

J.T.BAKER INC. 222 RED SCHOOL LANE, PHILLIPSBURG, NJ 08865

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

24-HOUR EMERGENCY TELEPHONE -- (908) 859-2151

CHEMTREC # (800) 424-9300 -- NATIONAL RESPONSE CENTER # (800) 424-8802

C3795 -06

CHLOROSULFONIC ACID

PAGE: 1

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

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SECTION I - PRODUCT IDENTIFICATION

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PRODUCT NAME: CHLOROSULFONIC ACID
COMMON SYNONYMS: SULFURIC CHLOROHYDRIN; CHLOROSULFURIC ACID
CHEMICAL FAMILY: INORGANIC ACIDS
FORMULA: CLSO₃H
FORMULA WT.: 116.52
CAS NO.: 7790-94-5
NIOSH/RTECS NO.: FX5730000
PRODUCT USE: LABORATORY REAGENT
PRODUCT CODES: F591

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PRECAUTIONARY LABELING

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BAKER SAF-T-DATA* SYSTEM

HEALTH	-	4	EXTREME (POISON)
FLAMMABILITY	-	0	NONE
REACTIVITY	-	3	SEVERE (WATER REACTIVE)
CONTACT	-	4	EXTREME (CORROSIVE)

LABORATORY PROTECTIVE EQUIPMENT

GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

U.S. PRECAUTIONARY LABELING

POISON DANGER

CAUSES SEVERE BURNS. MAY BE FATAL IF SWALLOWED OR INHALED. REACTS VIOLENTLY WITH WATER, LIBERATING TOXIC GAS. EXCEPTIONAL HEALTH AND CONTACT HAZARDS: READ MATERIAL SAFETY DATA SHEET.

DO NOT GET IN EYES, ON SKIN, ON CLOTHING. DO NOT BREATHE VAPOR. KEEP IN TIGHTLY CLOSED CONTAINER. USE WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. DO NOT ADD WATER TO CONTENTS WHILE IN CONTAINER BECAUSE OF VIOLENT REACTION. IN CASE OF SPILL, SOAK UP WITH DRY SAND OR EARTH. DO NOT USE WATER.

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PRECAUTIONARY LABELING (CONTINUED)

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INTERNATIONAL LABELING

REACTS VIOLENTLY WITH WATER. CAUSES SEVERE BURNS. IRRITATING TO RESPIRATORY SYSTEM.
IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

SAF-T-DATA* STORAGE COLOR CODE: WHITE STRIPE (STORE SEPARATELY)

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SECTION II - COMPONENTS

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<u>COMPONENT</u>	<u>CAS NO.</u>	<u>WEIGHT %</u>	<u>OSHA/PEL</u>	<u>ACGIH/TLV</u>
CHLOROSULFONIC ACID	7790-94-5	90-100	N/E	N/E

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SECTION III - PHYSICAL DATA

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BOILING POINT: 152 C (305 F)
(AT 760 MM HG)

VAPOR PRESSURE (MMHG): 1.0
(20 C)

MELTING POINT: -80 C (-112 F)
(AT 760 MM HG)

VAPOR DENSITY (AIR=1): 4.0

SPECIFIC GRAVITY: 1.75
(H2O=1)

EVAPORATION RATE: <1
(BUTYL ACETATE = 1)

SOLUBILITY (H2O): DECOMPOSES

% VOLATILES BY VOLUME: 100
(21 C)

PH: N/A

ODOR THRESHOLD (P.P.M.): N/A

PHYSICAL STATE: LIQUID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: CLEAR, LIGHT YELLOW LIQUID. PUNGENT ODOR.

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SECTION IV - FIRE AND EXPLOSION HAZARD DATA

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FLASH POINT (CLOSED CUP): N/A

NFPA 704M RATING: 3-0-2 W

AUTOIGNITION TEMPERATURE: N/A

FLAMMABLE LIMITS: UPPER - N/A LOWER - N/A

FIRE EXTINGUISHING MEDIA

USE DRY CHEMICAL OR CARBON DIOXIDE. DO NOT USE WATER.

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE EXPOSED CONTAINERS FROM FIRE AREA, IF IT CAN BE DONE WITHOUT RISK.

UNUSUAL FIRE & EXPLOSION HAZARDS

REACTS VIOLENTLY WITH WATER PRODUCING HIGHLY TOXIC FUMES. STRONG OXIDIZER. CONTACT WITH COMBUSTIBLE MATERIALS, FLAMMABLE MATERIALS, OR POWDERED METALS CAN CAUSE FIRE OR EXPLOSION. REACTS WITH MOST METALS TO PRODUCE HYDROGEN GAS, WHICH CAN FORM AN EXPLOSIVE MIXTURE WITH AIR.

TOXIC GASES PRODUCED

HYDROGEN CHLORIDE, SULFURIC ACID, SULFUR DIOXIDE

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

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SECTION V - HEALTH HAZARD DATA

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THRESHOLD LIMIT VALUE (TLV/TWA): NOT ESTABLISHED

SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED

PERMISSIBLE EXPOSURE LIMIT (PEL): NOT ESTABLISHED

TOXICITY OF COMPONENTS

NO INFORMATION IS AVAILABLE

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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

CARCINOGENICITY

NONE IDENTIFIED.

REPRODUCTIVE EFFECTS

NONE IDENTIFIED.

EFFECTS OF OVEREXPOSURE

INHALATION: SEVERE IRRITATION OF RESPIRATORY SYSTEM, IS HARMFUL AND
MAY BE FATAL

SKIN CONTACT: IRRITATION, BURNS

EYE CONTACT: IRRITATION, BURNS

SKIN ABSORPTION: NONE IDENTIFIED

INGESTION: IS HARMFUL AND MAY BE FATAL, SEVERE BURNS TO MOUTH,
THROAT, AND STOMACH

CHRONIC EFFECTS: LUNG DAMAGE

TARGET ORGANS

SKIN, EYES, MUCOUS MEMBRANES, RESPIRATORY SYSTEM

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY

INGESTION, INHALATION, SKIN CONTACT, EYE CONTACT

EMERGENCY AND FIRST AID PROCEDURES

INGESTION: CALL A PHYSICIAN. IF SWALLOWED, DO NOT INDUCE VOMITING. IF
CONSCIOUS, GIVE WATER, MILK, OR MILK OF MAGNESIA.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE
ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE
OXYGEN.

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SECTION V - HEALTH HAZARD DATA (CONTINUED)

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SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF
WATER FOR AT LEAST 15 MINUTES.

EYE CONTACT: IN CASE OF EYE CONTACT, IMMEDIATELY FLUSH WITH PLENTY OF
WATER FOR AT LEAST 15 MINUTES.

SARA/TITLE III HAZARD CATEGORIES AND LISTS

ACUTE: YES CHRONIC: YES FLAMMABILITY: NO PRESSURE: NO REACTIVITY: YES

EXTREMELY HAZARDOUS SUBSTANCE: NO

CERCLA HAZARDOUS SUBSTANCE: YES CONTAINS CHLOROSULFONIC ACID (RQ = 1000
LBS)

SARA 313 TOXIC CHEMICALS: NO

TSCA INVENTORY: YES

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SECTION VI - REACTIVITY DATA

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STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: MOISTURE, HEAT, LIGHT

INCOMPATIBLES: WATER, COMBUSTIBLE MATERIALS, STRONG OXIDIZING AGENTS,
MOST COMMON METALS, ORGANIC MATERIALS, STRONG BASES,
CARBONATES, SULFIDES, CYANIDES, CARBIDES, STRONG ACIDS

DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE, SULFURIC ACID, OXIDES OF SULFUR,
HYDROGEN

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SECTION VII - SPILL & DISPOSAL PROCEDURES

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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.

TAKE UP WITH SAND OR OTHER NON-COMBUSTIBLE ABSORBENT MATERIAL AND PLACE IN
CONTAINER FOR LATER DISPOSAL. DO NOT FLUSH WITH WATER.

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SECTION VII - SPILL & DISPOSAL PROCEDURES (CONTINUED)

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DISPOSAL PROCEDURE

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

EPA HAZARDOUS WASTE NUMBER: D001, D002, D003 (IGNITABLE, CORROSIVE, REACTIVE WASTE)

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SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

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VENTILATION: USE ADEQUATE GENERAL OR LOCAL EXHAUST VENTILATION TO KEEP VAPOR AND MIST LEVELS AS LOW AS POSSIBLE.

RESPIRATORY PROTECTION: NONE REQUIRED WHERE ADEQUATE VENTILATION CONDITIONS EXIST. IF AIRBORNE CONCENTRATION IS HIGH, A CHEMICAL CARTRIDGE RESPIRATOR WITH ACID CARTRIDGE IS RECOMMENDED. IF CONCENTRATION EXCEEDS CAPACITY OF CARTRIDGE RESPIRATOR, A SELF- CONTAINED BREATHING APPARATUS IS ADVISED.

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

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SECTION IX - STORAGE AND HANDLING PRECAUTIONS

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SAF-T-DATA* STORAGE COLOR CODE: WHITE STRIPE (STORE SEPARATELY)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. STORE AWAY FROM WATER OR LOCATIONS WHERE WATER MAY BE USED TO EXTINGUISH FIRE. ISOLATE FROM INCOMPATIBLE MATERIALS. CONTAINERS SHOULD BE COVERED AND VENTED.

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

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SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION (CONTINUED)

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DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: CHLOROSULFONIC ACID, POISON-INHALATION HAZARD, ZONE B
HAZARD CLASS: 8, 6.1
UN/NA: UN1754 REPORTABLE QUANTITY: 1000 LBS. PACKAGING GROUP: I
LABELS: 8 CORROSIVE, POISON
REGULATORY REFERENCES: 49CFR 172.101

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: CHLOROSULPHONIC ACID
HAZARD CLASS: 8 I.M.O. PAGE: 8144
UN: UN1754 MARINE POLLUTANTS: NO PACKAGING GROUP: I
LABELS: CORROSIVE
REGULATORY REFERENCES: 49CFR PART 176; IMDG CODE

A (I.C.A.O.)

PROPER SHIPPING NAME: CHLOROSULPHONIC ACID
HAZARD CLASS: 8
UN: UN1754 PACKAGING GROUP: I
LABELS: CORROSIVE
REGULATORY REFERENCES: 49CFR PART 175; ICAO=== WE BELIEVE THE TRANSPORTATION
DATA AND REFERENCES CONTAINED HEREIN TO BE FACTUAL AND
THE OPINION OF QUALIFIED EXPERTS. THE DATA IS MEANT AS
A GUIDE TO THE OVERALL CLASSIFICATION OF THE PRODUCT
AND IS NOT PACKAGE SIZE SPECIFIC, NOR SHOULD IT BE
TAKEN AS A WARRANTY OR REPRESENTATION FOR WHICH THE
COMPANY ASSUMES LEGAL RESPONSIBILITY.=== THE
INFORMATION IS OFFERED SOLELY FOR YOUR CONSIDERATION,
INVESTIGATION, AND VERIFICATION. ANY USE OF THE
INFORMATION MUST BE DETERMINED BY THE USER TO BE IN
ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL
LAWS AND REGULATIONS. SEE SHIPPER REQUIREMENTS 49CFR
171.2, CERTIFICATION 172.204, AND EMPLOYEE TRAINING 49
CFR 173.1(B).

U.S. CUSTOMS HARMONIZATION NUMBER: 28062000008

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NOTE: WHEN HANDLING LIQUID PRODUCTS, SECONDARY PROTECTIVE CONTAINERS MUST BE USED FOR CARRYING.

-N/A = NOT APPLICABLE, OR NOT AVAILABLE;

N/E = NOT ESTABLISHED.-

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET MEETS THE REQUIREMENTS OF THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ACT AND REGULATIONS PROMULGATED THEREUNDER (29 CFR 1910.1200 ET. SEQ.) AND THE CANADIAN WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM. THIS DOCUMENT IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PERSON TRAINED IN, OR SUPERVISED BY A PERSON TRAINED IN, CHEMICAL HANDLING. THE USER IS RESPONSIBLE FOR DETERMINING THE PRECAUTIONS AND DANGERS OF THIS CHEMICAL FOR HIS OR HER PARTICULAR APPLICATION. DEPENDING ON USAGE, PROTECTIVE CLOTHING INCLUDING EYE AND FACE GUARDS AND RESPIRATORS MUST BE USED TO AVOID CONTACT WITH MATERIAL OR BREATHING CHEMICAL VAPORS/FUMES.

EXPOSURE TO THIS PRODUCT MAY HAVE SERIOUS ADVERSE HEALTH EFFECTS. THIS CHEMICAL MAY INTERACT WITH OTHER SUBSTANCES. SINCE THE POTENTIAL USES ARE SO VARIED, BAKER CANNOT WARN OF ALL OF THE POTENTIAL DANGERS OF USE OR INTERACTION WITH OTHER CHEMICALS OR MATERIALS. BAKER WARRANTS THAT THE CHEMICAL MEETS THE SPECIFICATIONS SET FORTH ON THE LABEL. BAKER DISCLAIMS ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED WITH REGARD TO THE PRODUCT SUPPLIED HEREUNDER, ITS MERCHANTABILITY OR ITS FITNESS FOR A PARTICULAR PURPOSE.

THE USER SHOULD RECOGNIZE THAT THIS PRODUCT CAN CAUSE SEVERE INJURY AND EVEN DEATH, ESPECIALLY IF IMPROPERLY HANDLED OR THE KNOWN DANGERS OF USE ARE NOT HEDED. READ ALL PRECAUTIONARY INFORMATION. AS NEW DOCUMENTED GENERAL SAFETY INFORMATION BECOMES AVAILABLE, BAKER WILL PERIODICALLY REVISE THIS MATERIAL SAFETY DATA SHEET.

NOTE: CHEMTREC, CANUTEC, AND NATIONAL RESPONSE CENTER EMERGENCY TELEPHONE NUMBERS ARE TO BE USED ONLY IN THE EVENT OF CHEMICAL EMERGENCIES INVOLVING A SPILL, LEAK, FIRE, EXPOSURE, OR ACCIDENT INVOLVING CHEMICALS. ALL NON-EMERGENCY QUESTIONS SHOULD BE DIRECTED TO CUSTOMER SERVICE (1-800-JTBAKER) FOR ASSISTANCE.

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APPROVED BY QUALITY ASSURANCE DEPARTMENT.