MURIATIC ACID

Material Safety Data Sheet

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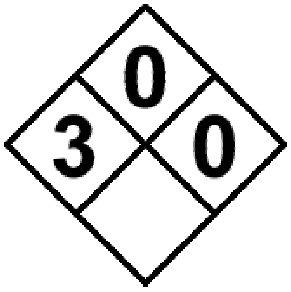

IDENTIFICATION OF PRODUCT	
Product Name:	HASA MURIATIC ACID
Common Chemical Names:	31.45% Hydrochloric Acid, HCl
Chemical Names of Ingredients:	Hydrogen Chloride, Water
Chemical Family:	Inorganic Acid
CAS Registry Number:	7647-01-0
Empirical Formula:	HCl
Molecular Weight:	36.46 [Hydrogen Chloride]

PHYSICAL AND CHEMICAL PROPERTIES[1]			
Vapor Pressure:	35 mm Hg at 25ºC [77ºF]	**Flash Point:**	Not Applicable.
Weight/Gallon:	9.6 lbs [4.4 kg]	**pH:**	1% solution less than 1.0
Density [liquid]:	1.16 at 15.6ºC [64ºF]	**Odor:**	Irritating, pungent, acidic
Bulk Density:	Not Applicable.	**Boiling Point:**	83ºC [181.4ºF] at 760mm Hg
Melting Point:	Not Applicable.	**Freezing Point:**	-46ºC [-50.8ºF]
Physical State:	Solution	**Color:**	Straw Yellow to water white
Solubility in Water:	Complete	**Stability:**	Stable

PHYSICAL HAZARDS	
Potential for Fire:	Nonflammable
Potential for Explosion:	Forms flammable hydrogen gas on contact with metals.
Reactivity:	Will react with caustic materials, oxidizing materials and metals [zinc, galvanized iron, brass, aluminum, copper and copper alloys, etc.] Hazardous polymerization will not occur.
Extinguishing Media:	Use water spray or fog nozzle to keep containers cool.
Fire Fighting Procedures:	Wear self-contained breathing apparatus and protective clothing.

HEALTH HAZARDS	
Signs and Symptoms of Exposure:	Eyes and skin burns. Not a skin sensitizer.
Medical Conditions Aggravated by Exposure:	No data available.
Oral [ingestion] LD_{50}:	900 mg/kg[2] [rat]
Dermal [skin absorption] LD_{50}:	No data available.
Inhalation [breathing] LC_{50}:	3124 ppm [1 hour, rat][3]
Eye Irritation:	Corrosive. Will burn eyes on contact.[4]
Skin Irritation:	Corrosive. Not considered to be a skin sensitizer.[5]
OSHA PEL:	5 ppm [ceiling][6]
ACGIH TLV/TWA:	5 ppm [as HCl][7]

POTENTIAL ROUTE [S] OF ENTRY	
Inhalation [Breathing]:	Inhalation of fumes.
Dermal [Skin]:	Liquid contact.
Eyes:	Fumes and/or liquid contact.
Ingestion:	Swallowing of liquid.

AQUATIC AND ENVIRONMENTAL TOXICITY	
96-hour LC_{50} [Mosquito Fish]**:**	282 mg/l[8]
96-hour LC_{50} [Blue Gill]**:**	100% pH lowered to 3.6[9]

CARCINOGENIC [CANCER POTENTIAL] INFORMATION	
No evidence of bone, lung, or nasal tumors found in rats chronically exposed to HCl vapors.[10]	
National Toxicological Program [NTP] *Sixth Annual Report on Carcinogens:*	Not listed.
***International Agency for Research on Cancer [IARC] Monographs*, V. 1-53, Supps. 1-8:**	Not listed.
Listed by Federal OSHA as Carcinogens:	Not listed.
***Safe Drinking Water and Toxic Enforcement Act of 1986* [Proposition 65, California only]:**	Not listed.

GENERAL PRECAUTIONS FOR SAFE USE AND HANDLING
Store in a cool, dry place. Do not mix with alkaline materials or metals. Keep container closed and protected against physical damage. Separate from incompatible materials in storage areas. Store separated from oxidizers. Keep containers closed when not in use. Keep out of the reach of children.

PERSONAL PROTECTION AND HYGIENE
Wear rubber gloves and eye protection when handling. Goggles should be vapor proof. Wash hands after handling. Provide ventilation for storage and use areas. Wear impervious clothing when handling and using this product. Do not breathe vapor. Avoid contact with skin and clothing.

CLEAN-UP OF SPILLS
Neutralize liquid with soda ash, sodium sesquicarbonate, slaked lime, or sodium bicarbonate and flush to a sanitary sewer.

FIRST AID	
Eye Contact:	Flush with water. Remove contact lenses [if applicable]. Hold eyelids open. Continue flushing with water for 15 minutes. Get prompt medical attention.
Skin Contact:	Wash affected area with water for 15 minutes. Get medical attention.
Ingestion [swallowing]:	Drink large quantities of water. DO NOT induce vomiting. Call a physician or poison control center immediately.
Inhalation:	Move to a safe area. If not breathing, give artificial respiration. Call a physician immediately.

FEDERAL/STATE LISTS/REGISTRATION/S/REPORTING REQUIREMENTS	
CERCLA Hazardous Substance [Section 1010 [4], P.L. 96-510]:	RQ 5,000 lbs [17,100 gallons based on HCl in solution]
Extremely Hazardous Substance [40 CFR 355, Appendix A]:	Not listed.
Pesticide Product 7 U.S.C. 136 et seq.:	Not registered.
Toxic Substance under TSCA:	Yes
Pesticide Product [various State Laws]:	Not used for pesticidal purposes.
Department of Agriculture:	GRAS when used in accordance with good manufacturing practices.

MATERIAL CLASSIFICATION	
OSHA Hazard Communication Standard, Department of Labor, Occupational Safety and Health Division, 29 CFR 1910.1200:	Corrosive Liquid
Department of Transportation CFR 49 Shipping Description:	Hydrochloric Acid, 8, UN 1789, P.G. II [4-1 gallon returnable bottles in plastic crate add “DOT-E-6614” after “P.G. II.”]

National Fire Protection Association NFPA 704 [1990]:	3-0-0
BOCA National Fire Prevention Code/National Building Code [1999editions]:	Corrosive Liquid
Standard Fire Prevention Code/Standard Building Code [1997 editions]:	Corrosive Liquid
Uniform Fire Code/Uniform Building Code [1997 editions]:	Corrosive Liquid
Uniform Fire Code Standards 79-3, Uniform Fire Code, V. II [1997 edition]:	3-0-0

FOOTNOTES [REFERENCES]

[1] E.I. Dupont de Nemours Company, Memo [January 31, 1990]
[2] *Biochemische Zeitschrift* [Berlin, Germany] 134, 437, 23
[3] MacEwan, J.D. and E.H. Vernot, *NTIS Pub. No. Ad-AO31860* [1976] [CA 86:13442x][J-2798]: Vernot E. H. et al., *Toxicology and Applied Pharmacology*, 422 [2]:97-100 [1975]; Wohlsliagel, J. et al., *Aerospace Medical Research Laboratories*, AMRL-TR-125, pp. 275-285 [1975]; Wohlsliagel, J. et al., *Journal Combustion Toxicology*, 3[2]:61-70, [1976].
[4] Griffith, J.F. et al, *Toxicology and Applied Pharmacology*, 55[3]: 501-513 [1081].
[5] Gad, S.C. et al., *Toxicology and Applied Pharmacology*, 84[1]: 93-114.
[6] 29 CFR 1910.1000
[7] *ACGIH Bulletin.*
[8] Wallen, I.E. et al., *Sewage Industrial Wastes*, 29:695 [1957] cited in McKee, J.E. et al., *Water Quality Criteria*. 2nd Edition, 1963.
[9] Calms, J. Jr., et al., *Proceedings 13th Ind. Wastes Conf.,* Purdue University Engineering Bulletin, 43:243-252 [1959].
[10] Albert, R.E., et al., *Journal National Cancer Institute*, 68[4]:597-603 [1982]; Ballou, J.E. et al., *Pac. Northwest Lab Annu. Re. DOE Asst. Sec. Environ. Report No*. PNL-2500-Pt. 1, 6.1-6.2 [1978]: Sellakumar, A.R. et al*., Proceedings American Association of Cancer Research*, 24:94 [1083].