

WHY IS THIS IMPORTANT?

Peroxide-forming chemicals can explode, causing death or serious injury.

Peroxide-forming chemicals such as **ethers**, **tetrahydrofuran**, and **1,4-dioxane** are widely used on campus. Storing these chemicals for extended periods of time without testing is like having a potential bomb in your laboratory.

Proper management of these chemicals can help reduce the chance of a serious accident. **We need your help to keep everyone safe.**

Chemicals that form peroxides require special care. As with any chemical – **KNOW THE HAZARDS OF THE MATERIALS YOU ARE USING.**

Here are some general recommendations for working with peroxide-forming materials:

Handling & Storage

- Purchase only an amount you expect to use within a six-month period or less.
- Apply PEC warning label upon purchase (see back of handout).
- Avoid exposure to light, air, and heat. Follow label directions for storage (e.g., need for refrigeration).
- Evaporation or distillation of peroxide-forming compounds **is not** recommended.
- If evaporation or distillation is required, use recommended procedures for these processes. **NEVER DISTILL TO A DRY RESIDUE!**



Discoloration & Layering

**DO NOT DISTURB or OPEN!
POTENTIALLY EXPLOSIVE**

Personal Protection

- **Eye Protection:** Approved safety goggles or glasses with side shields.
- **Gloves:** Nitrile or neoprene work for many of these chemicals.



- **Clothing:** Wear lab coat.
- **Ventilation:** Use in a hood with at least 100 fpm face velocity and work with the sash at the approved height.

Testing & Disposal

- Dip strips are the preferred test method for **volatile** solvents.



Quantifix™ - Peroxide test strips

- Test opened containers every six months.
- Test unopened containers on or before the expiration date.
- Record your results on the PEC warning label.
- Dispose of chemicals with ≥ 100 ppm peroxides.
- Purchase dip strips from ISU Chemistry Stores. Follow manufacturer's testing instructions.



PECs with an unknown date/age must be handled as potentially explosive.
ALWAYS DATE YOUR PECs !

Additional Information

Research activities at **Iowa State University** involving hazardous chemicals must adhere to the safety requirements defined in the ISU Laboratory Safety Manual.

All research activities at **Ames Laboratory** require approval by the Safety Review Committee.

If you are unclear regarding any of these requirements, please contact your supervisor or an EH&S or ESH&A staff member:

ISU Environmental Health & Safety: 294-5359

Ames Laboratory Environment, Safety, Health & Assurance: 294-2153

References

Laboratory Safety Manual, Environmental Health & Safety, Iowa State University, 1997.

Potentially Explosive Chemicals (PECs), Guidelines for Safe Storage and Handling, Environmental Health & Safety, Iowa State University, 2004.

WARNING! MAY FORM EXPLOSIVE PEROXIDES
THIS CHEMICAL HAS A LIMITED SHELF LIFE

Store in tightly closed original container. Avoid exposure to light, air and heat.
If any crystals, discoloration, or layering are visible, do not open.
Contact ISU EH&S (294-5359) or AL ESH&A (294-2153) for assistance.

Date received _____ Date opened _____

PEROXIDE TEST RESULTS
(If peroxides are present **DO NOT DISTILL** before treating)

Mandatory Testing Interval - 6 months

Date _____	Result _____	Initials _____
Date _____	Result _____	Initials _____

Do not use chemical if greater than 100 ppm of peroxide are detected.

Additional labels are available at Chem Stores or by calling 4-5359 or 4-2153.

DISCLAIMER: This information is not intended to replace the Material Safety Data Sheet (MSDS). Always have access to a current MSDS for each chemical.

This brochure identifies the most commonly used peroxide formers at ISU. A more comprehensive list of these materials can be found in the ISU Laboratory Safety Manual. It is the responsibility of the chemical user to be aware of the associated hazards.

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Peroxide-Forming Chemicals



Peroxide-forming chemicals can become potentially explosive chemicals (PECs).

Peroxides can develop over time, if not properly handled.

