

LAB



Curtin Matheson Scientific, Inc.
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 HOUSTON, TX 77038

FISONS

MATERIAL SAFETY DATA SHEET

MAIL TO: SCHOOLCRAFT COLLEGE
 ATTN: F FEENSTRA A9-520
 HPS MEMBER
 18600 HAGGERTY RD.

 LIVONIA, MI 48152-2696

SECTION 1 - NAME AND PRODUCT

MANUFACTURER NAME AND ADDRESS MALLINCKRODT PARIS BY PASS PARIS KY 40361 EMERGENCY PHONE 314-982-5000	CHEMICAL NUMBER:
	ITEM NUMBER: 0831087
	VNDR CATLG NBR: M152-14
	ENTRY DATE: 07-28-89
	CHANGE DATE: 07-05-94
	SPECIAL REQUEST
COMMON NAME (ON LABEL) HYDROCHLORIC ACID, 37%	CHEMICAL FAMILY N/G
TRADE NAME & SYNONYMS HYDROCHLORIC ACID, 37% MURIATIC ACID	CHEMICAL FORMULA HCL

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENT	CAS	% (WT)	TLV	PEL
HYDROCHLORIC ACID	7647-01-0	100.00	.000 SEC.5	.000 SEC.5

PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration (OSHA).
TLV: Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists, 1986-87.

OTHER INGREDIENT INFORMATION
 NO OTHER INGREDIENT INFORMATION GIVEN.

SECTION 3 - PHYSICAL DATA

BOILING POINT 53C(127F) AZEOTROPE (20.2%)	VOLATILE BY VOLUME (%) N/G	VAPOR PRESSURE 190 @ 25C (77F)
MELTING POINT -74C(-101F)	VAPOR DENSITY N/I/F	SOLUBILITY IN WATER SEE OTHER PHYS DATA
EVAPORATION RATE (= 1) N/I/F	SPECIFIC GRAVITY 1.18	
APPEARANCE AND ODOR APPEARANCE: CLEAR, COLORLESS FUMING LIQUID ODOR: PUNGENT ODOR OF HYDROGEN CHLORIDE		
OTHER PHYSICAL DATA SOLUBILITY: INFINITE IN WATER WITH SLIGHT EVOLUTION OF HEAT. MOLECULAR WEIGHT: 36.46 (HCL).		

SECTION 4 - FIRE AND EXPLOSION DATA

FLASH POINT

N/G

LOWER EXPLOSIVE LIMIT

N/G

UPPER EXPLOSIVE LIMIT

N/G

EXTINGUISHING MEDIA

IF INVOLVED IN A FIRE, USE WATER SPRAY.

UNUSUAL FIRE AND EXPLOSION HAZARDS

FIRE: CAN REACT WITH METALS TO RELEASE FLAMMABLE HYDROGEN GAS. EXPLOSION: NOT CONSIDERED TO BE AN EXPLOSION HAZARD.

SPECIAL FIRE FIGHTING PROCEDURES

IN THE EVENT OF A FIRE, WEAR FULL PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN THE PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

SECTION 5 - HEALTH HAZARD DATA

HEALTH HAZARDS (ACUTE & CHRONIC)

CHRONIC EXPOSURE: LONG-TERM EXPOSURE TO CONCENTRATED VAPORS MAY CAUSE EROSION OF TEETH. LONG TERM EXPOSURES SELDOM OCCUR DUE TO THE CORROSIVE PROPERTIES OF THE ACID.

PRIMARY ROUTES OF EXPOSURE

INHALATION, INGESTION, SKIN CONTACT, EYE CONTACT

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: CORROSIVE! INHALATION OF VAPORS CAN CAUSE COUGHING, CHOKING, INFLAMMATION OF THE NOSE, THROAT, AND UPPER RESPIRATORY TRACT. INHALATION OF HIGHER CONCENTRATIONS MAY CAUSE LUNG DAMAGE. INGESTION: CORROSIVE! SWALLOWING HYDROCHLORIC ACID CAN CAUSE IMMEDIATE PAIN AND BURNS OF THE MOUTH, THROAT, ESOPHAGUS AND GASTROINTESTINAL TRACT. MAY CAUSE NAUSEA, VOMITING, AND DIARRHEA. SKIN CONTACT: CORROSIVE! CAN CAUSE REDNESS, PAIN, AND SEVERE SKIN BURNS. CONCENTRATED SOLUTIONS CAUSE DEEP ULCERS AND DISCOLOR SKIN. EYE CONTACT: CORROSIVE! VAPORS ARE IRRITATING AND MAY CAUSE DAMAGE TO THE EYES. SPLASHES MAY CAUSE SEVERE BURNS AND PERMANENT EYE DAMAGE.

SECTION 5 - HEALTH HAZARD DATA (CONTINUED)

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

PERSONS WITH PRE-EXISTING SKIN DISORDERS OR EYE DISEASE MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS SUBSTANCE.

CARCINOGENICITY

INDICATORS NOT GIVEN

NTP Yes No

IARC Yes No

OSHA Yes No

NO INDICATORS GIVEN.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN. INGESTION: DO NOT INDUCE VOMITING! GIVE LARGE QUANTITIES OF WATER OR MILK IF AVAILABLE. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION IMMEDIATELY. SKIN EXPOSURE: 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 REUSE. THOROUGHLY CLEAN SHOES BEFORE REUSE. GET MEDICAL ATTENTION IMMEDIATELY. EYE EXPOSURE: WASH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES, LIFTING LOWER AND UPPER EYELIDS OCCASIONALLY. GET MEDICAL ATTENTION IMMEDIATELY. IN CASE OF CONTACT, IMMEDIATELY FLUSH SKIN OR EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. IF SWALLOWED, DO NOT INDUCE VOMITING! GIVE LARGE QUANTITIES OF WATER OR MILK IF AVAILABLE. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. IN ALL CASES CALL A PHYSICIAN.
DOT HAZARD CLASS: CORROSIVE MATERIAL

THRESHOLD LIMITS / TOXICITY DATA

TOXICITY DATA: (RTECS, 1986) ORAL RAT LD50: 900 MG/KG (HYDROCHLORIC ACID CONCENTRATED)
MUTATION REFERENCES CITED. AIRBORNE EXPOSURE LIMITS:
-OSHA PERMISSIBLE EXPOSURE LIMIT (PEL): 5 PPM (TWA)
CEILING -ACGIH THRESHOLD LIMIT VALUE (TLV): 5 PPM (TWA) CEILING

SECTION 6 - REACTIVITY DATA

STABILITY Unstable Stable

CONDITIONS TO AVOID

CONTAINERS MAY BURST WHEN HEATED.

INCOMPATIBILITY (MATERIALS TO AVOID)

A STRONG MINERAL ACID, CONCENTRATED HYDROCHLORIC ACID IS HIGHLY REACTIVE WITH STRONG BASES, METALS, METAL OXIDES, HYDROXIDES, AMINES, CARBONATES AND OTHER ALKALINE MATERIALS. INCOMPATIBLE WITH MATERIALS SUCH AS CYANIDES, SULFIDES, SULFITES, AND FORMALDEHYDE.

SECTION 6 - REACTIVITY DATA (CONTINUED)**HAZARDOUS DECOMPOSITION OR BYPRODUCTS**

WHEN HEATED TO DECOMPOSITION, EMITS TOXIC HYDROGEN CHLORIDE FUMES AND WILL REACT WITH WATER OR STEAM TO PRODUCE HEAT AND TOXIC AND CORROSIVE FUMES.

HAZARDOUS POLYMERIZATION May Occur Will Not Occur
CONDITIONS TO AVOID
 WILL NOT OCCUR.

SECTION 7 - SPILL, LEAK, AND DISPOSAL PROCEDURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

CLEAN-UP PERSONNEL SHOULD WEAR PROTECTIVE CLOTHING AND RESPIRATORY EQUIPMENT SUITABLE FOR TOXIC OR CORROSIVE FLUIDS OR VAPORS. ISOLATE OR ENCLOSE THE AREA OF THE LEAK OR SPILL. SMALL SPILLS: FLUSH WITH WATER AND NEUTRALIZE WITH ALKALINE MATERIAL (SODA ASH, LIME, ETC.). SEWER NEUTRALIZED MATERIAL WITH EXCESS WATER. LARGER SPILLS AND LOT SIZES: NEUTRALIZE WITH ALKALINE MATERIAL, PICK UP WITH ABSORBENT MATERIAL (SAND, EARTH, VERMICULITE). PROVIDE FORCED VENTILATION TO DISSIPATE FUMES. DISPOSE IN A RCRA-APPROVED WASTE FACILITY OR SEWER THE NEUTRALIZED SLURRY WITH EXCESS WATER IF LOCAL ORDINANCES ALLOW.
 REPORTABLE QUANTITY (RQ)(CWA/CERCLA): 5000 LBS.
 ENSURE COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

WASTE DISPOSAL METHOD

DISPOSE IN A RCRA-APPROVED WASTE FACILITY OR SEWER THE NEUTRALIZED SLURRY WITH EXCESS WATER IF LOCAL ORDINANCES ALLOW. REPORTABLE QUANTITY (RQ)(CWA/CERCLA): 5000 LBS. ENSURE COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION 8 - SPECIAL PROTECTION INFORMATION**RESPIRATORY PROTECTION**

PERSONAL RESPIRATORS: (NIOSH APPROVED) IF THE TLV IS EXCEEDED A FULL FACEPIECE CHEMICAL CARTRIDGE RESPIRATOR MAY BE WORN, IN GENERAL, UP TO 100 TIMES THE TLV OR THE MAXIMUM USE CONCENTRATION SPECIFIED BY THE RESPIRATOR SUPPLIER, WHICHEVER IS LESS. ALTERNATIVELY, A SUPPLIED AIR FULL FACEPIECE RESPIRATOR OR AIRLINED HOOD MAY BE WORN.

LOCAL VENTILATION

SEE OTHER

MECHANICAL VENTILATION

SEE OTHER

SPECIAL VENTILATION

SEE OTHER

SECTION 8 - SPECIAL PROTECTION INFORMATION (CONTINUED)**OTHER VENTILATION**

VENTILATION SYSTEMS: A SYSTEM OF LOCAL AND/OR GENERAL EXHAUST IS RECOMMENDED TO KEEP EMPLOYEE EXPOSURE BELOW THE AIRBORNE EXPOSURE LIMITS. LOCAL EXHAUST VENTILATION IS GENERALLY PREFERRED BECAUSE IT CAN CONTROL THE EMISSIONS OF THE CONTAMINANT AT ITS SOURCE, PREVENTING DISPERSION OF IT INTO THE GENERAL WORK AREA. PLEASE REFER TO THE ACGIH DOCUMENT, "INDUSTRIAL VENTILATION, A MANUAL OF RECOMMENDED PRACTICES", MOST RECENT EDITION, FOR DETAILS.

PROTECTIVE GLOVES

RUBBER OR NEOPRENE GLOVES.

EYE PROTECTION

CHEMICAL SAFETY GOGGLES AND/OR A FULL FACE SHIELD WHERE SPLASHING IS POSSIBLE

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

SKIN PROTECTION: RUBBER OR NEOPRENE GLOVES AND ADDITIONAL PROTECTION INCLUDING IMPERVIOUS BOOTS, APRON, OR COVERALLS, AS NEEDED IN AREAS OF UNUSUAL EXPOSURE TO PREVENT SKIN CONTACT. EYE CONTACT: USE CHEMICAL SAFETY GOGGLES AND/OR A FULL FACE SHIELD WHERE SPLASHING IS POSSIBLE. CONTACT LENSES SHOULD NOT BE WORN WHEN WORKING WITH THIS MATERIAL. MAINTAIN EYE WASH FOUNTAIN AND QUICK-DRENCH FACILITIES IN WORK AREA.

SECTION 9 - SPECIAL PRECAUTIONS**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

KEEP IN A TIGHTLY CLOSED CONTAINER. STORED IN A COOL, DRY, VENTILATED AREA. PROTECT FROM PHYSICAL DAMAGE AND DIRECT SUNLIGHT. ISOLATE FROM INCOMPATIBLE SUBSTANCES. PROTECT FROM MOISTURE. DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. INHALATION MAY CAUSE LUNG DAMAGE. DO NOT GET IN EYES, ON SKIN, OR ON CLOTHING. AVOID BREATHING MIST. USE ONLY WITH ADEQUATE VENTILATION. WASH THOROUGHLY AFTER HANDLING. STORE IN A TIGHTLY CLOSED CONTAINER. REMOVE AND WASH CONTAMINATED CLOTHING PROMPTLY. THIS SUBSTANCE IS CLASSIFIED AS A POISON UNDER THE FEDERAL CAUSTIC POISON ACT.

SECTION 10 - OTHER INFORMATION**MISCELLANEOUS INFO.**

NFPA RATINGS: HEALTH: 3 FLAMMABILITY: 0 REACTIVITY: 0 DOT HAZARD CLASS:

CORROSIVE MATERIAL. N/G = NOT GIVEN.

N/A = NOT APPLICABLE.

N/I/F = NO INFORMATION GIVEN.