SAFETY DATA SHEET
Product 40-4110-XX

1. Product and Company Identification

Product Codes:	40-4110-XX
Product Name:	Cap Mix A
Product Use:	For Research Use Only
Manufacturer Information	
Company Name:	Glen Research Corporation 22825 Davis Drive, #100 Sterling, VA 20164 USA
Phone Number:	+1-703-437-6191
Web Site Address:	www.glenresearch.com
Email Address:	msds@glenres.com
Information in case of emergency	Chemtrec, 800-424-9300; Outside USA +1-703-527-3887

2. Hazards Identification

Pictograms:

Signal Words: Danger

GHS Hazard Statements

H225: Highly Flammable Liquid and Vapor.
H302+313: Harmful if swallowed, in contact with skin.
H314: Causes severe skin burns and eye damage.
H331: Toxic if inhaled.
H335: May cause respiratory irritation.

GHS Precautionary Statements

P103: Read label before use.
P210: Keep away from heat/sparks/open flames/hot surfaces – No Smoking.
P233: Keep container tightly closed.
P260: Avoid breathing fumes or vapors.
P270: Do not eat, drink or smoke when using this product.
P271: Use only in a well ventilated area.
P280: Wear protective gloves / protective clothing / eye protection / face protection.

GHS Response Statements

P301+330: IF SWALLOWED: Rinse mouth with water.
P302+350: IF ON SKIN: Gently wash with soap and water.
P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so - continue rinsing.
P306+360: IF ON CLOTHING: Rinse contaminated clothing and skin immediately with plenty of water before removing clothes.
P312: Call a POISON CENTER or doctor/physician if you fell unwell.
P362: Take off contaminated clothing and wash before use.

GHS Storage and Disposal Phrases

P403+233: Store in a well-ventilated place. Keep container tightly closed.
P501: Dispose of contents / container in a safe way in accordance with all federal, state and local regulations.

Emergency Overview

Flammable Liquid, Target organ effect, Harmful by ingestion, extremely destructive to mucous membranes and upper respiratory tract. Causes skin burns.
May form Explosive Peroxides.

Target Organs

Kidney, Liver, Central Nervous System, Bone Marrow, Eyes

3. Composition/Information on Ingredients

Product Name	CAS #	EC-No	Concentration	M.W.	Formula
Tetrahydrofuran	109-99-9	203-726-8	80%	72.11 g/mol	C_4H_8O
Acetic Anhydride	108-24-7	203-564-8	10%	102.1 g/mol	$C_4H_6O_3$
Pyridine	110-86-1	203-809-9	10%	79.1 g/mol	C_5H_5N

4. First Aid Measures

Emergency and First Aid Procedures

If inhaled:

Remove to fresh air.
If not breathing, give artificial respiration. Get medical attention.

In case of skin contact:

Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Wash clothing before reuse. Get medical attention.

If swallowed:

Rinse mouth with water. Do not induce vomiting. Get medical attention.

If in contact with eyes:

Rinse cautiously with water for several minutes. Remove contact lenses if present and safe to do so. Continue rinsing. Get medical attention.

Signs and Symptoms of Exposure

Acute exposure: Severe headache, Marked decrease in white blood cell count, Redness and inflammation of the eyes and eyelids; Coughing, Sneezing, Difficult breathing, Central Nervous System depression, Anesthetic effects, Burning sensation.

Treatment

Treat symptomatically.

5. Fire Fighting Measures

Suitable Extinguishing Media

Use a Class A Extinguisher (Dry chemical, carbon dioxide, water or foam). For large fires, apply water from as far away as possible. Use very large quantities of water applied as mist or spray. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire fighters

Wear self-contained breathing apparatus (SCBA) for fire fighting if necessary.
Wear protective clothing to prevent contact with skin and eyes.

Flammable Properties and Hazards

Highly flammable liquid and vapor. Vapor may travel distances to sources of ignition.

6. Accidental Release Measures

Personal Precautions

Avoid breathing vapors. Evacuate personnel to safe areas.

Protective equipment

Use personal protective equipment. Avoid contact with skin, eyes, and clothing.

Emergency procedures

Remove all sources of ignition. Vapors may travel distances to sources of ignition. Ensure adequate ventilation.

Methods and Material for containment and cleaning up.

Absorb spillage with sand, absorbent pads. Do not let product enter the drain. Wear impermeable gloves, safety glasses and a lab coat when cleaning up the spill. Dispose of absorbent and spillage in compliance with local and state regulations.

7. Handling and Storage

Precautions To Be Taken in Handling

Handle using safe laboratory practices. Avoid all direct contact. Use explosion proof equipment. Keep away from sources of ignition – No Smoking. Take measures to prevent the build up of electrostatic charges.

Recommended Storage

Controlled room temperature.

Precautions To Be Taken in Storing

Keep container tightly closed. Store in well-ventilated place.

Other Precautions

Protect from sunlight.

8. Exposure Controls/Personal Protection

Product Name	CAS #	OSHA PEL (TWA)	ACGIH TLV	OSHA (STEL)
Tetrahydrofuran	109-99-9	200 ppm	50 ppm	250 ppm
Acetic Anhydride	108-24-7	5 ppm	5 ppm	N/A
Pyridine	110-86-1	5 ppm	1 ppm	N/A

Engineering Controls (Ventilation etc.)

Local exhaust ventilation is usually sufficient.

Respiratory Equipment (Specify Type)

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Eye Protection

Safety glasses with side shields. Wear splash resistant goggles or face shield if splashes are likely to occur.

Protective Gloves

Impermeable, chemically resistant gloves.

Other Protective Clothing

Lab coat, chemical resistant lab coat, protective chemical suit, based on risk assessment of activities.

Work/Hygienic/Maintenance Practices

Wash hands after handling. Do not eat, drink, or smoke when using this product.

9. Physical and Chemical Properties

Physical State:	[ ] Gas [X] Liquid [ ] Solid
Appearance:	Liquid, clear to yellow color.
Odor:	Pungent, sweet, ether-like odor
Odor Threshold:	No data
pH:	No data
Melting Point:	No data
Initial Boiling Point and Boiling Range:	No data
Flash Point:	No data
Specific Gravity:	0.90 g/mL
Evaporation Rate:	No data
Flammability:	Highly flammable
Explosive Limits:	LEL: No data UEL: No data
Vapor Pressure (vs. Air or mm Hg):	No data
Vapor Density (vs. Air = 1):	No data
Solubility in Water:	Fully soluble
Partition Coefficient (n-octanol/water):	Log Pow: No data
Auto-ignition Temperature:	No data
Decomposition Temperature:	No data

Viscosity: No data
Percent Volatile: No data

10. Stability and Reactivity

Reactivity
Stable material, hazardous polymerization will not occur.
Chemical Stability: **Unstable [ ]** **Stable [X]**
Possibility of Hazardous Reactions:
Vapors may form explosive mixture with air.
Conditions To Avoid - Instability
Heat, flames, and sparks. Extremes of temperature and direct sunlight. Avoid exposure to moisture or water.
Incompatibility - Materials To Avoid
Oxidizing agents, Oxygen, Acids, Alcohols, Bases, and Powdered Metals. May attack plastics, rubber, and coatings.
Hazardous Decomposition or Byproducts
Oxides of carbon, Nitrogen Oxides, Contains BHT stabilizer

11. Toxicological Information

Route(s) of Entry:
Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes
Acute Toxicity
No data
Skin corrosion/irritation
Serious skin burns
Serious eye damage/ eye irritation
Serious eye damage
Respiratory or skin sensitization
No data available
Germ Cell mutagenicity
No data available

Carcinogenicity

Product Name	CAS #	NTP	IARC	OSHA
Tetrahydrofuran	109-99-9	Not listed	Not listed	Not listed
Acetic Anhydride	108-24-7	Not listed	Not listed	Not listed
Pyridine	110-86-1	Not listed	Group 3	Not listed

Confirmed animal carcinogen with unknown relevance to humans (Tetrahydrofuran).

Reproductive toxicity
No data available
Specific target organ toxicity – single exposure (GHS)
May cause respiratory irritation
Specific target organ toxicity – repeated exposure (GHS)
No data available
Aspiration hazard
No
Medical Conditions Generally Aggravated By Exposure
No data available.

To the best of our knowledge, the toxicological properties of this substance have not been investigated. This product should be handled with the usual care when dealing with chemicals.

12. Ecological Information

Ecotoxicity

Pimephales promelas (fathead minnow) 96-hour LC50 2,160mg/L (Tetrahydrofuran)
Leuciscus idus (Golden orfe) 48-hour LC50 265 mg/L (Acetic Anhydride)
Pimephales promelas (fathead minnow) 96-hour LC50 93.8mg/L (Pyridine)

Persistence and degradability
No data available

Bioaccumulative potential
No data available.

Mobility in soil
No data available

Other adverse effects
No data available

13. Disposal Considerations

Waste Disposal Method
Observe all federal, state and local regulations. For Contaminated Packaging - dispose of in compliance with regulations. Contact a licensed professional waste disposal service for proper disposal. Burn in a chemical incinerator equipped with afterburner and scrubber.

14. Transport Information

LAND TRANSPORT (49CFR)
UN Number – UN2924, Class 3, (8) Packing Group II
Proper Shipping Name: Flammable Liquid, Corrosive N.O.S. (Tetrahydrofuran, Acetic Anhydride Solution)
Reportable Quantity (RQ) 1000 lbs
Marine Pollutant: No
Poison Inhalation Hazard (PIH): No

AIR TRANSPORT (ICAO/IATA)
UN Number – UN2924, Class 3, (8) Packing Group II
Proper Shipping Name: Flammable Liquid, Corrosive N.O.S. (Tetrahydrofuran, Acetic Anhydride Solution)

MARINE TRANSPORT (IMDG/IMO)
UN Number – UN2924, Class 3, (8) Packing Group II, EMS-No: F-E, S-C
Proper Shipping Name: Flammable Liquid, Corrosive N.O.S. (Tetrahydrofuran, Acetic Anhydride Solution)
Marine Pollutant: No

15. Regulatory Information

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

Pyridine	110-86-1

SARA 311/312
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right to Know Components

Tetrahydrofuran	109-99-9
Acetic Anhydride	108-24-7
Pyridine	110-86-1

Pennsylvania Right to Know Components

Tetrahydrofuran	109-99-9
Acetic Anhydride	108-24-7
Pyridine	110-86-1

New Jersey Right to Know Components

Tetrahydrofuran	109-99-9
Acetic Anhydride	108-24-7
Pyridine	110-86-1

California Prop. 65 Components
Warning! This product contains a chemical known to the State of California to cause cancer.

Pyridine	110-86-1

16. Other Information

For all other inquiries about this product contact Glen Research at 1-800-327-GLEN or 1-703-437-6191.

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