

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 1

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

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

=====

SECTION I - PRODUCT IDENTIFICATION

PRODUCT NAME: HYDROCHLORIC ACID
COMMON SYNONYMS: MURIATIC ACID; CHLOROHYDRIC ACID; HYDROGEN CHLORIDE,
AQUEOUS
CHEMICAL FAMILY: INORGANIC ACIDS
FORMULA: HCL
FORMULA WT.: 36.46
CAS NO.: 7647-01-0
NIOSH/RTECS NO.: MW4025000
PRODUCT USE: LABORATORY REAGENT
PRODUCT CODES: 5537, 5593, 9548, 9534, 9543, 9542, 6900, 9530, 9537, 9540, 5800, 9538,
9535, 9529, 5814, 5214, 4800, 5839, 9536, 9547, 9546, 9539, 5367, 9549,
9544, 5575

=====

PRECAUTIONARY LABELING

=====

BAKER SAF-T-DATA* SYSTEM

HEALTH	-	3	SEVERE (POISON)
FLAMMABILITY	-	0	NONE
REACTIVITY	-	2	MODERATE
CONTACT	-	3	SEVERE (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.
DO NOT GET IN EYES, ON SKIN, ON CLOTHING. DO NOT BREATHE VAPOR. CAUSES DAMAGE
TO RESPIRATORY SYSTEM (LUNGS), EYES AND SKIN. 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.

CONTINUED ON PAGE: 2

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 2

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

=====

PRECAUTIONARY LABELING (CONTINUED)

=====

INTERNATIONAL LABELING

IRRITATING TO EYES AND SKIN.

KEEP OUT OF REACH OF CHILDREN. IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY
WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

SAF-T-DATA* STORAGE COLOR CODE: WHITE (CORROSIVE)

=====

SECTION II - COMPONENTS

=====

COMPONENT	CAS NO.	WEIGHT %	OSHA/PEL	ACGIH/TLV
HYDROCHLORIC ACID	7647-01-0	33-40	5 PPM	5 PPM
WATER	7732-18-5	60-67	N/E	N/E

=====

=====

SECTION III - PHYSICAL DATA

BOILING POINT: 149 C (300 F)
(AT 760 MM HG)

VAPOR PRESSURE (MMHG): N/A

MELTING POINT: -25 C (-13 F)
(AT 760 MM HG)

VAPOR DENSITY (AIR=1): 1.3

SPECIFIC GRAVITY: 1.18
(H2O=1)

EVAPORATION RATE: N/A

SOLUBILITY(H2O): COMPLETE (100%)

% VOLATILES BY VOLUME: 100
(21 C)

PH: 1.0 (0.1M SOLUTION)

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

PHYSICAL STATE: LIQUID

COEFFICIENT WATER/OIL DISTRIBUTION: N/A

APPEARANCE & ODOR: CLEAR, COLORLESS FUMING LIQUID. PUNGENT ODOR.

CONTINUED ON PAGE: 3

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 3

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

=====

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP): N/A

NFPA 704M RATING: 3-0-0

AUTOIGNITION TEMPERATURE: N/A

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

FIRE EXTINGUISHING MEDIA

USE EXTINGUISHING MEDIA APPROPRIATE FOR SURROUNDING FIRE.

SPECIAL FIRE-FIGHTING PROCEDURES

FIREFIGHTERS SHOULD WEAR PROPER PROTECTIVE EQUIPMENT AND SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN POSITIVE PRESSURE MODE. MOVE CONTAINERS FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. USE WATER TO KEEP FIRE-EXPOSED CONTAINERS COOL. DO NOT GET WATER INSIDE CONTAINERS.

UNUSUAL FIRE & EXPLOSION HAZARDS

MAY EMIT HYDROGEN GAS UPON CONTACT WITH METAL.

TOXIC GASES PRODUCED

HYDROGEN CHLORIDE, HYDROGEN

EXPLOSION DATA-SENSITIVITY TO MECHANICAL IMPACT

NONE IDENTIFIED.

EXPLOSION DATA-SENSITIVITY TO STATIC DISCHARGE

NONE IDENTIFIED.

=====

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE (TLV/TWA): 7 MG/M (5 PPM)

TLV (CEILING) IS FOR HYDROGEN CHLORIDE.

SHORT-TERM EXPOSURE LIMIT (STEL): NOT ESTABLISHED

PERMISSIBLE EXPOSURE LIMIT (PEL): 7 MG/M (5 PPM)

PEL (CEILING) IS FOR HYDROGEN CHLORIDE.

CONTINUED ON PAGE: 4

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 4

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

=====

SECTION V - HEALTH HAZARD DATA (CONTINUED)

=====

TOXICITY OF COMPONENTS

INTRAPERITONEAL MOUSE LD50 FOR HYDROCHLORIC ACID	40	MG/KG
ORAL RABBIT LD50 FOR HYDROCHLORIC ACID	900	MG/KG
INHALATION-1HR RAT LC50 FOR HYDROCHLORIC ACID	3124	PPM
INTRAPERITONEAL MOUSE LD50 FOR WATER	190	G/KG
INTRAVENOUS MOUSE LD50 FOR WATER	25	G/KG

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

CARCINOGENICITY

NONE IDENTIFIED.

REPRODUCTIVE EFFECTS

NONE IDENTIFIED.

EFFECTS OF OVEREXPOSURE

INHALATION: PULMONARY EDEMA, CIRCULATORY FAILURE, RESPIRATORY SYSTEM
DAMAGE, COLLAPSE, COUGHING, DIFFICULT BREATHING

SKIN CONTACT: SEVERE BURNS

EYE CONTACT: SEVERE BURNS

SKIN ABSORPTION: NONE IDENTIFIED

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

CHRONIC EFFECTS: MAY CAUSE TEETH DAMAGE

TARGET ORGANS

RESPIRATORY SYSTEM, EYES, SKIN

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

NONE IDENTIFIED

PRIMARY ROUTES OF ENTRY

INGESTION, INHALATION, SKIN CONTACT, EYE CONTACT

CONTINUED ON PAGE: 5

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 5

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

=====

SECTION V - HEALTH HAZARD DATA (CONTINUED)

=====

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.

SKIN CONTACT: IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. WASH CLOTHING BEFORE RE-USE.

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: NO

EXTREMELY HAZARDOUS SUBSTANCE: YES CONTAINS HYDROGEN CHLORIDE (RQ = 1 LB, TPQ = 500 LBS)

CERCLA HAZARDOUS SUBSTANCE: YES CONTAINS HYDROCHLORIC ACID (RQ = 5000 LBS)

SARA 313 TOXIC CHEMICALS: YES CONTAINS HYDROCHLORIC ACID

GENERIC CLASS:

GENERIC CLASS REMOVED FROM CFR: 7/1/91

TSCA INVENTORY: YES

=====

SECTION VI - REACTIVITY DATA

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS TO AVOID: HEAT, MOISTURE

INCOMPATIBLES: MOST COMMON METALS, WATER, AMINES, METAL OXIDES, ACETIC ANHYDRIDE, PROPIOLACTONE, VINYL ACETATE, MERCURIC SULFATE, CALCIUM PHOSPHIDE, FORMALDEHYDE, ALKALIES, CARBONATES, STRONG BASES, SULFURIC ACID, CHLOROSULFONIC ACID

DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE, HYDROGEN, CHLORINE

CONTINUED ON PAGE: 6

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 6

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

=====

SECTION VII - SPILL & DISPOSAL PROCEDURES

=====

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. VENTILATE AREA. NEUTRALIZE

SPILL WITH SODA ASH OR LIME. WITH CLEAN SHOVEL, CAREFULLY PLACE MATERIAL

INTO CLEAN, DRY CONTAINER AND COVER; REMOVE FROM AREA. FLUSH SPILL AREA

WITH WATER.

J. T. BAKER NEUTRASORB(R) OR TEAM(R) 'LOW NA+' ACID NEUTRALIZERS ARE
FOR SPILLS OF THIS PRODUCT.

DISPOSAL PROCEDURE

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

EPA HAZARDOUS WASTE NUMBER: D002 (CORROSIVE WASTE)

=====

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

=====

VENTILATION: USE GENERAL OR LOCAL EXHAUST VENTILATION TO MEET TLV
REQUIREMENTS.RESPIRATORY PROTECTION: RESPIRATORY PROTECTION REQUIRED IF AIRBORNE
CONCENTRATION EXCEEDS TLV. AT CONCENTRATIONS UP TO
100 PPM, A CHEMICAL CARTRIDGE RESPIRATOR WITH ACID
CARTRIDGE IS RECOMMENDED. ABOVE THIS LEVEL, 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

=====

SAF-T-DATA* STORAGE COLOR CODE: WHITE (CORROSIVE)

STORAGE REQUIREMENTS

KEEP CONTAINER TIGHTLY CLOSED. STORE IN CORROSION-PROOF AREA. ISOLATE
FROM INCOMPATIBLE MATERIALS. DO NOT STORE NEAR OXIDIZING MATERIALS.

CONTINUED ON PAGE: 7

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

H3880 -04

HYDROCHLORIC ACID

PAGE: 7

EFFECTIVE: 01/04/94

ISSUED: 01/15/94

=====

SECTION X - TRANSPORTATION DATA AND ADDITIONAL INFORMATION

=====

DOMESTIC (D.O.T.)

PROPER SHIPPING NAME: HYDROCHLORIC ACID, SOLUTION

HAZARD CLASS: 8

UN/NA: UN1789 REPORTABLE QUANTITY: 5000 LBS. PACKAGING GROUP: II

LABELS: 8 CORROSIVE

REGULATORY REFERENCES: 49CFR 172.101

INTERNATIONAL (I.M.O.)

PROPER SHIPPING NAME: HYDROCHLORIC ACID, SOLUTION

HAZARD CLASS: 8

UN: UN1789 MARINE POLLUTANTS: NO

LABELS: CORROSIVE

REGULATORY REFERENCES: 49CFR PART 176; IMDG CODE

I.M.O. PAGE: 8183

PACKAGING GROUP: II

AIR (I.C.A.O.)

PROPER SHIPPING NAME: HYDROCHLORIC ACID, SOLUTION

HAZARD CLASS: 8

UN: UN1789

PACKAGING GROUP: II

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: 28061000000

CONTINUED ON PAGE: 8

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

H3880 -04
EFFECTIVE: 01/04/94

HYDROCHLORIC ACID

PAGE: 8
ISSUED: 01/15/94

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 HEEDDED. 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.

COPYRIGHT 1994 J.T.BAKER INC.
* TRADEMARKS OF J.T.BAKER INC.

===

APPROVED BY QUALITY ASSURANCE DEPARTMENT.

-- LAST PAGE --

"ISSUED BY VWR 07-02-97"

JT9681-5

S8234