

## Standard Operating Procedure (SOP)



### DIETHYL ETHER (ETHER, ETHYL ETHER)

**Effective Date:** 8/23/2013

**Revised Date:** 10/6/2022

#### Introduction

- Ether is highly volatile and extremely flammable as a liquid or vapor. It is considered one of the most dangerous fire hazards commonly used in the lab due to its volatility and extremely low ignition temperature. **Ether can form explosive peroxides.** See WORK PRACTICES for more information.

#### POTENTIAL HAZARDS

##### PROPERTIES



Liquid. Does not mix with water. Floats on water. Extremely flammable. May form explosive peroxides.

#### Health Hazards

##### HEALTH HAZARD INFORMATION


**Signal word:** **Danger**
**Hazard statement(s):**

H224 Extremely flammable liquid and vapour.  
H302 Harmful if swallowed.  
H320 Causes eye irritation.  
H336 May cause drowsiness or dizziness.  
H402 Harmful to aquatic life.

#### Personal Protective Equipment

##### EYE PROTECTION

- Safety glasses, goggles or face shields shall be worn during operations in which Diethyl ether might contact the eyes (e.g., through vapors or splashes of solution).
- Ordinary (street) prescription glasses do not provide adequate protection. Adequate safety glasses must meet the requirements of the Practice for Occupational Education Eye and Face Protection (ANSI Z87.1-1989) and must be equipped with side shields.

##### HAND PROTECTION

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- Use disposable nitrile gloves when working with chemicals. Check chemical compatibility chart for breakthrough time when using Diethyl ether.
- Laboratory personnel should thoroughly wash hands with soap and water before and immediately upon removal of gloves.

#### LAB COATS, ETC.

- Button lab coats, closed toed shoes, long pants and long sleeved clothing shall be worn when handling Diethyl ether. Protective clothing shall be worn to prevent any possibility of skin contact with Diethyl ether.

#### Work Practices

- All DIETHYL ETHER work shall be done in the laboratory fume hood.
- Never open a dented or otherwise compromised container of ether.
- Purchase ether with inhibitors added (for peroxide-forming) when possible.
- Due to its peroxide-forming hazard, ether containers shall be dated upon receipt and at the time they are opened. If tested, note the date it was tested.
- DISPOSE OF ALL ETHER AFTER ONE YEAR.
- Periodically test ether containers with peroxide test strips.
- Do not allow to evaporate to near dryness unless absence of peroxides has been shown.
- Eliminate ignition sources such as open flames, hot surfaces, steam baths, and operation of mechanical and electrical equipment that is not intrinsically safe.

#### Special Handling Procedures and Storage Requirements

##### SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



**X** — Must not be stored together

**0** — May be stored together with specific preventions

**+** — May be stored together

*Note: Depending on other risk factors, compatibility assessment based on the table above may not be relevant to storage situations, particularly where large volumes of dangerous goods are stored and handled. Reference should be made to the Safety Data Sheets for each substance or article and risks assessed accordingly.*

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#### Waste Disposal

- DO NOT open or move any ETHER container that has developed crystals at the lid. Call x3427 immediately.
- Ether must be checked for the presence of peroxides prior to removal.
- Excess DIETHYL ETHER and all waste material containing DIETHYL ETHER must be placed in a container labeled with the following **“HAZARDOUS WASTE DIETHYL ETHER”**.
- Contact EHS at x3427 for hazardous waste removal.

#### Emergency Numbers

**Emergency Numbers:**

Fire and Medical Emergencies	x5911 (911 on cell phone)
Environmental Health and Safety	x3427
FastMed Urgent Care (employees)	(336) 714-4616
Student Health (students only)	x5218
Poison Control	800-222-1222

#### First Aid

<b>Swallowed:</b>	Give water (if conscious). Seek medical advice. Do NOT give milk or oil. Do NOT give alcohol.
<b>Eye:</b>	Wash with running water.
<b>Skin:</b>	Remove contaminated clothing. Wash with soap & water.
<b>Inhaled:</b>	Fresh air. Rest, keep warm. If breathing shallow, give oxygen. Medical attention.
<b>Advice To Doctor:</b>	Treat symptomatically.

#### Spill and Accident Procedure

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#### MINOR SPILLS

- ▶ Remove all ignition sources.
- ▶ Clean up all spills immediately.
- ▶ Avoid breathing vapours and contact with skin and eyes.
- ▶ Control personal contact with the substance, by using protective equipment.
- ▶ Contain and absorb small quantities with vermiculite or other absorbent material.
- ▶ Wipe up.
- ▶ Collect residues in a flammable waste container.