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THE WORLD'S FOREMOST MANUFACTURER OF RESEARCH
BIOCHEMICALS AND DIAGNOSTIC REAGENTS

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UNIVERSITY OF WISCONSIN
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DATE 06/04/96
CUST#: 2-097-94804
PO#: UNF-64248

MATERIAL SAFETY DATA SHEET PAGE 1

THIS MSDS IS FOR A COMPONENT OF CATALOG #: 661-11

SECTION 1. CHEMICAL IDENTIFICATION

CATALOG #: 680-2
NAME: SULFURIC ACID SOLUTION 2/3N

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 7664-93-9
EC NO: 231-639-5

SYNONYMS

ACIDE SULFURIQUE (FRENCH) * ACIDO SOLFORICO (ITALIAN) * BATTERY ACID *
BOV * DIHYDROGEN SULFATE * DIPPING ACID * ELECTROLYTE ACID *
MATTLING ACID * OIL OF VITRIOL * SCHWEFELSAEURELOESUNGEN (GERMAN) *
SULFURIC ACID (ACGIH:DOT:OSHA) * SULFURIC ACID, SPENT (UN1832) (DOT) *
SULPHURIC ACID * UN1830 (DOT) * UN1832 (DOT) * VITRIOL BROWN OIL *
ZWAVELZUROPLOSSINGEN (DUTCH) *

SECTION 3. HAZARDS IDENTIFICATION

LABEL PRECAUTIONARY STATEMENTS

TOXIC
MAY CAUSE CANCER BY INHALATION.
TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.
CAUSES BURNS.
DO NOT BREATHE VAPOR.
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE
IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE
PROTECTION.
KEEP CONTAINER TIGHTLY CLOSED IN A COOL WELL-VENTILATED PLACE.

SECTION 4. FIRST-AID MEASURES

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS
AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED
CLOTHING AND SHOES.
ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS
WITH FINGERS.
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.
IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN IMMEDIATELY.
WASH CONTAMINATED CLOTHING BEFORE REUSE.
DISCARD CONTAMINATED SHOES.

SECTION 5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

Table listing branch offices for SIGMA-ALDRICH in various countries including USA, Germany, Spain, Czech Republic, Belgium, Switzerland, Mexico, India, France, Italy, Australia, Brazil, England, Hungary, and South Korea.



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M A T E R I A L S A F E T Y D A T A S H E E T PAGE 2

THIS MSDS IS FOR A COMPONENT OF CATALOG #: 661-11

CATALOG #: 680-2
NAME: SULFURIC ACID SOLUTION 2/3N

WATER SPRAY.
CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES
WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO
PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS
EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

SECTION 6. ACCIDENTAL RELEASE MEASURES

EVACUATE AREA.
WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY
RUBBER GLOVES.
COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS
USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS.
VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. HANDLING AND STORAGE

REFER TO SECTION 8.

ADDITIONAL INFORMATION
INCOMPATIBLE WITH CARBIDES, CHLORATES, FULMINATES, NITRATES, PICRATES,
CYANIDES, ALKALI HALIDES, ZINC IODIDE, PERMANGANATES, HYDROGEN PEROXIDE,
AZIDES, PERCHLORATES, NITROMETHANE, PHOSPHOROUS NITRITES, VIOLENT
REACTION WITH: CYCLOPENTADIENE, CYCLOPENTANONE OXIME, NITROARYL AMINES,
HEXALITHIUM DISILICIDE, PHOSPHOROUS (III) OXIDE.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT
GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
MECHANICAL EXHAUST REQUIRED.
SAFETY SHOWER AND EYE BATH.
FACESHIELD (8-INCH MINIMUM).
DO NOT BREATHE VAPOR.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
CARCINOGEN.
TOXIC.
CORROSIVE.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR
LIQUID.

PHYSICAL PROPERTIES

CONTINUED ON NEXT PAGE

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MATERIAL SAFETY DATA SHEET PAGE 3

THIS MSDS IS FOR A COMPONENT OF CATALOG #: 661-11

CATALOG #: 680-2
NAME: SULFURIC ACID SOLUTION 2/3N

FLASHPOINT NONE
SPECIFIC GRAVITY: 1.010

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES
BASES
HALIDES
AVOID CONTACT WITH METALS.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
SULFUR OXIDES

SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE EFFECTS
HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.
MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES
AND UPPER RESPIRATORY TRACT, EYES AND SKIN.
INHALATION MAY BE FATAL AS A RESULT OF SPASM, INFLAMMATION AND EDEMA
OF THE LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS AND PULMONARY EDEMA.
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,
WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND
VOMITING.

CHRONIC EFFECTS
CARCINOGEN.
THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS DETERMINED
THAT OCCUPATIONAL EXPOSURE TO STRONG-INORGANIC-ACID MISTS CONTAINING
SULFURIC ACID IS CARCINOGENIC TO HUMANS (GROUP 1).

RTECS #: WS5600000
SULFURIC ACID

IRRITATION DATA
EYE-RBT 250 UG SEV
EYE-RBT 5 MG/30S RINSE SEV

AJOPAA 29,1363,46
TXCYAC 23,281,82

TOXICITY DATA
UNR-MAN LDLO:135 MG/KG
ORL-RAT LD50:2140 MG/KG
IHL-RAT LC50:510 MG/M3/2H
IHL-MUS LC50:320 MG/M3/2H
IHL-GPG LC50:18 MG/M3

85DCAI 2,73,70
AIHAAP 30,470,69
85GMAT -,107,82
85GMAT -,107,82
MELAAD 45,590,54

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES
(RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR
COMPLETE INFORMATION.

SECTION 12. ECOLOGICAL INFORMATION

DATA NOT YET AVAILABLE.

SECTION 13. DISPOSAL CONSIDERATIONS

CONTINUED ON NEXT PAGE

BRANCH OFFICES AT:

SIGMA-ALDRICH VERTRIEBS GmbH, SIGMA-ALDRICH QUIMICA, S.A., SIGMA-ALDRICH s.r.l., SIGMA-ALDRICH PTY., LIMITED, SIGMA-ALDRICH CORPORATION, SIGMA-ALDRICH KR, SIGMA-ALDRICH



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MATERIAL SAFETY DATA SHEET PAGE 4

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NAME: SULFURIC ACID SOLUTION 2/3N

FOR SMALL QUANTITIES: CAUTIOUSLY ADD TO A LARGE STIRRED EXCESS OF
WATER. ADJUST THE PH TO NEUTRAL, SEPARATE ANY INSOLUBLE SOLIDS OR
LIQUIDS AND PACKAGE THEM FOR HAZARDOUS-WASTE DISPOSAL. FLUSH THE
AQUEOUS SOLUTION DOWN THE DRAIN WITH PLENTY OF WATER. THE HYDROLYSIS
AND NEUTRALIZATION REACTIONS MAY GENERATE HEAT AND FUMES WHICH CAN BE
CONTROLLED BY THE RATE OF ADDITION.
OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

SECTION 14. TRANSPORT INFORMATION

CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. REGULATORY INFORMATION

EUROPEAN INFORMATION

EC INDEX NO: 016-020-00-8
TOXIC
R 36/38
IRRITATING TO EYES AND SKIN.
S 26
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF
WATER AND SEEK MEDICAL ADVICE.
S 36
WEAR SUITABLE PROTECTIVE CLOTHING.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK
ACGIH TLV-TWA 1 MG/M3; STEL 3 MG/M3
IARC CANCER REVIEW:HUMAN SUFFICIENT EVIDENCE
IARC CANCER REVIEW:GROUP 1
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION
FEREAC 54,7740,89
MSHA STANDARD-AIR:TWA 1 MG/M3
DTLVS* 3,239,71
OSHA PEL (GEN INDU):8H TWA 1 MG/M3
CFRGBR 29,1910.1000,94
OSHA PEL (CONSTRUC):8H TWA 1 MG/M3
CFRGBR 29,1926.55,94
OSHA PEL (SHIPYARD):8H TWA 1 MG/M3
CFRGBR 29,1915.1000,93
OSHA PEL (FED CONT):8H TWA 1 MG/M3
CFRGBR 41,50-204.50,94
OEL-ARAB REPUBLIC OF EGYPT:TWA 1 MG/M3 JAN93
OEL-AUSTRALIA:TWA 1 MG/M3 JAN93
OEL-BELGIUM:TWA 1 MG/M3;STEL 3 MG/M3 JAN93
OEL-CZECHOSLOVAKIA:TWA 1 MG/M3;STEL 2 MG/M3 JAN93
OEL-DENMARK:TWA 1 MG/M3 JAN93
OEL-FINLAND:TWA 1 MG/M3;STEL 3 MG/M3;SKIN JAN93
OEL-FRANCE:TWA 1 MG/M3;STEL 3 MG/M3 JAN93
OEL-GERMANY:TWA 1 MG/M3 JAN93

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MATERIAL SAFETY DATA SHEET PAGE 5

THIS MSDS IS FOR A COMPONENT OF CATALOG #: 661-11

CATALOG #: 680-2
NAME: SULFURIC ACID SOLUTION 2/3N

OEL-HUNGARY:STEL 1 MG/M3 JAN93
OEL-JAPAN:TWA 1 MG/M3 JAN93
OEL-THE NETHERLANDS:TWA 1 MG/M3 JAN93
OEL-THE PHILIPPINES:TWA 1 MG/M3 JAN93
OEL-POLAND:TWA 1 MG/M3 JAN93
OEL-RUSSIA:STEL 1 MG/M3;SKIN JAN93
OEL-SWEDEN:TWA 1 MG/M3;STEL 3 MG/M3 JAN93
OEL-SWITZERLAND:TWA 1 MG/M3;STEL 2 MG/M3 JAN93
OEL-THAILAND:TWA 1 MG/M3 JAN93
OEL-TURKEY:TWA 1 MG/M3 JAN93
OEL-UNITED KINGDOM:TWA 1 MG/M3 JAN93
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO SULFURIC ACID-AIR:10H TWA 1 MG/M3
NIOSH* DHHS #92-100,92
NOHS 1974: HZD 70870; NIS 313; TNF 54746; NOS 143; TNE 499446
NOES 1983: HZD 70870; NIS 300; TNF 54516; NOS 182; TNE 775587; TFE 173653
EPA TSCA SECTION 8(B) CHEMICAL INVENTORY
EPA TSCA SECTION 8(D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA SECTION 8(E) RISK NOTIFICATION, 8EHQ-0892-9247;8EHQ-0892-9248
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, OCTOBER 1995
NIOSH ANALYTICAL METHOD, 1994: ACIDS, INORGANIC, 7903
OSHA ANALYTICAL METHOD #ID-113

U.S. INFORMATION
THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

SECTION 16. OTHER INFORMATION

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