

MATERIAL SAFETY DATA SHEET

PRODUCT: HYDROCHLORIC ACID

SECTION 1 - MANUFACTURER INFORMATION

MANUFACTURER/DISTRIBUTOR:

PVS Chemical Solutions, Inc.

12260 S. Carondolet Ave.

Chicago, Illinois 60633

Telephone: (773) 913-7700 (for product information and emergencies)

Fax: (773) 933-0957

*****FOR TRANSPORTATION EMERGENCY ONLY, DAY OR NIGHT, CALL*****

*****CHEMTREC, 1-800-424-9300*****

PREPARATION/REVISION DATE: 3-1-96

CONTACT: Manager of Environmental Affairs

SECTION 2 -- PRODUCT IDENTITY/HAZARDOUS INGREDIENTS INFORMATION

Product name: Hydrochloric Acid

Chemical name/synonyms: Hydrogen Chloride Solution, Muriatic Acid

Chemical formula: HCl

CAS number: 7647-01-0

Product Code:

HAZARDOUS INGREDIENTS: Yes

Component CAS No. % by wt.

Hydrochloric Acid 7647-01-0

18⁰ Baume' 27.9%

20⁰ Baume' 31.4%

22⁰ Baume' 35.2%

Exposure limits:

OSHA PEL: 5 ppm (ceiling) (hydrogen chloride gas)

ACGIH TLV: 5 ppm (ceiling) (hydrogen chloride gas)

NIOSH: 100 ppm, IDLH (hydrogen chloride gas)

OTHER: This is a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

NON-HAZARDOUS INGREDIENTS: Yes

Component CAS No. % by wt.

Water 7732-18-5

18⁰ Baume' 72.1%

20⁰ Baume' 68.6%

22⁰ Baume' 64.8%

OSHA 29 CFR 1910.1200 EVALUATION: Hazardous

SECTION 3 -- PHYSICAL/CHEMICAL CHARACTERISTICS

APPEARANCE AND ODOR: Clear, colorless to pale yellow liquid. Sharp pungent irritating odor.

BOILING POINT: 18⁰ = 94 °C; 20⁰ = 80 °C; 22⁰ = 55 °C

MELTING POINT: 18⁰ = -67 °C; 20⁰ = -45 °C; 22⁰ = -34 °C

VAPOR PRESSURE (REID) (20 °C): 18⁰=10mm Hg;20⁰=23.5mm Hg;22⁰=80mm Hg

VAPOR DENSITY (AIR = 1): 1.3

SPECIFIC GRAVITY (WATER = 1): 18⁰ = 1.14; 20⁰ = 1.16; 22⁰ = 1.18

PERCENT VOLATILE BY VOLUME (%) @ 55 °C: 100%

EVAPORATION RATE (BUTYL ACETATE = 1): >1

pH: <1

SOLUBILITY IN WATER: Complete

SECTION 4 -- FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (CLOSED CUP METHOD): N/A

FLAMMABLE LIMITS IN AIR, % BY VOLUME: N/A

LOWER: N/A UPPER: N/A

EXTINGUISHING MEDIA: Use water spray, fog, foam, dry chemical, CO₂ or other agents as appropriate for surrounding fire.

SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective clothing. Cool exterior of storage tanks.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Reacts with active metals (potassium, sodium, calcium, powdered aluminum, zinc, magnesium) to produce flammable hydrogen gas.

SECTION 5 -- REACTIVITY DATA

STABILITY: Stable

HAZARDOUS POLYMERIZATION: will not occur

INCOMPATIBILITY (CONDITIONS AND MATERIALS TO AVOID): Material is stable when properly handled. Highly reactive with most metals - produces flammable hydrogen. Reactions with alkalis and active metals generate a great deal of heat. Mixing with strong oxidizers can produce poisonous chlorine gas. Avoid open flames or sparks.

HAZARDOUS DECOMPOSITION PRODUCTS: Explosive hydrogen gas is generated by the action of acid on most metals. Chlorine gas is released when acid is mixed with strong oxidizers.

SECTION 6 -- HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY: Inhalation, ingestion, direct contact

HEALTH EFFECTS (ACUTE AND CHRONIC):

INHALATION: Causes irritation of nose, throat, and lungs. Inhalation of concentrated vapor or mist will damage upper respiratory tract and lung tissues. Death may result from gross overexposure.

INGESTION: Swallowing may be fatal.

DIRECT CONTACT: Contact with liquid, mist, or vapor can cause immediate irritation or corrosive burns to all human tissue.

EYE CONTACT: Contact with eyes may result in permanent visual loss unless removed quickly by thorough irrigation with water.

CARCINOGENS (NTP, IARC, OR OSHA): No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Repeated exposure may cause chronic bronchitis or respiratory inflammation. Repeated skin contact with dilute solutions may cause dermatitis.

SECTION 7 -- FIRST AID

INHALATION: Remove victim to fresh air. If not breathing, perform artificial respiration. Get medical attention.

INGESTION: Drink copious amounts of water or milk. Do not induce vomiting. Get immediate medical attention.

DIRECT CONTACT: Flush immediately with water for at least 15 minutes while removing contaminated clothing. Get immediate medical attention. Wash clothing before re-use. Destroy contaminated shoes.

DIRECT EYE CONTACT: Flush immediately with water for at least 15 minutes. Forcibly hold eyelids apart to ensure complete irrigation of eye/lid tissue. Get immediate medical attention.

SECTION 8 -- PRECAUTIONS FOR SAFE STORAGE, HANDLING AND USE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store away from heat and oxidizing agents. Keep containers closed and dry. Protect container from physical damage. Do not strike containers or fittings with tools or hard objects. Wash thoroughly after handling. Emptied container may retain vapor and product residue.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Contain spill in order to prevent contamination of sewage system or water way. Pump into marked containers for reclamation or disposal. If

possible, neutralize on a dry basis with suitable alkali such as lime or soda ash; then flush with water in accordance with applicable regulations.

WASTE DISPOSAL METHODS: Dispose of spilled, neutralized, or waste product, contaminated soil and other contaminated materials in licensed landfill or treatment facility in accordance with all local, state and federal regulations.

SECTION 9 -- EXPOSURE CONTROL INFORMATION

VENTILATION: Provide good general room ventilation to minimize exposure. Use local exhaust ventilation, discharged to absorption or neutralizing equipment. Prevent any condensate formed from dropping on workers.

RESPIRATORY PROTECTION: Use NIOSH/MSHA approved, full face respirator with canister approved for hydrochloric acid vapor and mist. Consult respirator manufacturer to determine appropriate equipment. If concentrations are high or unknown, use self-contained breathing apparatus.

PROTECTIVE GLOVES: Wear impervious gloves made of butyl rubber, Saranex (PVDC/PE), or other suitable material as recommended by manufacturer.

EYE PROTECTION: Wear splash proof chemical safety goggles. Eyewash fountains recommended in all storage and handling areas. Do not wear contact lenses.

OTHER PROTECTIVE EQUIPMENT: Full-face shield and rubber footwear should be used. Acid-resistant hood and full body suit recommended.

WORK/HYGIENIC PRACTICES: Avoid breathing fumes. Use gloves when handling. Remove and change contaminated clothing immediately.

OTHER PRECAUTIONS: None

SECTION 10 -- REGULATORY INFORMATION

DOT:

Proper shipping name: Hydrochloric acid, solution

Hazard Class: 8

UN Number: UN1789

Packing Group: II

SARA TITLE III HAZARD CLASSIFICATIONS:

ACUTE: Yes

CHRONIC: Yes

FIRE: No

PRESSURE: No

REACTIVITY: No

Hydrochloric Acid is a toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

OTHER RATINGS:

(hazard index key: 4=severe, 3=serious, 2=moderate, 1=slight, 0=minimal)

HMIS: Health=3, Flammability=0, Reactivity=1

NFPA: Health=3, Flammability=0, Reactivity=0

OTHER INFORMATION:

HYDROCHLORIC ACID:

CERCLA: RQ = 5000 lbs

1990 Clean Air Act: yes

Toxicity:

Corrosive at concentrations above 15%

Acute Oral Toxicity: LD₅₀ (Rabbit): 900 mg/kg

Acute Inhalation Toxicity: LC₅₀ (Rat, one hour): 3124 ppm

Aquatic Toxicity: 96 hr LC₅₀ = 50 - 500 mg/L