, BY ACID TITRATION)</td>
<td>95-100</td>
<td>9</td>
</tr>
</tbody>
</table>

SECTION III: PHYSICAL/CHEMICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOILING POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>VAPOR PRESSURE (MM HG)</td>
<td>N/A</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>N/A</td>
</tr>
<tr>
<td>VAPOR DENSITY (AIR=1)</td>
<td>2.8</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY</td>
<td>1.90</td>
</tr>
<tr>
<td>EVAPORATION RATE</td>
<td>N/A</td>
</tr>
<tr>
<td>(H2O=1)</td>
<td>SOLUBILITY (H2O): COMPLETE (IN ALL PROPORTIONS)</td>
</tr>
<tr>
<td>(BUTYL ACETATE=1)</td>
<td></td>
</tr>
<tr>
<td>% VOLATILES BY VOLUME</td>
<td>N/A</td>
</tr>
<tr>
<td>APPEARANCE &amp; ODOR</td>
<td>COLORLESS VISCOUS LIQUID CHOKING FUMES OF SULFUR TRIOXIDE.</td>
</tr>
</tbody>
</table>

SECTION IV: FIRE/EXPLOSION HAZARD DATA

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLASH POINT (CLOSED CUP)</td>
<td>N/A</td>
</tr>
<tr>
<td>NFPA 704M RATING</td>
<td>3-0-2 W</td>
</tr>
<tr>
<td>FLAMMABLE LIMITS</td>
<td></td>
</tr>
<tr>
<td>UPPER</td>
<td>N/A %</td>
</tr>
<tr>
<td>LOWER</td>
<td>N/A %</td>
</tr>
<tr>
<td>FIRE EXTINGUISHING MEDIA</td>
<td>USE DRY CHEMICAL OR CARBON DIOXIDE. DO NOT USE WATER.</td>
</tr>
<tr>
<td>SPECIAL FIRE-FIGHTING PROCEDURES</td>
<td>FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. DO NOT GET WATER INSIDE CONTAINERS.</td>
</tr>
<tr>
<td>UNUSUAL FIRE &amp; EXPLOSION HAZARDS</td>
<td>A VIOLENT EXOTHERMIC REACTION OCCURS WITH WATER. SUFFICIENT HEAT MAY BE PRODUCED TO IGNITE COMBUSTIBLE MATERIALS. REACTS WITH MOST METALS TO PRODUCE HYDROGEN GAS, WHICH CAN FORM AN EXPLOSIVE MIXTURE WITH AIR.</td>
</tr>
<tr>
<td>TOXIC GASES PRODUCED</td>
<td>SULFUR DIOXIDE</td>
</tr>
</tbody>
</table>
SECTION V: REACTIVITY DATA

STABILITY:
STABLE

HAZARDOUS POLYMERIZATION:
WILL NOT OCCUR

CONDITIONS TO AVOID:
HEAT, MOISTURE

INCOMPATIBLES:
STRONG REDUCING AGENTS, ORGANIC MATERIALS,
COMBUSTIBLE MATERIALS, MOST COMMON METALS, WATER,
STRONG BASES, STRONG OXIDIZING AGENTS

DECOMPOSITION PRODUCTS:
OXIDES OF SULFUR

SECTION VI: HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
(TLV/TWA):
1 MG/M3 (PPM)

PERMISSIBLE EXPOSURE LIMIT
(PEL):
1 MG/M3 (PPM)

TOXICITY:
LC50
(INHL-RAT-1H) (PPM) - 347

CARCINOGENICITY:
NTP: NO
IARC: NO
Z LIST: NO
OSHA REG: NO

EFFECTS OF OVEREXPOSURE:
INHALATION OF VAPORS MAY CAUSE SEVERE IRRITATION OF THE RESPIRATORY SYSTEM.
LIQUID MAY CAUSE SEVERE BURNS TO SKIN AND EYES.
INGESTION MAY CAUSE NAUSEA AND VOMITING.
INGESTION MAY CAUSE SEVERE BURNS TO MOUTH, THROAT, AND STOMACH.
MAY HAVE ADVERSE EFFECT ON KIDNEY FUNCTION AND MAY BE FATAL.
CHRONIC OVEREXPOSURE MAY RESULT IN LUNG DAMAGE.

TARGET ORGANS:
RESPIRATORY SYSTEM EYES, SKIN, TEETH

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:
LUNG DISEASE

ROUTES OF ENTRY:
INHALATION, INGESTION, EYE CONTACT, SKIN CONTACT

EMERGENCY AND FIRST AID PROCEDURES:
CALL A PHYSICIAN.
IF SWALLOWED, DO NOT INDUCE VOMITING; IF CONSCIOUS, GIVE WATER, MILK, OR MILK OF MAGNESIA.
IF INHALED, REMOVE TO FRESH AIR.
IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION.
IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES.
WASH CLOTHING BEFORE RE-USE.

SECTION VII: PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE:
WEAR SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING.
STOP LEAK IF YOU CAN DO SO WITHOUT RISK.
DO NOT USE WATER.
NEUTRALIZE SPILL AND/OR WASHINGS WITH SODA ASH OR LIME.
WITH CLEAN SHOVEL, PLACE MATERIAL INTO CLEAN, DRY CONTAINER AND COVER.
MOVE CONTAINER(S) FROM SPILL AREA.

DISPOSAL PROCEDURE:
DISPOSE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS.

EPA HAZARDOUS WASTE NUMBER:
D002, D003 (CORROSIVE, REACTIVE WASTE)

SECTION VIII: CONTROL MEASURES

VENTILATION:
USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV REQUIREMENTS.

RESPIRATORY PROTECTION:
NONE REQUIRED WHERE APPROPRIATE VENTILATION CONDITIONS EXIST. IF THE TLV IS EXCEEDED, A SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

EYE/SKIN PROTECTION:
SAFETY GOGGLES AND FACE SHIELD, UNIFORM, PROTECTIVE SUIT, NEOPRENE GLOVES ARE RECOMMENDED.

SECTION IX: STORAGE AND HANDLING PRECAUTIONS

STORAGE COLOR CODE:
WHITE (CORROSIVE)

SPECIAL PRECAUTIONS:
KEEP CONTAINER TIGHTLY CLOSED.
STORE IN CORROSION-PROOF AREA.
KEEP CONTAINERS OUT OF SUN AND AWAY FROM HEAT.
STORE ABOVE 22 C.
## SECTION X: TRANSPORTATION DATA AND ADDITIONAL INFORMATION

### DOMESTIC (D.O.T.)

<table>
<thead>
<tr>
<th>PROPER SHIPPING NAME</th>
<th>HAZARD CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OLEUM (FUMING SULFURIC ACID)</td>
<td>CORROSIVE MATERIAL (LIQUID)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN/NA</th>
<th>LABELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA1831</td>
<td>CORROSIVE</td>
</tr>
</tbody>
</table>

**REPORTABLE QUANTITY**

1000 LBS.

### INTERNATIONAL (I.M.O.)

<table>
<thead>
<tr>
<th>PROPER SHIPPING NAME</th>
<th>HAZARD CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULPHURIC ACID, FUMING</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UN/NA</th>
<th>LABELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN1831</td>
<td>CORROSIVE, POISON</td>
</tr>
</tbody>
</table>

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