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).**
- 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:** 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.
- **Quantofix Peroxide 100 test strips**
- Test opened containers every six months.
- Test unopened containers at 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 Chem Stores. Follow manufacturers testing instructions.
PECs with an unknown date/age have to be handled as potentially explosive. **ALWAYS DATE YOUR PECs !**

Additional Information
Research activities at Iowa State University involving hazardous chemicals must adhere to safety requirements defined in the ISU Chemical Hygiene Plan. All research activities at Ames Laboratory require approval by the Safety Review Committee. If you are unclear regarding 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

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

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**WARNING! MAY FORM EXPLOSIVE PEROXIDES**

*This chemical has a limited shelf life.*

Store in tightly closed original container. Avoid exposure to light, air or 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.

**Mandatory Testing Interval – 6 months**

**PEROXIDE TEST RESULTS**

<table>
<thead>
<tr>
<th>Date received</th>
<th>Date opened</th>
<th>PEROXIDE TEST RESULTS</th>
<th>Mandatory Testing Interval - 6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Date</td>
<td>Result</td>
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<tr>
<td></td>
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<td>Date</td>
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</table>

**Do not use chemical if > 100 ppm of peroxide are detected.**

**DISCLAIMER:** This information is not intended to replace the Material Safety Data Sheet (MSDS). Always have a current, vendor-specific, hard-copy MSDS in your lab 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 Chemical Hygiene Plan. It is the responsibility of the chemical user to be aware of the associated hazards.

**EXPLOSIVES**

**PEROXIDE FORMING CHEMICALS CAN BECOME POTENTIALLY EXPLOSIVE CHEMICALS (PECs). PEROXIDES CAN DEVELOP OVER TIME IF NOT PROPERLY HANDLED.**