Natural Science Establishment, Inc. P O Box 92912 Rochester, NY 14692-9012 716-359-2502

MATERIAL SAFETY DATA SHEET

397 Vansickle Road St. Catharines, Ontario L2S 3T5

815 Fiero Lane San Luis Obieno CA 93403-5010

MSDS No. Effective Date

June 24, 1998

SECTION V

Emergency and

SECTION VI

Incompatibility

Hazardous

May Occur

SECTION VII

(Materials to Avoid)

Decomposition Products

Hazardous Polymerization

Steps to be taken in case

Stability

First Aid Procedures

Unstable

Stable

X

Will Not Occur

Threshold Limited Value

Effects of Overexposure

HEALTH HAZARD DATA

develops, get medical attention.

Will react with most metals, alkalies, strong oxidants.

evolved by reaction with metals.

SPILL OR LEAK PROCEDURES

Conditions to Avoid

Conditions to Avoid

REACTIVITY DATA

swallowed.

Hydrogen chloride as gas or fume: TWA Ceiling Limits.

Hydrochloric acid solutions at these dilutions are not skin or eye irritant, but may be irritant to mucous membranes. INGESTION: May be harmful if

INGESTION: If swallowed, if conscious, give several glasses of water or milk

Excessive temperatures or heat.

to drink. Do NOT induce vomiting. Call physician immediately. Never give anything by mouth to an unconscious person. EYES: Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention. SKIN: Flush thoroughly with water, then wash with mild soap and water. INHALATION: Remove to fresh air. If illness or discomfort

Hydrogen chloride gas maybe evolved by heating. Hydrogen gas

Not applicable.

TWA: 5 ppm; 7.5 mg/m3 (AIR). (ACGIH 1992-93).

HH 90

716-359-2502		San Lu	is Obispo, C	A 93403-5010) Lilocute	Duit 0	3110 24, 1000	
SECTIO	NI	NAME	1 24	HOUR E	MERGEN	CY AS	SISTANCI	
Product	Name and Address of the Owner, where the Party of the Owner, where the Party of the Owner, where the Owner, which is the Ow	RIC ACID, (0.1M - 1M/			CHEM			
Chemical Synonyms	Hydrochloric	Acid, Water Solution			800-42 Day 716-		Health 1	
Formula	Mixture. See	Section II.		-	PA Day 716-	220-0177	Reactivity 1	
Unit Size	up to 4 Lt.				ZARD RATIN		HMIS *	
C.A.S. No.	Mixture. See	Section II.		0	1	2	3 4	
SECTIO	N II	INGREDIE	NTS OF	- МІХТИ	RES			
Principal	Componer	nt(s)	t(s)			Т	LV Units	
Hydrochlo	oric Acid: (CAS	6 No. 7647-01-0)			0.36-3.6%	S	ee Section V.	
Water: (0	CAS No. 7732-	18-5)			96.4-99.6%	Nor	ne established.	
CAUTION	I MAY BE HA	RMFUL IF SWALLOW	MFUL IF SWALLOWED. CONTACT MAY					
CAUSE	RRITATION TO	SKIN, EYES AND MU	COUS ME	MBRANES.				
SECTIO	N III	PHYSICAL	DATA					
Melting Poi	nt (°F)	Freezes: Approx. 0°C (32°F)		Specific Gravity	Specific Gravity (H ₂ O = 1)		1.0	
Boiling Poir	nt (°F)	Approx. 100°C (212°	F)	Percent Volatile by Volume (%)		100%		
Vapor Pres	sure (mm Hg)	14 (water)		Evaporation Rate (Water =1)		~ 1.		
Vapor Dens	sity (Air=1)	0.7 (water)						
Solubility in	Water	Complete.	Complete.					
Appearance		Clear, colorless liquid; may have acrid odor.						
SECTIO	NIV	FIRE AND	THE REAL PROPERTY.			ATA		
Flash Point (Method Used)	Non-flan	nmable.	% by Volu	e Limits in Air ume	N/A	owei	Upper	
Extinguisher Media	Use any	media suitable for extin	guishing s	upporting fire	э.			
SPECIAL F	IREFIGHTIN RES							
/1006 EMED	GENCY BESS	apparatus an	d full prote	ctive clothin			ined breathing	
		ONSE GUIDEBOOK, D	OI P 580	o.7, GUIDE	FAGE NO. 15	()		
UNUSUAL EXPLOSIO	FIRE AND N HAZARDS							

Vapor Density (Air=1)	0.7 (water)			material is released or spilled Carefully neutralize with sodium bicarbonate and flush to sewer					
Solubility in Water	Complete.			- Indicital to to	icacca or opinion		us amounts of w		iii to domo.
Appearance & Odor	Clear, colorless liqui	id; may have acrid odor.							
SECTION IV	FIRE AND	EXPLOSION HAZAF	RD DATA	Waste Disposal Method Discharge, treatment, or disposal may be subject to Federal, State or Local laws. These disposal guidelines are intended for the disposal of catalog-size quantities only.					
Flash Point (Method Used) Non-fla	ammable.	Flammable Limits in Air % by Volume N/A	Lower Upper	Carefully neutralize with sodium bicarbonate, soda ash, or lime and flush to sewer with copious amounts of water.					
Extinguisher Use at Media	ny media suitable for exti	inguishing supporting fire.		SECTION V		PECIAL PROTE		ORMATION sty conditions work in venti	ilation hood
SPECIAL FIREFIGHTI	NG			(Specify Type)	THE RESERVE THE PERSON NAMED IN COLUMN 2 IS NOT THE PERSON NAMED I	SH/MSHA-approved re		N ₂	
PROCEDURES	In fire condi	In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing		Ventilation	Local Exhaust Mechanical (General)	None needed. None needed.	Special Other	No.	
	Protective C			ye Protect		ty glasses.			
				Other Protective Equipment Smock, apron, eye wash station, goggles, ventilation hood, proper gloves.					
(1996 EMERGENCY RES	PONSE GUIDEBOOK,	DOT P 5800.7, GUIDE PAGE N	NO. 157)	SECTION I	X SF	PECIAL PRECA	UTIONS		
UNUSUAL FIRE AND EXPLOSION HAZARDS				Precautions to in Handling & S Keep container tightly clo	Storing	Store in a cool plac Wash thoroughly at			
	Non-combus	stible, but contact with common	metals produce hydrogen	Other Precautions Read label on container before using. Do not wear contact lenses when working with chemicals.					
Non-combustible, but contact with common metals produce hydrogen which may form explosive mixtures with air.				Remove and wash contaminated clothing.					
				For laboratory use only. Not for drug, food or household use. Keep out of reach of children.					
				Revision No	. 7 Date 6/24	4/98 Approved	Michael Raszei	a Chemical Safety Coordinator	MR
D.O.T. HYDRO Approved by U.S. Departr		JTION, 8, UN 1789, PG II y similar* to form OSHA-20		The information containe gathered by them and mu	d herein is furnished without wa ust make independent determin	arranty of any kind. Employers	should use this information from	ation only as a supplement to other in rom all sources to assure proper use	nformation of these

SECTION I

Product

Chemical

Synonyms

Natural Science Establishment, Inc. O Box 92912 Rochester, NY 14692-9012 716-359-2502

MATERIAL SAFETY DATA SHEET

St. Catharines, Ontario L2S 3T5

NAME

HYDROCHLORIC ACID, (0.1M - 1M/ 0.1N - 1N)

Hydrochloric Acid, Water Solution

Complete.

815 Fiero Lane San Luis Obispo, CA 93403-5010 MSDS No. Effective Date

CHEMTREC

800-424-9300

Day 716-226-6177

HH 90

SECTION V June 24, 1998 24 HOUR EMERGENCY ASSISTANCE Health Fire 0

Formula M	lixture. See	Section II.		PA	Reactivity 1		
Unit Size up	to 4 Lt.			ZARD RATIN			MIS *
C.A.S. No. M	lixture. See	Section II.	0	1	2	3	4
SECTION	11	INGREDIENTS O	F MIXTU	RES	1		
Principal Co	mponer	nt(s)		%	Т	LV U	nits
Hydrochloric	Acid: (CAS	No. 7647-01-0)		0.36-3.6%	S	See Sect	tion V.
Water: (CAS	No. 7732-	18-5)		96.4-99.6% None established.			olished.
CAUTION! N	MAY BE HA	RMFUL IF SWALLOWED. CON	TACT MAY				
CAUSE IRRI	TATION TO	SKIN, EYES AND MUCOUS ME	MBRANES.				
SECTION	III	PHYSICAL DATA					
Melting Point (°F)	Freezes: Approx. 0°C (32°F)	ity $(H_2O = 1)$ 1.0				
Boiling Point (°	°F)	Approx. 100°C (212°F)	Percent Volatile by Volume (%)			100%	
Vapor Pressure	e (mm Hg)	14 (water)	ite ater =1)	~ 1.			
Vapor Density	(Air=1)	0.7 (water)					

SECTION	IV	FIRE AN	D EXPLOSION HAZARD DATA			
Flash Point (Method Used)	Non-fla	mmable.	Flammable Limits in Air % by Volume N/A	Lower	Upper	
Extinguisher Media	Use an	y media suitable for ex	tinguishing supporting fire.			

SPECIAL FIREFIGHTING **PROCEDURES**

Solubility in Water

In fire conditions, wear a NIOSH/MSHA-approved self-contained breathing apparatus and full protective clothing.

(1996 EMERGENCY RESPONSE GUIDEBOOK, DOT P 5800.7, GUIDE PAGE NO. 157)

UNUSUAL FIRE AND **EXPLOSION HAZARDS**

> Non-combustible, but contact with common metals produce hydrogen which may form explosive mixtures with air.

D.O.T. HYDROCHLORIC ACID, SOLUTION, 8, UN 1789, PG II Approved by Department of Labor "essentially similar" to form OSHA-20

SECTION	HEALIII HAZAND DATA
Threshold Limited Value	Hydrogen chloride as gas or fume: TWA Ceiling Limits. TWA: 5 ppm; 7.5 mg/m³ (AIR). (ACGIH 1992-93).
Effects of Overexposure	Hydrochloric acid solutions at these dilutions are not skin or eye irritant, but may be irritant to mucous membranes. INGESTION: May be harmful lifuswallowed .
Emergency and First Aid Procedures	INGESTION: If swallowed, if conscious, give several glasses of water or milk to drink. Do NOT induce vomiting. Call physician immediately. Never give anything by mouth to an unconscious person. EYES: Flush thoroughly with water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention. SKIN: Flush thoroughly with water, then wash with mild soap and water. INHALATION: Remove to fresh air. If illness or discomfort

HEALTH HAZARD DATA

SECTIO	N VI	F	REACTIVITY DATA	
Stability	Unstable		Conditions to Avoid	Excessive temperatures or heat.
Stability	Stable	X		excessive temperatures of fleat.
Incompatibility (Materials to Avoid) Hazardous Decomposition Products Hazardous Polymerization		eact with most metals, alkalies, stro	ong oxidants.	
		Hydrogen chloride gas mayb evolved by reaction with met	be evolved by heating. Hydrogen gas lals.	
		Conditions to Avoid		
May Occur	Will Not Occur			Not applicable.
X		(

develops, get medical attention.

SECTION VII	SPILL OR LEAK PROCEDURES
Steps to be taken in case	
material is released or spil	led Carefully neutralize with sodium

Carefully neutralize with sodium bicarbonate and flush to sewer with copious amounts of water.

Waste Disposal Method

Discharge, treatment, or disposal may be subject to Federal, State or Local laws. These disposal guidelines are intended for the disposal of catalog-size quantities only.

Carefully neutralize with sodium bicarbonate, soda ash, or lime and flush to sewer with copious amounts of water.

SECTION V			ECIAL PROT					
Respiration Protect (Specify Type)			lone needed in normal laboratory handling. In misty conditions work in ventilation hood r wear NIOSH/MSHA-approved respirator.					
Vantilation	Local Ex	haust	None needed.	Special		No.		
Ventilation	Mechanical (General)		None needed.	Other		No.		
Protective Gloves		R	ubber.	Eye Protection		Chemical safety glasses		
Other Protective Equipment	Sm	ock, apron, ey	e wash station, go	ggles, ventilati	ion hood, pr	roper gloves.		
Other Protective	Sm	ock, apron, ey	e wash station, go	ggles, ventilati	ion hood, pr	roper gloves.		

Precautions to be Taken in Handling & Storing Keep container tightly closed when not in use

Other Precautions

Store in a cool place. Wash thoroughly after handling.

Read label on container before using. Do not wear contact lenses when working with chemicals.

materials and the safety and health of employees. * Hazardous Materials Industrial Standards. Printed on recycled paper

Remove and wash contaminated clothing.

For laboratory use only. Not for drug, food or household use. Keep out of reach of children.

Revision	No. 7	Date	6/24/98	Approved		Chemical Safety Coordinator	M
The information cor	ntained herei	in is furnished v	vithout warranty	of any kind. Employers	should use this information only as a		
gathered by them a	nd must mal	ke independent	determinations	of suitability and comple	steness of information from all source	ure proper use of these	9