

# Peroxides

## Types of Peroxides

- Hydrogen peroxide (we have 30% bottles), colorless at rt
- Inadvertent peroxide formation during storage
  - Ethers, acetals, ketals
  - Aldehydes
  - Compounds w/ Benzylic hydrogens
  - Compounds w/ allylic hydrogens, incl. most alkenes

## What does it do?

- Strong oxidizers, easily react w/ skin
- Reacts w/ heat and light
- Some peroxides can be explosive (shock, heat, friction)
- Direct exposure can cause eye, skin and/or respiratory irritation, as well as nausea, drowsiness, dizziness
- Swallowing is also dangerous
  - can release a lot of gas and lead to internal bloating, vomiting

## How to protect yourself?

- Fume hood, PPE, and blast shields if necessary
- If possible, buy chemicals that contain an inhibitor
- Before using a chemical, always check:
  - Identity of chemical
  - Date last opened
  - Evaporation of the chemical is known or estimated to be less than 10%
  - Container shows no visible discoloration, liquid stratification, or crystallization (around cap or in solution)
  - **Never try to force open a rusted or stuck cap on a container**

## Storage

- airtight bottles, opaque container
- avoid loose lids and ground glass stoppers
- Cool, dry, well-ventilated area in opaque container
- Away from flammable or combustible substances

### List B: Chemicals known to present peroxide hazards upon concentration (distillation/evaporation)

Suggested safe storage period: If unopened from manufacturer, up to 18 months or stamped expiration date, whichever comes first. After opening, materials should be discarded or evaluated for peroxides within 12 months.

Acetal (1,1-diethoxyethane)	2-Hexanol
Acetaldehyde	Methylacetylene
Benzyl alcohol	3-Methyl-1-butanol
2-Butanol	Methylcyclopentane
Cumene	Methyl isobutyl ketone
Cyclohexanol	4-Methyl-2-pentanol
2-Cyclohexen-1-ol	2-Pentanol
Cyclohexene	4-Penten-1-ol
Decahydronaphthalene	1-Phenylethanol
Diacetylene	2-Phenylethanol
Dicyclopentadiene	2-Propanol
Diethyl ether	Tetrahydrofuran

