Ammonium Hydroxide

MSDS # 46.00

ScholAR Chemistry

Section 1: Product and Company Identification

Ammonium Hydroxide

Synonyms/General Names: Aqueous ammonia
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Clear colorless liquid; strong ammonia odor.

HMIS (0 to 4)

Health	**3**
Fire Hazard	**0**
Reactivity	**0**

WARNING! Severe body tissue irritant, moderately toxic, and serious inhalation hazard.
Target organs: Eyes, skin, mucous membranes.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Ammonium Hydroxide, (1336-21-6), >99%.
28-30% as Ammonia (7664-41-7).

or

Water: (7732-18-5), 70-72%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. ***Do not induce vomiting***. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

When heated to decomposition, emits acrid fumes of NOx and ammonia.
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage White

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Corrosive Area [White Storage] with other corrosive items. Store in a dedicated corrosive cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines Ammonia: OSHA PEL: 35 mg/m^3 and ACGIH TLV: 17 mg/m^3, STEL: 24 mg/m^3.

Section 9: Physical and Chemical Properties

Molecular formula	NH_4OH	**Appearance**	Clear colorless liquid.
Molecular weight	35.05.	**Odor**	Strong ammonia odor.
Specific Gravity	0.90 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	0.6 - 1.2.	**Solubility**	Complete.
Melting Point	-77°C.	**Evaporation rate**	N/A *(Butyl acetate = 1).*
Boiling Point/Range	36°C.	**Partition Coefficient**	N/A *(log P_{OW}).*
Vapor Pressure (20°C)	115 mm Hg.	**pH**	13, basic.
Flash Point:	N/A.	**LEL**	N/A.
Autoignition Temp.:	N/A.	**UEL**	N/A.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and ignition sources.
Stability: Stable under normal conditions of use and storage.
Incompatibility: Acids, oxidizers, halogens, heavy metals.
Shelf life: Indefinite if stored properly.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Redness, tearing, itching, burning, damage to cornea, conjunctivitis, loss of vision. ***Skin***: Redness, blistering, burning, itching, tissue destruction with slow healing. ***Ingestion***: Nausea, vomiting, burning, diarrhea, ulceration, convulsions, shock. ***Inhalation***: Coughing, wheezing, shortness of breath, headache, spasm, inflammation and edema of bronchi, pneumonitis.
Chronic Effects: Repeated/prolonged skin contact may cause thickening, blackening or cracking. Repeated eye exposure may cause corneal erosion or loss of vision. **Sensitization:** none expected
Ammonium Hydroxide: LD50 [oral, rat]; 350 mg/kg; LC50 [rat];N/A; LD50 Dermal [rabbit]; 1 mg/severe
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Toxic to beneficial microorganisms (e.g. soil and sewage treatment microorganisms). Do not release to the environment.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer disposal after being neutralized to pH 7.

Section 14: Transport Information

DOT Shipping Name:	Ammonia solutions .	**Canada TDG:**	Ammonia solutions.
DOT Hazard Class:	8, pg III .	**Hazard Class:**	8, pg III .
Identification Number:	UN2672 .	**UN Number:**	UN2672 .

Section 15: Regulatory Information

EINECS: Listed (215-647-6) .
WHMIS Canada: E - Corrosive Material.
TSCA: All components are listed or are exempt.
California Proposition 65: Not listed .
The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: December 19, 2011
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

MATERIAL SAFETY DATA SHEET

NOTE: This Material Safety Data Sheet (MSDS) is prepared for industrial / commercial use situations. The preparation of this MSDS may be required by law, but this is not an assertion that this product presents a risk in the normal consumer use situation.

SECTION I. PRODUCT & COMPANY IDENTIFICATION

PRODUCT NAME: **Axe Aerosol Deodorant Bodyspray – All Variants**

MSDS NUMBER: 1958

CORPORATE ADDRESS: Unilever
700 Sylvan Avenue
Englewood Cliffs, NJ 07632

PHONE #:	800-450-7850 Monday thru Friday (8:30 AM – 6:00 PM EST)
EMERGENCY #:	800-745-9269 (24 Hours)
POISON CONTROL #:	800-949-7866 (24 Hours)
CHEMTREC #:	800-424-9300 (24 Hours, Transportation Emergencies)

All written inquiries should be sent to:
Unilever Consumer Services, 920 Sylvan Avenue, Englewood Cliffs, NJ 07632 or Fax to: 201-227-5859

SECTION II. HAZARDS IDENTIFICATION

WARNINGS:

- **Flammable Until Fully Dry. Do Not Use Near Heat, Flame Or While Smoking. Can Cause Serious Injury Or Death.**
- **Contents under pressure. Do not puncture or incinerate. Do not expose to heat or store at temperatures above 120ºF/50ºC or in enclosed places that could overheat.**
- **Avoid inhalation. Avoid spraying in eyes. Do not use on broken skin. Stop use if rash or irritation occurs.**
- **Use Only As Directed. Intentional Misuse By Deliberately Concentrating And Inhaling The Contents Can Be Harmful Or Fatal.**
- **Keep Out Of Reach Of Children.**

HAZARD RATINGS: Health: 1, Fire: 2, Physical Hazards: 1
Ratings are based on a 0-4 scale, with 0 representing minimal and 4 representing significant hazards or risks.

SECTION III. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients as defined by 29 CFR 1910.1200:

CHEMICAL NAME	CAS NUMBER	% RANGE
SD Alcohol 40-B (Ethanol)	64-17-5	40 – 65
Isobutane (Propellant A-46)	75-28-5	30 – 40*

Butane (Propellant A-17)	106-97-8	30 – 40*
Hydrofluorocarbon 152a (Difluoroethane)	75-37-6	20 – 40*
Propane (Propellant A-46)	74-98-6	5 – 10*

* See product label to determine if present (Isobutane & Propane are in HVOC variant, HFC 152a & Butane are in LVOC variant and HFC 152a is in non-VOC variant).

SECTION IV. FIRST AID MEASURES

EYE CONTACT: Rinse thoroughly with water.
SKIN CONTACT: Discontinue use if rash or irritation occurs. Rinse with water.
INGESTION: Do not induce vomiting. Drink a glass of milk or water.
INHALATION: Move individual to fresh air.
NOTE: If symptoms persist, seek medical attention.

SECTION V. FIRE FIGHTING MEASURES

HAZARD CLASSIFICATION: Flammable. See Section XIV for Shipping Classifications.
FLASHPOINT: Product concentrate (liquid): Approximately 55ºF/13ºC.
Aerosol flame extension: <18 inches/45 cm.
NFPA 30B CLASSIFICATION: HVOC: Aerosol Level 3*
LVOC: Aerosol Level 2*
Non-VOC: Aerosol Level 1*
EXTINGUISHING MEDIA: Water mist/spray, carbon dioxide, foams or dry chemicals.
SPECIAL FIREFIGHTING PROCEDURES: Since pressurized aerosol cans may explode when exposed to excessive heat, protect from excessive heat with water spray.
HAZARDOUS COMBUSTION PRODUCTS: Oxides of carbon, nitrogen; hydrocarbons & derivatives.
CONTENTS UNDER PRESSURE: Yes. Exposure to temperature > 130ºF/55ºC may cause bursting.
EXPLOSIVE: Yes.
* HVOC variant has Isobutane & Propane on product label, LVOC variant has HFC 152a & Butane and Non-VOC has HFC 152a.

SECTION VI. ACCIDENTAL RELEASE MEASURES

SPILLS, LEAKS: Small or household quantities may be cleaned up and disposed of in normal household trash. For large (industrial) releases, eliminate all sources of ignition and ventilate the area with equipment rated for use in a flammable environment.

SECTION VII. HANDLING & STORAGE

HANDLING PRECAUTIONS: Contents under pressure. Do not puncture or incinerate container. Do not use when smoking or in presence of fire, open flame, sparks or heat.
STORAGE REQUIREMENTS: Do not store at temperatures above 120ºF/50ºC or in enclosed places that could overheat. Do not place near radiators or expose to sun or other sources of heat.

SECTION VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

CHEMICAL NAME	CAS #	ACGIH TLV	OSHA PEL

Ethanol	64-17-5	TWA=1000 ppm	TWA=1000 ppm , 1900 mg/m^3
Isobutane (Propellant A-46)	75-28-5	TWA=1000 ppm	None established
Butane (Propellant A-17)	106-97-8	TWA=1000 ppm	None established
Difluoroethane (HFC-152a)	75-37-6	None established	None established
Propane (PropellantA-46)	74-98-6	TWA=1000 ppm	TWA=1000 ppm, 1800 mg/m^3

PERSONAL PROTECTION

FOR ROUTINE CONSUMER USE: Avoid inhalation. Avoid spraying in eyes. Use only as directed. Do not use on broken skin. Stop use if rash or irritation occurs.

FOR INDUSTRIAL ACTIVITIES: Use protective eyewear, gloves, clothing and general ventilation.

SECTION IX. PHYSICAL & CHEMICAL PROPERTIES

FORM:	Liquid in pressurized metal can	COLOR:	Not available
ODOR:	Characteristic	SOLUBILITY:	Not available
SPECIFIC GRAVITY:	Not applicable	PRESSURE:	41-57 PSIG at 70ºF/21ºC. 105-130 PSIG at 130ºF/54ºC.
MELTING POINT:	Not applicable	VISCOSITY:	Not available
pH:	Not applicable	EVAPORATION RATE:	>1
PERCENT VOLATILE:	Not available	PERCENT VOC:	Not available

SECTION X. STABILITY & REACTIVITY

STABLE: Yes.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

INCOMPATIBLE WITH: Strong oxidizers, acids or bases. Do not expose to heat or store in enclosed places that could overheat.

SPECIAL CONDITIONS TO AVOID: Open flames, high temperatures, sunlight or impact.

CORROSIVE TO STEEL, ALUMINUM: No.

SECTION XI. TOXICOLOGY INFORMATION

ACUTE EFFECTS

EYE CONTACT: May cause redness or irritation.

SKIN CONTACT: Overexposure may cause a skin reaction such as redness. Do not use on broken skin.

INGESTION: May cause nausea, vomiting and diarrhea.

RESPIRATORY: Intentional misuse by deliberately concentrating and inhaling the contents can be fatal or harmful.

CHRONIC EFFECTS: None expected

CARCINOGEN CLASSIFICATIONS

NTP: None

IARC: None

OSHA: None

SECTION XII. ECOLOGICAL INFORMATION

This product is safe for the environment at the concentrations predicted under normal use conditions.

SECTION XIII. DISPOSAL CONSIDERATIONS

Disposal by Consumer: Contents under pressure. Do not puncture or incinerate. Waste generated in the course of normal consumer use is not subject to RCRA. Consumer waste should be disposed of in accordance with all applicable local, state and federal regulations.

Disposal by Manufacturer/Vendors: Waste meets the federal definition of hazardous waste due to the ignitability characteristic (D0001) as defined at 40 CFR § 261.21. Hazardous Waste Generator may recover waste Ethanol for bulk liquid disposal (or recycling) pursuant to RCRA or may dispose of individual consumer containers in drums or other appropriate containers. Generator cannot incinerate waste without puncturing and releasing flammable gas from all pressurized consumer packaging using the appropriate aerosol disposal equipment to ensure worker safety.

SECTION XIV. TRANSPORT INFORMATION

FOR SHIPMENT IN CONSUMER PACKAGING	DOMESTIC - ALL MODES (US DOT)	INTERNATIONAL - AIR (IATA/ICAO)	INTERNATIONAL - WATER (IMO/IMDG)
PROPER SHIPPING NAME:	Consumer Commodity	Consumer Commodity	Aerosols
HAZARD CLASS:	ORM-D & ORM-D-AIR	9	2
UN/ID #:	None	ID8000	UN1950
PACKING GROUP:	None	None	None
LABEL REQUIRED:	None	Miscellaneous	None

EMERGENCY GUIDE NUMBER: ID8000 Consumer Commodity = 171
UN1950 Aerosol = 126
DOT HAZARDOUS SUBSTANCE RQ: None/no reportable quantities
DOT MARINE POLLUTANTS: None/no reportable quantities
IATA - Substances Forbidden from Air Transport: None/no reportable quantities
IATA - Subst. Forbidden from Passenger Transport: Isobutane, Butane, Difluoroethane, Propane

SECTION XV. REGULATORY INFORMATION

TSCA: Not applicable
RCRA: See Section XIII - Disposal Considerations
CAA HAPS or Ozone Depletors: None/no reportable quantities
CERCLA/SARA 302 Hazardous Substances: None/no reportable quantities
CERCLA/SARA 311/312 Hazard Categories: None/no reportable quantities
CERCLA/SARA 313 Emissions Reporting: None/no reportable quantities
CERCLA RQ: Ethanol, Isobutane, Butane, Difluoroethane and Propane - 100 lbs
CA 22 CCR Hazardous Wastes: Ethanol
CA Proposition 65 Listed Chemicals: None/no reportable quantities
IL, MA, NJ, PA, RI State RTK, Hazardous & Other Notifications:
Ethanol, Isobutane, Butane, Difluoroethane, Propane

CANADIAN DSL/NDSL: All components comply with registration requirements

SECTION XVI. OTHER INFORMATION

LEGEND:

ACGIH	American Conference of Governmental & Industrial Hygienists	IMO	International Maritime Organization
CAA	Clean Air Act	LVOC	Low Volatile Organic Compound
CARB	California Air Resources Board	N/A	Not Applicable
CAS	Chemical Abstract Service	NFPA	National Fire Protection Association
CCR	California Code of Regulations	NTP	National Toxicology Program
CERCLA	Comprehensive Environmental Response, Compensation & Liability Act	OSHA	Occupation Safety & Health Administration
CFR	Code of Federal Regulations	PEL	Permissible Exposure Limit
DOT	Department of Transportation	RCRA	Resource Conservation & Recovery Act
DSL/NDSL	Domestic Substances List/Non-Domestic Substances List	RQ	Reportable Quantity
EPCRA	Emergency Planning and Community Right-To-Know Act	RTK	Right-To-Know
EST	Eastern Standard Time	SARA	Superfund Amendments & Reauthorization Act
HAPS	Hazardous Air Pollutants	STEL	Short-Term Exposure Limit
HMIS	Hazardous Materials Information System	TBD	To Be Determined
HON	Hazardous Organic NESHAP (National Emission Standards for Hazardous Air Pollutants)	TCC	Tagliabue Closed Cup
HPC	Home & Personal Care	TLV	Threshold Limit Value
HVOC	High Volatile Organic Compound	TSCA	Toxic Substances Control Act
IARC	International Agency for the Research of Cancer	TWA	Time Weighted Average
IATA	International Air Traffic Association	TCLP	Toxicity Characteristic Leaching Procedure
ICAO	International Civil Aviation Organization	VOC	Volatile Organic Compounds
IMDG	International Maritime Dangerous Goods	WHMIS	Workplace Hazardous Materials Information System

Unilever Home & Personal Care
Technical Control Unit
40 Merritt Boulevard
Trumbull, CT 06611

Formulation, Date & Clearance: HVOC: 83115152-1, 9/2/2008, R78697
LVOC: 8311515-1, 5/29/2008, R78696
Coors: 83115707-1, 5/28/2008, R00TBD
Pits: 83123297-2, 1/8/2009, R83872

MSDS Date: 4/24/2009 8:38 AM

Bromothymol Blue Indicator Solution

MSDS # 118.00

Section 1: Product and Company Identification

Bromothymol Blue Indicator Solution

Synonyms/General Names: Bromthymol Blue, pH Indicator
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Blue-green liquid; no odor.

HMIS (0 to 4)

Health	0
Fire Hazard	0
Reactivity	0

This material is not considered hazardous.
Target organs: None known.

This material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) if used properly

Section 3: Composition / Information on Ingredients

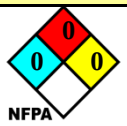
Bromothymol Blue, Sodium Salt, (34722-90-2), <1%. Water (7732-18-5), >99%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink. Induce vomiting immediately.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures



Noncombustible solution. When heated to decomposition, emits acrid fumes.
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Contain spill with sand or absorbent material and place in sealed bag or container for disposal. Ventilate and wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Green

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in General Storage Area [Green Storage] with other items with no specific storage hazards. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Exposure guidelines: Bromothymol Blue: OSHA PEL: N/A; ACGIH: TLV: N/A; STEL: N/A.

Section 9: Physical and Chemical Properties

Molecular formula	$C_{27}H_{27}Br_2O_5SNa$.	**Appearance**	Blue-green liquid.
Molecular weight	646.39.	**Odor**	No odor.
Specific Gravity	1.00 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	N/A.	**Solubility**	Soluble.
Melting Point	N/A.	**Evaporation rate**	N/A *(Butyl acetate = 1).*
Boiling Point/Range	N/A.	**Partition Coefficient**	N/A *(log P_{OW}).*
Vapor Pressure (20°C)	N/A.	**pH**	pH indicator: 6.0 yellow to 7.6 blue.
Flash Point:	N/A.	**LEL**	N/A.
Autoignition Temp.:	N/A.	**UEL**	N/A.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and moisture.
Stability: Stable under normal conditions of use and storage.
Incompatibility: Strong oxidizers.
Shelf life: Indefinite if stored properly.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Redness, tearing, itching, burning, conjunctivitis. ***Skin***: Redness, itching. ***Ingestion***: Irritation and burning sensations of mouth and throat, nausea, vomiting and abdominal pain. ***Inhalation***: Irritation of mucous membranes, coughing, wheezing, shortness of breath,
Chronic Effects: No information found.
Sensitization: none expected
Bromothymol Blue: LD50 [oral, rat]; N/A; LC50 [rat]; N/A; LD50 Dermal [rabbit]; N/A
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Ecological impact has not been determined.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name:	Not regulated by DOT.	**Canada TDG:**	Not regulated by TDG.
DOT Hazard Class:		**Hazard Class:**	
Identification Number:		**UN Number:**	

Section 15: Regulatory Information

EINECS: Not listed.
TSCA: All components are listed or are exempt.
WHMIS Canada: Not WHMIS Controlled.
California Proposition 65: Not listed.

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: December 20, 2011
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Ethyl Alcohol, Anhydrous, Denatured

MSDS # 275.00

ScholAR Chemistry

Section 1: Product and Company Identification

Ethyl Alcohol, Anhydrous, Denatured

Synonyms/General Names: Ethanol, Grain alcohol
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Clear, colorless liquid, alcohol odor.
WARNING! Flammable liquid and moderately toxic by ingestion.
Flammable liquid, keep away from all ignition sources.
Target organs: Eyes, Liver, Kidneys, Central Nervous System.

HMIS (0 to 4)

Health	2
Fire Hazard	3
Reactivity	0

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Ethyl Alcohol (64-17-5), >80%.
Methyl Isobutyl Ketone (108-10-1), <5%.
Light Aliphatic Solvent Naphtha (64742-89-8), <5%.
Methyl Alcohol (67-56-1), <5%.
Ethyl Acetate (141-78-6), <5%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. **Aspiration hazard**. Rinse mouth with cold water. Give victim 1-2 tbsp of activated charcoal mixed with 8 oz water.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

Class IB Flammable Liquid. When heated to decomposition, emits acrid fumes
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact. Material is sensitive to static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Red

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Flammable Area [Red Storage] with other flammable materials and away from any strong oxidizers. Store in a dedicated flammables cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines: Ethyl Alcohol: OSHA PEL: 1900 mg/m^3 and ACGIH TLV: 1000 ppm, STEL: N/A.

Section 9: Physical and Chemical Properties

Molecular formula	C_2H_5OH.	**Appearance**	Clear, colorless liquid.
Molecular weight	46.07.	**Odor**	alcohol .
Specific Gravity	0.790 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	1.59.	**Solubility**	Completely soluble in water.
Melting Point	-114°C.	**Evaporation rate**	3.3 *(Butyl acetate = 1).*
Boiling Point/Range	78.5°C.	**Partition Coefficient**	-0.32 *(log P_{OW}).*
Vapor Pressure (20°C)	59.3 mm Hg.	**pH**	N/A.
Flash Point:	17°C (63°F) CC.	**UEL**	3.3%.
Autoignition Temp.:	363°C (685°F).	**LEL**	19 %.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and ignition sources.
Stability: Stable under normal conditions of use.
Incompatibility: Oxidizers, nitric acid, sulfuric acid, aldehydes, halogens, peroxides, acid anhydrides, ammonia, alkali metals
Shelf life: Indefinite if stored properly.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Stinging pain, watering of eyes, inflammation of eyelids and conjunctivitis. ***Skin***: Insensitivity to pain, feel of coolness or cold, skin looks white and feels hard and cold. ***Ingestion***: Breath has sweet, organic odor, metal confusion, drowsiness, nausea, vomiting and headache. ***Inhalation***: Rapid irregular breathing, headache, fatigue, mental confusion, nausea and vomiting, giddiness and poor judgment, convulsions and death.
Chronic Effects: Repeated/prolonged skin contact may cause dryness or rashes.
Sensitization: none expected
Ethyl Alcohol: LD50 [oral, rat]; 7060 mg/kg; LC50 [rat]; 20,000 mg/l (10 hours); LD50 Dermal [rabbit]; 20 mg/24H MOD
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Toxic to aquatic and terrestrial plants and animals. Do not release into environment.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name:	Ethanol.	**Canada TDG:**	Ethanol.
DOT Hazard Class:	3, pg II.	**Hazard Class:**	3, pg II.
Identification Number:	UN1170.	**UN Number:**	UN1170.

Section 15: Regulatory Information

EINECS: Listed (200-578-6).
TSCA: All components are listed or are exempt.
WHMIS Canada: Not WHMIS controlled.
California Proposition 65: Not listed.
The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: December 21, 2011
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Formalin Aceto-Alcohol Solution

MSDS # 294.00

Section 1: Product and Company Identification

Formalin Aceto-Alcohol Solution

Synonyms/General Names: Formaldehyde - Acetic Acid - Alcohol
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Clear, colorless liquid; formaldehyde and vinegar like odor.

HMIS (0 to 4)

Health	**2**
Fire Hazard	**3**
Reactivity	**0**

WARNING! Flammable liquid and moderately toxic by ingestion, inhalation, and skin absorption. Severe body tissue irritant. Flammable liquid, keep away from all ignition sources.
Target organs: Central nervous system, eyes, liver, kidneys, heart.
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Ethyl Alcohol, 95% (64-17-5), 50%.
Acetic Acid (64-19-7), 2.5%.
Formaldehyde, 37% (50-0-0), 5.5%.
Water (7732-18-5), 42%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. **Aspiration hazard**. Rinse mouth with cold water. Give victim 1-2 tbsp of activated charcoal mixed with 8 oz water.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

Flammable Liquid. When heated to decomposition, emits acrid fumes

Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact. Material is sensitive to static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Red

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Flammable Area [Red Storage] with other flammable materials and away from any strong oxidizers. Store in a dedicated flammables cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines: Ethyl Alcohol: OSHA PEL: 1900 mg/m^3 and ACGIH TLV: 1000 ppm, STEL: N/A, Formaldehyde: OSHA PEL: 0.75 ppm, ACGIH TLV: 0.3 ppm ceiling, STEL: 0.37 mg/m^{3}ceiling, Acetic Acid: OSHA PEL: 25 mg/m^3 and ACGIH: 10 ppm TLV, 15 ppm as STEL.

Section 9: Physical and Chemical Properties

Molecular formula	Mixture.	**Appearance**	Clear, colorless liquid.
Molecular weight	N/A.	**Odor**	Formaldehyde and vinegar like odor.
Specific Gravity	0.80 g/mL @ 20°C.	**Odor Threshold**	N/A
Vapor Density (air=1)	N/A.	**Solubility**	Completely soluble in water
Melting Point	N/A.	**Evaporation rate**	N/A. *(Butyl acetate = 1).*
Boiling Point/Range	N/A.	**Partition Coefficient**	N/A. *(log P_{OW}).*
Vapor Pressure (20°C)	N/A.	**pH**	N/A.
Flash Point:	24°C (75°F) CC (ethanol).	**LEL**	3.3%.
Autoignition Temp.:	363°C (685°F) (ethanol).	**UEL**	19 %.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Stability: Stable under normal conditions of use. Avoid heat and ignition sources.
Incompatibility: Strong oxidizers, acids.
Shelf life: Fair shelf life, store in a cool, dry environment.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Stinging pain, watering of eyes, inflammation of eyelids and conjunctivitis. ***Skin***: Insensitivity to pain, feel of coolness or cold, skin looks white and feels hard and cold. ***Ingestion***: Breath has sweet, organic odor, mental confusion, drowsiness, nausea, vomiting and headache. ***Inhalation***: Rapid irregular breathing, headache, fatigue, mental confusion, nausea and vomiting, giddiness and poor judgment, convulsions and death.
Chronic Effects: Repeated/prolonged skin contact may cause dryness or rashes.
Sensitization: none expected
Ethyl Alcohol: LD50 [oral, rat]; 7060 mg/kg; LC50 [rat]; 20,000 mg/l (10 hours); LD50 Dermal [rabbit]; 20 mg/24H MOD
Formaldehyde: LD50 [oral, rat]; 100 mg/kg; LC50 [rat]; 590 mg/m^3; LD50 Dermal [rabbit]; 2 mg/24H Severe
Acetic acid: LD50 [oral, rat]; 3310 mg/kg; LC50 [rat]; >16000 (4 hour); LD50 Dermal [rabbit]; 1120 mg/kg
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Ecological impact has not been determined.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name:	Flammable Liquids, Toxic, n.o.s. (Ethanol and Formaldehyde).	**Canada TDG:**	Flammable Liquids, Toxic, n.o.s. (Ethanol and Formaldehyde).
DOT Hazard Class:	3 (6.1), pg II.	**Hazard Class:**	3 (6.1), pg II.
Identification Number:	UN1992.	**UN Number:**	UN1992.

Section 15: Regulatory Information

EINECS: Not Listed.
WHMIS Canada: Not WHMIS controlled.
TSCA: All components are listed or are exempt.
California Proposition 65: Listed as a cancer causing agent.
The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: January 20, 2012
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Ammonia (Household)

MSDS # 38.00

Section 1: Product and Company Identification

Ammonia (Household)

Synonyms/General Names: Ammonium Hydroxide Aqueous
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Cloudy, colorless liquid, strong ammonia odor

HMIS (0 to 4)

Health	2
Fire Hazard	0
Reactivity	0

WARNING! Body tissue irritant and inhalation hazard.
Target organs: Eyes, Skin, mucous membranes

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Ammonium Hydroxide (1336-21-6), 3-5% (as Ammonia). Water (7732-18-5), 95-97%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink. Induce vomiting immediately.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

Non-flammable liquid. When heated to decomposition, emits toxic fumes of ammonia and NOx.
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Contain spill with sand or absorbent material and place in sealed bag or container for disposal. Ventilate and wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Green

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in General Storage Area [Green Storage] with other items with no specific storage hazards. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with a dust cartridge. Exposure guidelines: Ammonia: OSHA PEL: 35 mg/m^3, ACGIH: TLV: 17 mg/m^3, STEL: 24 mg/m^3.

Section 9: Physical and Chemical Properties

Molecular formula	NH_3.	**Appearance**	Cloudy, colorless liquid.
Molecular weight	17.03.	**Odor**	Strong ammonia odor.
Specific Gravity	0.9616 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	0.7.	**Solubility**	Soluble in water.
Melting Point	N/A.	**Evaporation rate**	N/A *(Butyl acetate = 1).*
Boiling Point/Range	100°C.	**Partition Coefficient**	N/A *(log P_{OW}).*
Vapor Pressure (20°C)	14 mmHg.	**pH**	10, basic.
Flash Point:	N/A.	**UEL**	N/A.
Autoignition Temp.:	N/A.	**LEL**	N/A.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and moisture.
Stability: Stable under normal conditions of use and storage.
Incompatibility: Oxidizing agents, acids, halogens, heavy metals.
Shelf life: Indefinite if stored properly.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Severe eye irritant. Redness, tearing, itching, burning, conjunctivitis. ***Skin***: Redness, itching. ***Ingestion***: Irritation and burning sensations of mouth and throat, nausea, vomiting and abdominal pain. ***Inhalation***: Irritation of mucous membranes, coughing, wheezing, shortness of breath.
Chronic Effects: No information found.
Sensitization: none expected
Ammonia LD50 [oral, rat]; 350 mg/kg; LCLo [hmn]; 408 ppm; LD50 Dermal [rabbit]; N/A
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Ecological impact has not been determined.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name:	Not Regulated.	**Canada TDG:**	Not Regulated.
DOT Hazard Class:	N/A.	**Hazard Class:**	N/A.
Identification Number:	N/A.	**UN Number:**	N/A.

Section 15: Regulatory Information

EINECS: Listed (215-647-6)
TSCA: All components are listed or are exempt
WHMIS Canada: E, Corrosive materials.
California Proposition 65: Not listed
The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: January 23, 2009
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Hydrogen Peroxide, 6%

MSDS # 347.00

ScholAR Chemistry

Section 1: Product and Company Identification

Hydrogen Peroxide, 6%

Synonyms/General Names: N/A
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Clear, colorless liquid, slight odor

HMIS (0 to 4)

Health	**1**
Fire Hazard	**0**
Reactivity	**1**

WARNING! Strong oxidizing agent and body tissue irritant.
Target organs: None known.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Hydrogen Peroxide, 35% (7722-84-1), 8-9%. Water (7732-18-5), 91-92%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. ***Do not induce vomiting***. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

Oxidizing agent. When heated to decomposition, emits oxygen gas.

Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Green

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in General Storage Area [Green Storage] with other items with no specific storage hazards. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines Hydrogen Peroxide: OSHA PEL: 1.4 mg/m^3; ACGIH TLV: 1.4 mg/m^3; STEL:N/A.

Section 9: Physical and Chemical Properties

Molecular formula	H_2O_2.	**Appearance**	Clear, colorless liquid.	
Molecular weight	34.01.	**Odor**	Slight odor.	
Specific Gravity	1.01 g/mL @ 20°C.	**Odor Threshold**	N/A.	
Vapor Density (air=1)	0.7.	**Solubility**	Completely soluble in water.	
Melting Point	0°C.	**Evaporation rate**	< 1	*(Butyl acetate = 1).*
Boiling Point/Range	100°C.	**Partition Coefficient**	N/A.	*(log P_{OW}).*
Vapor Pressure (20°C)	14.	**pH**	N/A.	
Flash Point:	N/A.	**LEL**	N/A.	
Autoignition Temp.:	N/A.	**UEL**	N/A.	

Section 10: Stability and Reactivity

Avoid heat and ignition sources.
Stability: Instable, many materials will catalyze the decomposition of hydrogen peroxide to produce oxygen, water, and heat.
Incompatibility: Reducing agents, alkalis, organic materials, metals, acids, bases, metal salts, dust and dirt contaminants and flammable substances.
Shelf life: Fair shelf life, store in a cool, dry environment.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Redness, tearing, itching, burning, conjunctivitis. ***Skin***: Redness, itching. ***Ingestion***: Irritation and burning sensations of mouth and throat, nausea, vomiting and abdominal pain. ***Inhalation***: Irritation of mucous membranes, coughing, wheezing, shortness of breath.
Chronic Effects: Repeated/prolonged skin contact may cause thickening, blackening or cracking. Repeated eye exposure may cause corneal erosion or loss of vision.
Sensitization: none expected
Hydrogen Peroxide: LD50 [oral, rat]; N/A; LC50 [rat]; N/A; LD50 Dermal [rabbit]; N/A
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Toxic to beneficial microorganisms (e.g. soil and sewage treatment microorganisms). Do not release to environment.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may decomposed into water using a catalyst.

Section 14: Transport Information

DOT Shipping Name:	Not regulated by DOT.	**Canada TDG:**	Not regulated by TDG.
DOT Hazard Class:		**Hazard Class:**	
Identification Number:		**UN Number:**	

Section 15: Regulatory Information

EINECS: Listed (231-765-0).
TSCA: All components are listed or are exempt.
WHMIS Canada: Not WHMIS controlled.
California Proposition 65: Not listed.

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: December 21, 2011

Phenolphthalein Indicator Solution

MSDS # 528.00

Section 1: Product and Company Identification

Phenolphthalein Indicator Solution

Synonyms/General Names: Phenolphthalein pH Indicator Solution, 0.5, 1.0, or 2.0% alcohol solution.
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Clear, colorless mobile liquid, mild characteristic odor.

HMIS (0 to 4)

Health	**1**
Fire Hazard	**3**
Reactivity	**0**

WARNING! Alcohol based solution, flammable liquid and moderately toxic by ingestion. Contains a confirmed carcinogen. Flammable liquid, keep away from all ignition sources.
Target organs: Central nervous system, liver, kidneys, thymus, bowel, adrenal medulla.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Phenolphthalein (77-09-8), <1-2%.
Isopropyl alcohol (64-63-0), 94%-95%.
Water (7732-18-5), 3%-5%

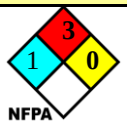
Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. **Aspiration hazard**. Rinse mouth with cold water. Give victim 1-2 tbsp of activated charcoal mixed with 8 oz water.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

Class IB Flammable Liquid. When heated to decomposition, emits acrid fumes



Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact. Material is sensitive to static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Red

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Flammable Area [Red Storage] with other flammable materials and away from any strong oxidizers. Store in a dedicated flammables cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines: Isopropyl Alcohol: OSHA PEL: 980 mg/m^3 and ACGIH TLV: 492 ppm, STEL: 984 mg/m^3, Phenolphthalein: OSHA PEL: N/A, ACGIH TLV: N/A, STEL: N/A

Section 9: Physical and Chemical Properties

Molecular formula	N/A.	**Appearance**	Clear colorless mobile liquid.
Molecular weight	N/A.	**Odor**	Mild alcohol odor.
Specific Gravity	0.786 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	2.1.	**Solubility**	Soluble.
Melting Point	N/A.	**Evaporation rate**	2.3 *(Butyl acetate = 1).*
Boiling Point/Range	N/A.	**Partition Coefficient**	N/A *(log P_{OW}).*
Vapor Pressure (20°C)	33 mm Hg.	**pH**	N/A
Flash Point:	12°C (53°F) CC.	**LEL**	2.0%.
Autoignition Temp.:	399°C (750°F) .	**UEL**	12.7%.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and ignition sources.
Stability: Stable under normal conditions of use.
Incompatibility: Strong oxidizing agents, acids.
Shelf life: Indefinite if stored properly.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Stinging pain, watering of eyes, inflammation of eyelids and conjunctivitis. ***Skin***: Insensitivity to pain, feel of coolness or cold, skin looks white and feels hard and cold. ***Ingestion***: Breath has sweet, organic odor, mental confusion, drowsiness, nausea, vomiting and headache. ***Inhalation***: Rapid irregular breathing, headache, fatigue, mental confusion, nausea and vomiting, giddiness and poor judgment, convulsions and death.
Chronic Effects: Repeated/prolonged skin contact may cause dryness or rashes.
Sensitization: none expected
Isopropyl Alcohol: LD50 [oral, rat]; 5045 mg/kg; LC50 [rat]; 16,000 mg/l (4 hours); LD50 Dermal [rabbit]; N/A
Phenolphthalein: LD50 [oral, rat]; N/A; LC50 [rat]; N/A; LD50 Dermal [rabbit]; N/A
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Toxic to aquatic and terrestrial plants and animals. Do not release into environment.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name:	Isopropanol.	**Canada TDG:**	Isopropanol.
DOT Hazard Class:	3, pg II.	**Hazard Class:**	3, pg II.
Identification Number:	UN1219.	**UN Number:**	UN1219.

Section 15: Regulatory Information

EINECS: Listed (200-661-7). **WHMIS Canada:** B2 Flammable liquid; D2B,Toxic material causing other toxic effects.
TSCA: All components are listed or are exempt. **California Proposition 65:** Listed as a cancer causing agent.

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: January 25, 2012
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Potassium Nitrate

MSDS # 579.00

Section 1: Product and Company Identification

Potassium Nitrate

Synonyms/General Names: Potash Nitrate, Saltpeter
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

White crystals, no odor.

HMIS (0 to 4)

Health	**1**
Fire Hazard	**0**
Reactivity	**2**

WARNING! Strong oxidizing agent, body tissue irritant, and slightly toxic by ingestion.
Target organs: Blood

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

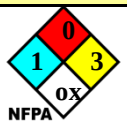
Potassium Nitrate (7757-79-1), >99%

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink. Induce vomiting immediately.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures



Strong Oxidizer. When heated to decomposition, emits acrid NOx fumes.
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Sweep up spill and place in sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Yellow

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Oxidizer Storage Area [Yellow Storage] with other oxidizers and away from any combustible materials. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with a dust cartridge. Exposure guidelines: Potassium Nitrate: OSHA PEL: Not Available, ACGIH: TLV: Not Available, STEL: Not Available.

Section 9: Physical and Chemical Properties

Molecular formula	KNO_3.	**Appearance**	White crystals.
Molecular weight	101.11.	**Odor**	No odor.
Specific Gravity	2.1 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	N/A.	**Solubility**	Soluble in water, glycerin and alcohol.
Melting Point	344°C.	**Evaporation rate**	N/A. *(Butyl acetate = 1).*
Boiling Point/Range	400 °C.	**Partition Coefficient**	N/A. *(log P_{OW}).*
Vapor Pressure (20°C)	N/A.	**pH**	N/A.
Flash Point:	N/A.	**UEL**	N/A.
Autoignition Temp.:	N/A.	**LEL**	N/A.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and ignition sources.
Stability: Stable under normal conditions of use and storage.
Incompatibility: Reducing agents and combustibles
Shelf life: Fair shelf life, slightly hygroscopic. Store in cool, dry environment.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Redness, tearing, itching, burning, conjunctivitis. ***Skin***: Redness, itching. ***Ingestion***: Irritation and burning sensations of mouth and throat, nausea, vomiting and abdominal pain. ***Inhalation***: Irritation of mucous membranes, coughing, wheezing, shortness of breath,
Chronic Effects: No information found.
Sensitization: none expected
Potassium Nitrate: LD50 [oral, rat]; 3750 mg/kg; LC50 [rat]; N/A; LD50 Dermal [rabbit]; N/A
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Ecological impact has not yet been determined.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer or trash disposal.

Section 14: Transport Information

DOT Shipping Name:	Potassium Nitrate.	**Canada TDG:**	Potassium Nitrate.
DOT Hazard Class:	5.1, pg II.	**Hazard Class:**	5.1, pg II.
Identification Number:	UN1488.	**UN Number:**	UN1488.

Section 15: Regulatory Information

EINECS: Listed (231-818-8) .
TSCA: All components are listed or are exempt.
WHMIS Canada: Oxidizing material.
California Proposition 65: Not listed.

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: January 12, 2012
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Vinegar

MSDS # 786.50

Section 1: Product and Company Identification

Vinegar

Synonyms/General Names: Acetic acid, Ethanoic acid.
Product Use: For educational use only. Not for human consumption.
Manufacturer: Various

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Clear, colorless solution with a strong vinegar odor.

HMIS (0 to 4)

Health	**1**
Fire Hazard	**0**
Reactivity	**0**

CAUTION! Body tissue irritant and slightly toxic by ingestion. Not for human consumption
Target organs: Respiratory system, eyes, skin, teeth.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Acetic Acid (64-19-7), 4-6%. Water (7732-18-5), 94-6%.

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. ***Do not induce vomiting***. Rinse mouth with cold water. Give victim 1-2 cups of water or milk to drink.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

When heated to decomposition, emits acrid fumes of carbon oxides.
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact or static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage White

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Corrosive Area [White Storage] with other corrosive items. Store in a dedicated corrosive cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines: Acetic Acid: OSHA PEL: 25 mg/m^3 and ACGIH: 10 ppm TLV, 15 ppm as STEL.

Section 9: Physical and Chemical Properties

Molecular formula	CH_3COOH.	**Appearance**	Clear, colorless liquid.
Molecular weight	60.05.	**Odor**	vinegar.
Specific Gravity	1.00 g/mL @ 20°C.	**Odor Threshold**	0.48 ppm.
Vapor Density (air=1)	N/A.	**Solubility**	Completely soluble in water.
Melting Point	N/A.	**Evaporation rate**	N/A *(Butyl acetate = 1).*
Boiling Point/Range	N/A.	**Partition Coefficient**	N/A *(log P_{OW}).*
Vapor Pressure (20°C)	N/A.	**pH**	5, acidic.
Flash Point:	N/A.	**UEL**	N/A.
Autoignition Temp.:	N/A.	**LEL**	N/A.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Stability: Stable under normal conditions of use and storage. Avoid heat and ignition sources.
Incompatibility: Oxidizing agents, metals, soluble carbonates and phosphates, hydroxides, amines, and alcohols
Shelf life: Indefinite if stored properly.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Redness, tearing, itching, burning, damage to cornea, conjunctivitis, loss of vision. ***Skin***: Redness, blistering, burning, itching, tissue destruction with slow healing. ***Ingestion***: Nausea, vomiting, burning, diarrhea, ulceration, convulsions, shock. ***Inhalation***: Coughing, wheezing, shortness of breath, headache, spasm, inflammation and edema of bronchi, pneumonitis.
Chronic Effects: Repeated/prolonged skin contact may cause thickening, blackening or cracking. Repeated eye exposure may cause corneal erosion or loss of vision.
Sensitization: none expected
Acetic acid: LD50 [oral, rat]; 3310 mg/kg; LC50 [rat]; >16000 (4 hour); LD50 Dermal [rabbit]; 1120 mg/kg
Material has not been found to be a carcinogen nor produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Not available

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Small amounts of this material may be suitable for sanitary sewer disposal after being neutralized to pH 7.

Section 14: Transport Information

DOT Shipping Name:	Not regulated by DOT.	**Canada TDG:**	Not regulated by TDG.
DOT Hazard Class:		**Hazard Class:**	
Identification Number:		**UN Number:**	

Section 15: Regulatory Information

EINECS: Listed (200-580-7).
TSCA: All components are listed or are exempt.
WHMIS Canada: Not WHMIS controlled.
California Proposition 65: Not listed.
The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: January 20, 2012
Disclaimer: Scholar Chemistry and Columbus Chemical Industries, Inc., ("S&C") believes that the information herein is factual but is not intended to be all inclusive. The information relates only to the specific material designated and does not relate to its use in combination with other materials or its use as to any particular process. Because safety standards and regulations are subject to change and because S&C has no continuing control over the material, those handling, storing or using the material should satisfy themselves that they have current information regarding the particular way the material is handled, stored or used and that the same is done in accordance with federal, state and local law. ***S&C makes no warranty, expressed or implied, including (without limitation) warranties with respect to the completeness or continuing accuracy of the information contained herein or with respect to fitness for any particular use.***

Xylene

MSDS # 791.00

Section 1: Product and Company Identification

Xylene

Synonyms/General Names: Dimethylbenzene, Xylol
Product Use: For educational use only
Manufacturer: Columbus Chemical Industries, Inc., Columbus, WI 53925.

24 Hour Emergency Information Telephone Numbers

CHEMTREC (USA): 800-424-9300 **CANUTEC (Canada): 613-424-6666**

ScholAR Chemistry; 5100 W. Henrietta Rd, Rochester, NY 14586; (866) 260-0501; www.Scholarchemistry.com

Section 2: Hazards Identification

Colorless liquid; benzene-like odor.

HMIS (0 to 4)

Health	2
Fire Hazard	3
Reactivity	0

WARNING! Flammable liquid, moderately toxic by ingestion and inhalation.
Flammable liquid, keep away from all ignition sources.
Target organs: Liver, kidneys, heart, auditory system.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Section 3: Composition / Information on Ingredients

Xylene (1330-20-7), 100%

Section 4: First Aid Measures

Always seek professional medical attention after first aid measures are provided.

Eyes: Immediately flush eyes with excess water for 15 minutes, lifting lower and upper eyelids occasionally.
Skin: Immediately flush skin with excess water for 15 minutes while removing contaminated clothing.
Ingestion: Call Poison Control immediately. **Aspiration hazard**. Rinse mouth with cold water. Give victim 1-2 tbsp of activated charcoal mixed with 8 oz water.
Inhalation: Remove to fresh air. If not breathing, give artificial respiration.

Section 5: Fire Fighting Measures

IB Flammable Liquid. When heated to decomposition, emits acrid fumes
Protective equipment and precautions for firefighters: Use foam or dry chemical to extinguish fire. Firefighters should wear full fire fighting turn-out gear and respiratory protection (SCBA). Cool container with water spray. Material is not sensitive to mechanical impact. Material is sensitive to static discharge.

Section 6: Accidental Release Measures

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove all ignition sources and ventilate area. Contain spill with sand or absorbent material and place material in a sealed bag or container for disposal. Wash spill area after pickup is complete. See Section 13 for disposal information.

Section 7: Handling and Storage Red

Handling: Use with adequate ventilation and do not breathe dust or vapor. Avoid contact with skin, eyes, or clothing. Wash hands thoroughly after handling.
Storage: Store in Flammable Area [Red Storage] with other flammable materials and away from any strong oxidizers. Store in a dedicated flammables cabinet. Store in a cool, dry, well-ventilated, locked store room away from incompatible materials.

Section 8: Exposure Controls / Personal Protection

Use ventilation to keep airborne concentrations below exposure limits. Have approved eyewash facility, safety shower, and fire extinguishers readily available. Wear chemical splash goggles and chemical resistant clothing such as gloves and aprons. Wash hands thoroughly after handling material and before eating or drinking. Use NIOSH-approved respirator with an acid/organic cartridge. Exposure guidelines: Toluene: OSHA PEL: 200 ppm, ACGIH TLV: 188 mg/m^3, STEL: 300 mg/m^3.

Section 9: Physical and Chemical Properties

Molecular formula	$C_6H_4(CH_3)_2$.	**Appearance**	Colorless liquid.
Molecular weight	106.17.	**Odor**	Benzene-like odor .
Specific Gravity	0.865 g/mL @ 20°C.	**Odor Threshold**	N/A.
Vapor Density (air=1)	3.1.	**Solubility**	Acetone, alcohol, ether.
Melting Point	-25 °C.	**Evaporation rate**	1.9 *(Butyl acetate = 1).*
Boiling Point/Range	136°C.	**Partition Coefficient**	N/A. *(log P_{OW}).*
Vapor Pressure (20°C)	22 mm Hg.	**pH**	N/A.
Flash Point:	25°C (77°F) CC.	**LEL**	1.1%.
Autoignition Temp.:	464°C (896°F).	**UEL**	7.0%.

N/A = Not available or applicable

Section 10: Stability and Reactivity

Avoid heat and ignition sources.
Stability: Stable under normal conditions of use.
Incompatibility: Oxidizing materials, organic materials, acids.
Shelf life: Indefinite shelf life, store in a cool, dry environment.

Section 11: Toxicology Information

Acute Symptoms/Signs of exposure: ***Eyes***: Stinging pain, watering of eyes, inflammation of eyelids and conjunctivitis. ***Skin***: Insensitivity to pain, feel of coolness or cold, skin looks white and feels hard and cold. ***Ingestion***: Breath has sweet, organic odor, mental confusion, drowsiness, nausea, vomiting and headache. ***Inhalation***: Rapid irregular breathing, headache, fatigue, mental confusion, nausea and vomiting, giddiness and poor judgment, convulsions and death.
Chronic Effects: Repeated/prolonged skin contact may cause dryness or rashes.
Sensitization: none expected
Xylene: LD50 [oral, rat]; 4300 mg/kg; LC50 [rat]; 500 ppm; LD50 Dermal [rabbit]; >1700 mg/24H MOD
Material has been found to be a carcinogen [IARC, Group 2B] and produce genetic, reproductive, or developmental effects.

Section 12: Ecological Information

Ecotoxicity (aquatic and terrestrial): Ecological impact has not been determined.

Section 13: Disposal Considerations

Check with all applicable local, regional, and national laws and regulations. Local regulations may be more stringent than regional or national regulations. Use a licensed chemical waste disposal firm for proper disposal.

Section 14: Transport Information

DOT Shipping Name:	Xylenes.	**Canada TDG:**	Xylenes.
DOT Hazard Class:	3, pg III.	**Hazard Class:**	3, pg III.
Identification Number:	UN1307.	**UN Number:**	UN1307.

Section 15: Regulatory Information

EINECS: Listed (203-625-9) .
TSCA: All components are listed or are exempt.
WHMIS Canada: B2, D2A, D2B: Flammable liquid, Very Toxic Material.
California Proposition 65: Listed as cancer causing.

The product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Section 16: Other Information

Current Issue Date: January 23, 2009