MATERIAL SAFETY DATA SHEET

ScholAR™ Chemistry

5100 W. Henrietta Rd.
West Henrietta, NY 14586
TEL: (866) 260-0501

9797100
MSDS No. APC950-6
Effective Date: February 5, 2007

SECTION I NAME

Product	Hydrochloric Acid Solution
Chemical Synonyms	Hydrochloric Acid, Aqueous Solution
Formula	Mixture.
CAS No.	Mixture.

24 HOUR EMERGENCY ASSISTANCE

CHEMTREC
1-800-424-9300

NFPA

Health	2
Flammability	0
Reactivity	2

WHMIS

HAZARD RATING

Minimal	Slight	Moderate	Serious	Severe
0	1	2	3	4

SECTION II DANGEROUS INGREDIENTS

Name	%	TLV Units
Hydrochloric acid: (CAS No. 7647-01-0)	0.03 -1.26%	TWA: 5 ppm (HCl)
Water: (CAS No. 7732-18-5)	Balance	N/A
CAUTION!		

SECTION III PHYSICAL DATA

Melting Point (°C)	0°C	Specific Gravity (H_2O = 1)	approx. 1.0
Boiling Point (°C)	100°C	Percent Volatile by Volume (%)	98.7 - 100%
Vapor Pressure (mm Hg)	14 (water)	Evaporation Rate (Water =1)	> 1
Vapor Density (Air=1)	0.7 (water)		
Solubility in Water	Complete.		
Appearance & Odor	Clear liquid; acrid odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash point	Non-flammable.	Flammable Limits in Air % by Volume N/A	Lower	Upper
Firefighting Procedures	Use dry chemical, CO_2, alcohol foam, or water spray. In fire conditions, fire-fighters should wear an appropriate mask or a self-containing breathing apparatus.			
Flammability and Explosion Hazards	Non-combustible, but contact with common metals produce hydrogen which may form explosive mixtures with air.			

TDG **Class 8 Corrosive liquid. UN1789**

SECTION V REACTIVITY DATA

HH0091

Chemical Stability	Yes	X	If no, under what conditions?
	No		
Incompatible with Other products	Yes	X	Incompatible with alkalies and strong oxidizers.
	No		
Hazardous Decomposition Products	Hydrogen chloride gas may be evolved when heating or in contact with metals.		
Reactive under what conditions	Reactive or incompatible with alkalis. Reactive with metals.		

SECTION VI TOXICOLOGICAL PROPERTIES

Route of Entry	Skin contact. Ingestion.
TLV	TWA: 5 (ppm)
Toxicity for animals	Acute oral toxicity (LD50): 900 mg/kg (rabbit).
Chronic effects on humans	Repeated or prolonged exposure to the gas can produce lung damage. Target organs: Respiratory system, skin, eyes, lungs.
Acute effects on humans	May be harmful if swallowed. May cause irritation to the skin, eyes and mucous membranes.

SECTION VII PREVENTIVE MEASURES

Waste Disposal	Discharge, treatment, or disposal may be subject to local laws. Consult your local or regional authorities.
Storage	Keep container in a cool, well ventilated place. Keep away from heat. Keep away from incompatible materials. Corrosive materials should be stored in a separate safety cabinet or room.
Precautions	Avoid contact with skin and eyes. Do not breathe vapors or spray. Use with adequate ventilation. Do not ingest. If ingested, seek immediate medical attention. Never add water to this product.
Spill or leak	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.
Protective Clothing	Splash goggles, lab coat, vapor respirator, gloves.

SECTION VIII FIRST AID MEASURES

Specific first aid measures

Ingestion: Call physician or Poison Control Center immediately. Induce vomiting only if advised by the appropriate medical personnel. Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention. Skin contact: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Allow victim to rest in a well ventilated area. Seek immediate medical attention.

SECTION IX PREPARATION OF THE MSDS

Rev. No. 4	Date February 5, 2007	Approved James A. Bertsch

MATERIAL SAFETY DATA SHEET

ScholAR® Chemistry

5100 W. Henrietta Rd.
West Henrietta, NY 14586
TEL: (866) 260-0501

MSDS No. 9797100
Effective Date: APC950-6 January 5, 2007

SECTION I NAME

24 HOUR EMERGENCY ASSISTANCE

416-984-3000

Product	1% Phenolphthalein in Isopropyl Alcohol
Chemical Synonyms	N/A
Formula	Mixture.
CAS No.	Mixture.

NFPA: 3 / 1 / 0

Health	1
Flammability	3
Reactivity	1

HAZARD RATING WHMIS

Minimal	Slight	Moderate	Serious	Severe
0	1	2	3	4

SECTION II DANGEROUS INGREDIENTS

Name	%	TLV Units
Phenolphthalein: (CAS No. 77-09-8)	1%	N/A
Isopropyl alcohol: (CAS No. 67-63-0)	70%	400 ppm
Water: (CAS No. 7732-18-5)	29%	N/A
WARNING! FLAMMABLE!		

SECTION III PHYSICAL DATA

Melting Point (°C)	~ -50°C (70% IPA)	Specific Gravity (H_2O = 1)	~ 0.8
Boiling Point (°C)	85 - 100°C (70% IPA)	Percent Volatile by Volume (%)	99%
Vapor Pressure (mm Hg)	33 mm @ 20°C (Pure IPA)	Evaporation Rate (n-Butyl acetate =1)	>1
Vapor Density (Air=1)	2.1 (Pure IPA)		
Solubility in Water	Complete.		
Appearance & Odor	Clear, colorless liquid; mild alcohol odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

			Lower	Upper
Flash point	21.9°C TCC (70% IPA)	Flammable Limits in Air % by Volume Pure IPA	2%	12%

Firefighting Procedures

Use dry chemical, CO_2, alcohol foam, or water spray. In fire conditions, fire-fighters should wear an appropriate mask or a self-containing breathing apparatus.

Flammability and Explosion Hazards

Vapors formed from this product are heavier than air and may travel along the ground to a distant source of ignition and flash back instantly.

Auto-ignition temperature: 399°C (ASTM-E659-78) (Pure IPA)

TDG Class 3 Flammable liquid. UN1219

SECTION V REACTIVITY DATA

PP0160

Chemical Stability	Yes / No	X /	If no, under what conditions?
Incompatible with Other products	Yes / No	X /	Oxidizing materials, caustics, aluminum, metal, nitroform, oleum, chlorinated compounds.
Hazardous Decomposition Products	Carbon oxides.		
Reactive under what conditions	Excessive temperature, heat, spark and flames.		

SECTION VI TOXICOLOGICAL PROPERTIES

Route of Entry	Inhalation. Ingestion. Skin contact.
TLV	TWA: 400 ppm; STEL: 500 ppm (ACGIH 2001) (Pure IPA)
Toxicity for animals	Oral-human: LDLo: 2371 mg/kg.
Chronic effects on humans	Suspect cancer hazard. The substance is toxic to the reproductive system. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Risk of cancer depends on level and duration of exposure. Target organs: Central nervous sytem, liver, kidneys.
Acute effects on humans	Very dangerous in case of ingestion. Contact causes irritation to the skin and eyes.

SECTION VII PREVENTIVE MEASURES

Waste Disposal	Discharge, treatment, or disposal may be subject to local laws. Consult your local or regional authorities.
Storage	Keep container in a cool, well ventilated place. Keep away from heat. Keep away from incompatible materials. Keep away from sources of ignition and open flames.
Precautions	Avoid contact with skin and eyes. Do not breathe vapors or spray. Use with adequate ventilation. Do not ingest. If ingested, seek immediate medical attention.
Spill or leak	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container.
Protective Clothing	Splash goggles, lab coat, vapor respirator, gloves.

SECTION VIII FIRST AID MEASURES

Specific first aid measures

Ingestion: Call physician or Poison Control Center immediately. Induce vomiting only if advised by the appropriate medical personnel. Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention. Skin contact: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Allow victim to rest in a well ventilated area. Seek immediate medical attention.

WARNING: THIS PRODUCT CONTAINS A CHEMICAL KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

SECTION IX PREPARATION OF THE MSDS

Rev. No. 6	Date January 5, 2007	Approved	James A. Bertsch

MATERIAL SAFETY DATA SHEET

ScholAR™ Chemistry

5100 W. Henrietta Rd.
West Henrietta, NY 14586
TEL: (866) 260-0501

9797100
MSDS No. APC950-6
Effective Date: February 5, 2007

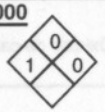
SECTION I NAME

Product	Potassium Hydrogen Phthalate
Chemical Synonyms	Potassium Biphthalate; Potassium acid phthalate
Formula	$C_8H_5KO_4$
CAS No.	877-24-7

24 HOUR EMERGENCY ASSISTANCE

416-984-3000

NFPA



Health	1
Flammability	0
Reactivity	0

HAZARD RATING WHMIS

Minimal	Slight	Moderate	Serious	Severe
0	1	2	3	4

SECTION II DANGEROUS INGREDIENTS

Name	%	TLV Units
Potassium hydrogen phthalate	100%	N/A
WARNING!		

SECTION III PHYSICAL DATA

Melting Point (°C)	295 - 300°C	Specific Gravity (H_2O = 1)	1.636
Boiling Point (°C)	Decomposes.	Percent Volatile by Volume (%)	Not applicable.
Vapor Pressure (mm Hg)	Negligible.	Evaporation Rate (=1)	Not applicable.
Vapor Density (Air=1)	7.0		
Solubility in Water	Soluble.		
Appearance & Odor	White crystalline powder; no odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash point	Not flammable.	Flammable Limits in Air % by Volume N/A	Lower	Upper

Firefighting Procedures

Use dry chemical, CO_2, alcohol foam, or water spray. In fire conditions, fire-fighters should wear an appropriate mask or a self-containing breathing apparatus.

Flammability and Explosion Hazards

Fire or excessive heat may produce hazardous decomposition products to be formed as dust or fume.

TDG Not a TDG controlled material.

SECTION V REACTIVITY DATA

PP0566

Chemical Stability	Yes	X	If no, under what conditions?
	No		
Incompatible with Other products	Yes	X	Strong oxidizers.
	No		
Hazardous Decomposition Products	Carbon and potassium oxides.		
Reactive under what conditions	N/A		

SECTION VI TOXICOLOGICAL PROPERTIES

Route of Entry	Ingestion.
TLV	N/A
Toxicity for animals	N/A
Chronic effects on humans	Repeated or prolonged exposure to the substance can produce target organ damage. Target organs: Skin and eyes.
Acute effects on humans	Harmful if swallowed. Contact may cause irritation to the skin and eyes.

SECTION VII PREVENTIVE MEASURES

Waste Disposal	Discharge, treatment, or disposal may be subject to local laws. Consult your local or regional authorities.
Storage	Keep container dry. Keep container tightly closed. Keep away from incompatible materials.
Precautions	Do not ingest. Do not breathe dust. Avoid contact with skin and eyes.
Spill or leak	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Wash spill area with soap and water.
Protective Clothing	Gloves, safety glasses, lab coat, dust respirator.

SECTION VIII FIRST AID MEASURES

Specific first aid measures

Ingestion: Call physician or Poison Control Center immediately. Induce vomiting only if advised by the appropriate medical personnel. Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention. Skin contact: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Allow victim to rest in a well ventilated area. Seek immediate medical attention.

SECTION IX PREPARATION OF THE MSDS

Rev. No. 3	Date February 5, 2007	Approved James A. Bertsch

MATERIAL SAFETY DATA SHEET

ScholAR™ Chemistry

5100 W. Henrietta Rd.
West Henrietta, NY 14586
TEL: (866) 260-0501

MSDS No. 9797100
Effective Date: APC950-6, February 19, 2007

SECTION I NAME

Product	Sodium Hydroxide, 6M Solution (6N)
Chemical Synonyms	N/A
Formula	Mixture.
CAS No.	Mixture.

24 HOUR EMERGENCY ASSISTANCE

416-984-3000

NFPA: 0 / 3 / 1

Health	3
Flammability	0
Reactivity	1

HAZARD RATING

Minimal	Slight	Moderate	Serious	Severe
0	1	2	3	4

WHMIS

SECTION II DANGEROUS INGREDIENTS

Name	%	TLV Units
Sodium hydroxide: CAS # 1310-73-2	24%	TWA: 2 (mg/m^3)
Water: CAS # 7732-18-5	76%	N/A
DANGER! CORROSIVE!		

SECTION III PHYSICAL DATA

Melting Point (°C)	0°C	Specific Gravity (H_2O = 1)	~ 1.1
Boiling Point (°C)	~ 100°C	Percent Volatile by Volume (%)	76%
Vapor Pressure (mm Hg)	14 (water)	Evaporation Rate (=1)	< 1
Vapor Density (Air=1)	0.7 (water)		
Solubility in Water	Complete.		
Appearance & Odor	Clear liquid; no odor.		

SECTION IV FIRE AND EXPLOSION HAZARD DATA

			Lower	Upper
Flash point	Non-flammable.	Flammable Limits in Air % by Volume N/A		

Firefighting Procedures

Use dry chemical, CO_2, alcohol foam, or water spray. In fire conditions, fire-fighters should wear an appropriate mask or a self-containing breathing apparatus.

Flammability and Explosion Hazards

Generates flammable and/or explosive hydrogen gas in contact with metals.

TDG **Class 8 Corrosive liquid. UN1824**
Class 9.2 Environmentallly hazardous material.

SECTION V REACTIVITY DATA SS0576

Chemical Stability	Yes	X	If no, under what conditions?
	No		
Incompatible with Other products	Yes	X	Acids, organic compounds, metals, moisture.
	No		

Hazardous Decomposition Products	Oxides of sodium.
Reactive under what conditions	Deliquescent material. Can slowly absorb moisture from the air and react with carbon dioxide to form sodium carbonate.

SECTION VI TOXICOLOGICAL PROPERTIES

Route of Entry	Ingestion. Inhalation. Skin. Eyes.
TLV	TWA: 2 (mg/m^3)
Toxicity for animals	N/A
Chronic effects on humans	Repeated exposure of the eyes to a low level of mist can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of mist can produce varying degree of respiratory irritation or lung damage. Target organs: Respiratory and gastrointestinal tracts, eyes, skin.
Acute effects on humans	Corrosive to the skin and eyes. Liquid and mist may cause tissue damage, particularly to the membranes of the eyes, mouth and respiratory tract. Contact with the skin may cause blisters.

SECTION VII PREVENTIVE MEASURES

Waste Disposal	Discharge, treatment, or disposal may be subject to local laws. Consult your local or regional authorities.
Storage	Corrosive materials should be stored in a separate safety storage cabinet or room. Keep away from incompatibles.
Precautions	Keep container dry. Do not breathe vapors or spray. Do not ingest. If ingested, seek immediate medical attention.
Spill or leak	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Wash spill area with soap and water.
Protective Clothing	Splash goggles, lab coat, vapor respirator, gloves.

SECTION VIII FIRST AID MEASURES

Specific first aid measures

Ingestion: Call physician or Poison Control Center immediately. Induce vomiting only if advised by the appropriate medical personnel. Eye contact: Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention. Skin contact: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Inhalation: Move victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Allow victim to rest in a well ventilated area. Seek immediate medical attention.

SECTION IX PREPARATION OF THE MSDS

Rev. No.	5	Date	February 19, 2007	Approved	James A. Bertsch