

Peroxide Forming Chemicals Common to Research

Compounds that form peroxides can be extremely dangerous and may cause an explosion. Watch for crystal formation in the bottle. **DO NOT UNSCREW THE CAP!** If you do see crystal formations or if the chemical is thought to be older than six months (three months for some), call EHS (334-5013) immediately and **DO NOT TOUCH THE BOTTLE!**

Class 1 PFCs - High Hazard

Class 1 chemicals form peroxides after prolonged storage. These chemicals form explosive levels of peroxides without concentration and are severe hazards after prolonged storage, especially after exposure to air. The chemicals listed below should be **tested for the formation of peroxides on a periodic basis (3 months)**. Several methods are available to check for peroxides; the two most common are the use of peroxide test strips or the potassium iodide test. If peroxides are not present, the discard date can be reset for 3 more months, otherwise dispose promptly through EHS.

Class 1 PFCs

Butadiene (liquid monomer)	Potassium amide
Chlorobutadiene (Chloroprene) (liquid monomer)	Potassium metal
Divinyl acetylene	Sodium amide
Divinyl ether	Tetrafluoroethylene (liquid monomer)
Isopropyl ether	Vinylidene chloride

Class 2 PFCs

This group of chemicals will readily form peroxides when they become concentrated (e.g., via evaporation or distillation). The concentration process defeats the action of most auto-oxidation inhibitors. As a result, these chemicals should be tested for peroxide formation or **disposed within 12 months of receipt**. If tests show peroxides are not present, the discard date can be 6 months from the test date, otherwise dispose promptly through EHS.

Class 2 PFCs

Acetal	Cyclohexene
Acetaldehyde	Cyclohexanol
Benzyl alcohol	2-Cyclohexen-1-ol
Butadiyne (butadiene)	Cyclooctene
2-Butanol	Cyclopentene
Cellosolves	Decahydronaphthalene
Chlorofluoroethylene	Decalin
Cumene	Diacetylene

Dicyclopentadiene	Methylcyclopentane
Diethylene glycol dimethyl ether (diglyme)	Methyl isobutyl ketone
Diethyl ether	4-Methyl-2-Pentanol
Dioxane (p-dioxane)	4-Methyl-2-Pentanone
Ethyl ether	2-Pentanol
Ethylene glycol dimethyl ether (glyme)	4-Penten-1-ol
Ethylene glycol ether acetate	1-Phenylethanol
Furan	2-Phenylethanol
4-Heptanol	2-Propanol
2-Hexanol	Tetrahydrofuran
Isopropyl alcohol	Tetrahydronaphthalene
Isopropyl benzene	Tetralin
Methyl acetylene	Vinyl ethers
3-Methyl-1-butanol	

Class 3 PFCs

This group of chemicals forms peroxides due to initiation of polymerization. When stored in a liquid state, the peroxide forming potential dramatically increases. These chemicals should be disposed of **if they become degraded or are no longer needed**. Test inhibited chemicals 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 12 months from test date, otherwise dispose promptly through EHS.

Class 3 PFCs

Acrylic acid	Vinyl pyridine
Acrylonitrile	Vinylidene chloride
1,3-Butadiene	
2-Chloro-1, 3-butadiene	
Chlorobutadiene (Chloroprene)	
Chlorotrifluoroethylene	
Dibenzocyclopentadiene	
9,10-Dihydroanthracene	
Ethyl acrylate	
Indene	
Methyl methacrylate	
Styrene	
Tetrafluoroethylene	
Vinyl acetate	
Vinyl acetylene	
Vinyl chloride	