ATTN: SAFETY DIRECTOR

SIGMA CHEMICAL COMPANY
POST OFFICE BOX 14508
SAINT LOUIS, MISSOURI 63178, USA

EMERGENCY PHONE 1-314-771-5765

DATE 11/19/98

CUST#: 2-097-94816

FO#: 33

RISK MANAGEMENT
UNIV OF WISC-WHITEWATER
800 W MAIN ST
WHITEWATER WI 53190-1705

MATERIAL SAFETY DATA SHEET

SECTION 1. --- CHEMICAL IDENTIFICATION---

CATALOG #: 920-1

NAME: HYDROCHLORIC ACID SOLUTION 1.0N

SECTION 2. --- COMPOSITION/INFORMATION ON INGREDIENTS

CAS #: 7647-01-0
EC NO: 231-598-7

SYNONYMS
ACIDE CHLORHYDRIQUE (FRENCH) * ACIDO CLORIDRICO (ITALIAN) * ANHYDROUS HYDROCHLORIC ACID * CHLOORWATERSTOF (DUTCH) * CHLORHYDRIC ACID * CHLOROWODOR (POLISH) * CHLORWASSERSTOFF (GERMAN) * HYDROCHLORIDE * HYDROGEN CHLORIDE (ACGIH:OSHA) * MURIATIC ACID * SPIRITS OF SALT *

SECTION 3. --- HAZARDS IDENTIFICATION

LABEL PRECAUTIONARY STATEMENTS

CORROSIVE

TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.

CAUSES BURNS.
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.
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.
DO NOT BREATHE VAPOR.

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
NONCOMBUSTIBLE.
USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

SPECIAL FIREFIGHTING PROCEDURES

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We are Committed to the Success of our Customers through Science, Technology and Service.
CATALOG #: 920-1
NAME: HYDROCHLORIC ACID SOLUTION 1.0N

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.
USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.

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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.
USE ONLY IN A CHEMICAL FUME HOOD.
DO NOT BREATHE VAPOR.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING.
AVOID PROLONGED OR REPEATED EXPOSURE.
WASH THOROUGHLY AFTER HANDLING.
CORROSIVE.
TOXIC.
KEEP TIGHTLY CLOSED.
STORE IN A COOL DRY PLACE.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR
CLEAR COLORLESS LIQUID

PHYSICAL PROPERTIES
VAPOR PRESSURE: 190MM 25 C
SPECIFIC GRAVITY: 1.017

SECTION 10. STABILITY AND REACTIVITY

INCOMPATIBILITIES
BASES
AMINES
ALKALI METALS
 COPPER, COPPER ALLOYS
ALUMINUM
CORRODES STEEL

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS
TOXIC FUMES OF:

CONTINUED ON NEXT PAGE
CATALOG #: 920-1
NAME: HYDROCHLORIC ACID SOLUTION 1.0N

HYDROGEN CHLORIDE GAS

SECTION 11. ----- ----- ----- TOXICOLOGICAL INFORMATION ----- ----- -----  

ACUTE EFFECTS
HARMFUL IF INHALED. INHALED, OR ABSORBED THROUGH SKIN.

CAUSES BURNS.

MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES 
AND UPPER RESPIRATORY TRACT, EYES AND SKIN.

INHALATION MAY RESULT IN 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.

RTECS #: MW4025000

HYDROCHLORIC ACID

IRRITATION DATA
EYE-RBT 5 MG/30S RINSE MLD TXCYAC 23, 281, 1982

OXICITY DATA
IHL-EHN LD50: 1300 PPM/30M TABIA 3, 1933
IHL-EHN LD50: 3000 PPM/5M 542CAI 2, 73, 1970
IHL-RAT LC50: 3214 PPM/1H AMRL** TR-74-78, 1974
IHL-MUS LC50: 1108 PPM/1H JCTOH 3, 61, 1976
IPL-MUS LD50: 40142 UG/KG COREAF 296, 1043, 1963
ORL-RBT LD50: 900 MG/KG BIZBA 134, 437, 1923

TARGET ORGAN DATA
SENSE ORGANS AND SPECIAL SENSES (OTHER EYE EFFECTS)
LUNGS, THORAX OR RESPIRATION (RESPIRATORY STIMULATION)
SKIN AND APPENDAGES (AFTER SYSTEMIC EXPOSURE: DERMATITIS, OTHER)
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 ----- ----- ----- 

FOR SMALL QUANTITIES: CAUTIOUSLY ADD TO A LARGE STIRRED EXCESS OF 
WATER; ADJUST THE PH TO NEUTRAL. SEPARATE ANY INSOULABLE SOLIDS OR 
LIQUIDS AND PACKAGE THEM FOR HAZARDOUS-WASTE DISPOSAL. FLUSH THE 
ACID 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 ----- ----- ----- 

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CONTACT SIGMA CHEMICAL COMPANY FOR TRANSPORTATION INFORMATION.

SECTION 15. REGULATORY INFORMATION

EUROPEAN INFORMATION  
EC INDEX NO: 017-002-00-2  
CORROSIVE  
R 23/24/25  
TOXIC BY INHALATION, IN CONTACT WITH SKIN AND IF SWALLOWED.  
R 34  
CAUSES BURNS.  
S 26  
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.  
S 45  
IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, SEEK MEDICAL ADVICE IMMEDIATELY (SHOW THE LABEL WHERE POSSIBLE).  
S 36/37/39  
WEAR SUITABLE PROTECTIVE CLOTHING, GLOVES AND EYE/FACE PROTECTION.  
S 23  
DO NOT BREATHE VAPOR.

REVIEWS, STANDARDS, AND REGULATIONS

OEL=MAK  
ACGIH TLV-CL 7.5 MG/M3 (5 PPM)  
DTLV* TLV/BEI 1997  
IARC CANCER REVIEW: HUMAN INADEQUATE EVIDENCE IMEMDT 54, 189, 1992  
IARC CANCER REVIEW: ANIMAL INADEQUATE EVIDENCE IMEMDT 54, 189, 1992  
IARC CANCER REVIEW: GROUP 3 IMEMDT 54, 189, 1992  
EPA FIFRA 1988 PESTICIDE SUBJECT TO REGISTRATION OR RE-REGISTRATION  
FERENCE 54, 7740, 1989  
MSHA STANDARD: AIR-CL 5 PPM (7 MG/M3)  
DTLV* 3, 129, 1971  
OSHA PEL (GEN INDU): CL 5 PPM (7 MG/M3)  
CFR 29.1910, 1000, 1994  
OSHA PEL (CONSTRUCT): CL 5 PPM (7 MG/M3)  
CFR 29.1926, 55, 1994  
OSHA PEL (SHIPYARD): CL 5 PPM (7 MG/M3)  
CFR 29.1915, 1000, 1993  
OSHA PEL (FED CONT): CL 5 PPM (7 MG/M3)  
CFR 41, 50-204, 50, 1994  
OEL-AUSTRALIA: TWA 5 PPM (7 MG/M3) JAN 1993  
OEL-AUSTRIA: TWA 5 PPM (7 MG/M3) JAN 1993  
OEL-BELGIUM: STEL 5 PPM (7.7 MG/M3) JAN 1993  
OEL-DENMARK: STEL 5 PPM (7 MG/M3) JAN 1993  
OEL-FINLAND: STEL 5 PPM (7 MG/M3) SKIN JAN 1993  
OEL-FRANCE: STEL 5 PPM (7.5 MG/M3) JAN 1993  
OEL-GERMANY: TWA 5 PPM (7 MG/M3) JAN 1993  
OEL-HUNGARY: STEL 5 MG/M3 JAN 1993  
OEL-JAPAN: STEL 5 PPM (7.9 MG/M3) JAN 1993  
OEL-THE NETHERLANDS: TWA 5 PPM (7 MG/M3) JAN 1993

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NAME: HYDROCHLORIC ACID SOLUTION 1.0N

OEL-THE PHILIPPINES: TWA 5 PPM (7 MG/M3) JAN 1993
OEL-POLAND: TWA 5 MG/M3 JAN 1993
OEL-RUSSIA: STEL 5 PPM (5 MG/M3) JAN 1993
OEL-SWEDEN: STEL 5 PPM (8 MG/M3) JAN 1993
OEL-SWITZERLAND: TWA 5 PPM (7.5 MG/M3); STEL 10 PPM (15 MG/M3) JAN 1993
OEL-TAIWAN: TWA 5 PPM (7 MG/M3) JAN 1993
OEL-TURKEY: TWA 5 PPM (7 MG/M3) JAN 1993
OEL-UNITED KINGDOM: TWA 5 PPM (7 MG/M3); STEL 5 PPM (7 MG/M3) JAN 1993
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA CHECK ACGIH TLV
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM CHECK ACGIH TLV
NIOSH REL TO HYDROGEN CHLORIDE-AIR: CL 5 PPM
NIOSH* DHHS #92-100, 1992
NOHS 1974; H2D 38580; NIS 360; TNE 87434; NOS 156; TNE 824985
NOHS 1983; H2D 38580; NIS 321; TNE 60309; NOS 183; TNE 1238572; TFE
388130
EPA GENETOX PROGRAM 1988, NEGATIVE: CELL TRANSFORM.-SA7/SHE
EPA TSCA SECTION 8 (B) CHEMICAL INVENTORY
EPA TSCA SECTION 8 (D) UNPUBLISHED HEALTH/SAFETY STUDIES
EPA TSCA SECTION 8 (E) RISK NOTIFICATION, SEH-0982-9246
ON EPA IRIS DATABASE
EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1998
NIOSH ANALYTICAL METHOD, 1994: ACIDS, INORGANIC, 7903

U.S. INFORMATION
4.0% HYDROCHLORIC ACID 7647-01-0
THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

SECTION 16. -- OTHER INFORMATION --

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