

Biological and Chemical Safety Advisory Committee Peroxide Forming Compounds Policy

I. Purpose

The purpose of this policy is to limit the explosion potential created by peroxide formation in ethers and similar compounds.

II. Scope

This policy applies to all U.T. Southwestern Medical Center laboratories, clinics, and university properties.

III. Description

The following items are addressed by this policy:

1. **Container labeling:** In addition to the original manufacturer's label or secondary label, the container for all "peroxide formers" (Class I, II, and III as listed below) shall be labeled with the following:

- **WARNING PEROXIDE FORMER**
- **Date of purchase**
- **Open date (first date of opening) and,**
- **Required discard/disposal date (date that the chemical must be disposed by), based upon the following requirements.**

2. **Disposal Requirements: Group III – High Hazard**

These chemicals form explosive levels of peroxides without concentration and are a severe hazard after prolonged storage, especially after exposure to air. All items listed in Group III have been responsible for fatalities. **Discard after 3 months from opening date** via EH&S

Group III – High Hazard

Divinyl Acetylene	Isopropyl (Diisopropyl) ether	Potassium Amide
Potassium Metal	Sodium Amide	Vinylidene Chloride VI
Butadiene*	Chloroprene*	Tetrafluoroethylene*

*When stored as a liquid monomer

Group II : Concentration Peroxides

These are a peroxide hazard upon concentration (distillation or evaporation). Test for peroxide formation or discard after **12 months from open date**. If test shows peroxides are not present, the discard date can be reset to 6 months from test date, otherwise discard promptly via EH&S.

Group II – Concentration Peroxides

Acetal	Acetaldehyde	Benzyl Alcohol
Butadiene	2-Butanol	Cellosolves
Chlorofluoroethylene	Cumene	Cyclohexene
Cyclohexanol	2-Cyclohexen-1-ol	Cyclopentene
Decahydronaphthalene	Decalin	Diacetylene
Dicyclopentadiene	Diethyl Ether	DGME ¹
Diglyme	Dioxanes	Ethyl Ether
EGDE ²	EGEA ³	Furan
Glyme	4-Heptanol	2-Hexanol
Isopropyl Alcohol	Isopropyl Benzene	Methyl Acetylene
3-Methyl-1-Butanol	Methylcyclopentane	Methyl Isobutyl Ketone
4-Methyl-2-Pentanol	4-Methyl-2-Pentanone	2-Pentanol
4-Penten-1-ol	1-Phenylethanol	2-Phenylethanol
2-Propanol	Tetrahydrofuran	Tetrahydronaphthalene
Tetralin	Vinyl Ethers	Other Secondary Alcohols

¹ Diethylene Glycol Dimethyl Ether

² Ethylene Glycol Dimethyl Ether

³ Ethylene Glycol Ether Acetate

Group I: Autopolymerizers

These peroxide formers are unsaturated materials, especially those of low molecular weight, which may autopolymerize violently due to peroxide initiation. These chemicals should be stored under inert atmosphere after opening.

Test for peroxides or discard 12 months after opening. If test shows peroxides are not present, the discard date can be reset to 12 months from the test date, otherwise discard promptly via EH&S.

Group I – Autopolymerizers

Acrylic Acid	Acrylonitrile	1,3 – Butadiene*
2-Chloro-1,3-Butadiene	Chloroprene*	Chlorotrifluoroethylene
Dibenzocyclopentadiene	9,10-Dihydroanthracene	Indene
Methyl Methacrylate	Styrene	Tetrafluoroethylene*
Vinyl Acetate	Vinyl Acetylene	Vinyl Chloride
Vinylidene Chloride	Vinyl Pyridine	

*When stored as a gas.

3. Testing for Peroxides

The recommended way to test for peroxides is through semi-quantitative analysis using peroxide detection test strips, which are available from most lab equipment supply companies. If the test strip indicates a concentration above 10 ppm, the chemical cannot be used and it should be promptly sent for disposal, through EH&S. Those tests that show the presence of peroxides, below 10 ppm, should be re-tested after 6 months or per their respective Group schedule, whichever is the shorter time period.

For additional information or assistance contact EH&S, 8-2250.