



# Chemical Fact Sheet



## Peroxide Forming Chemicals - Generic Safety Fact Sheet (Diethyl Ether, *p*-Dioxane, Tetrahydrofuran, Vinyl Chloride, etc.)

Over time, peroxide forming compounds undergo an auto oxidation reaction after being exposed to atmospheric oxygen to form organic peroxides. Peroxides are unstable compounds and may detonate when subjected to shock, heat or friction. Diethyl ether, 1,4-dioxane (*p*-dioxane), tetrahydrofuran and vinyl chloride are examples of peroxide-forming chemicals; however this is not a complete list. **Laboratories working with these chemicals must dispose of them before the expiration date. Additionally, once opened, these chemicals must be tested regularly for peroxides. If old or expired peroxide-forming chemicals are discovered, costly disposal may be required. In such a case, the laboratory assumes all financial responsibility for the cost of disposal.**

### Training

Only individuals who have received proper training may use peroxide forming chemicals at the Harvard Institutes of Medicine (HIM) and New Research Building (NRB). The training shall include reading this data sheet, understanding the chemical's material safety data sheet (MSDS), and receiving appropriate instruction from the supervisor or principal investigator on laboratory procedures.

### Risks associated with the use of peroxide forming chemicals consist of:

- They can become unstable and detonate without notice if stored and/or handled incorrectly.
- Employees can be exposed to hazardous vapors.
- Many peroxide forming chemicals are very flammable.

### The Following Practices Must Be Followed Within Laboratories Using Peroxide Forming Chemicals

- Provide job-specific training to staff.
- Provide appropriate employee chemical hygiene plan (CHP) training for all work processes.
- These chemicals must be handled inside a chemical fume hood.
- Ethers rapidly permeate many types of protective gloves. Check with the HIM/NRB Environmental Health and Safety (EH&S) Office if you are unsure about which type of glove to use. Gloves may need to be changed regularly.
- Be aware of potential ignition sources in the work area.
- Do not eat, drink, smoke, chew gum, apply cosmetics, or lip balm in laboratory areas, ever.
- Wear appropriate personal protective equipment (PPE) (laboratory coat, gloves, safety glasses, and gloves)
- Call 617-432-1901 if there has been a chemical spill.
- **Peroxide-forming chemicals must be dated when received and when opened. In addition, the chemical must be inspected quarterly to ensure the peroxide former has not expired.**
- **The manufacturer and the HIM/NRB EH&S office should be consulted regarding shelf life and peroxide testing frequency.**
- **Hazardous waste vendors may not ship peroxide formers past their expiration date or if they may be unstable.**
- The HIM/NRB EH&S Office reserves the right to restrict overall quantities and use of these chemicals on an as needed basis.

### Also See:

- Peroxide forming chemical MSDS
- HIM-NRB CHP and Unstable Material Standard Operating Procedure available on the HIM/NRB EH&S Webpage: <http://www.himnrbehs.com/himnrbehs/chemicalSafety.asp>

For more information contact the HIM/NRB EH&S office, 617-432-2762.