

Appendix G

Hazards of Peroxide-Forming Substances

Organic peroxides are dangerous materials. They are potentially explosive through a polymerization reaction triggered by a free-radical mechanism. Many organic peroxides are autooxidants; that is, they react with the oxygen of the air to form peroxides. Once formed, these peroxides are very sensitive to heat, and especially, shock. Simply unscrewing the cap or removing the stopper from a container of peroxide material may be sufficient to detonate it. If any of the substances listed below are used in the laboratory, any remaining material should be destroyed promptly. The shelf life of most of these substances will be listed in the MSDS. If you cannot find a good reference for the shelf life, assume it is 3 months.

Below is a list of substances that, under certain circumstances, can form dangerous peroxides.

Acetal	Isopropyl ether
Acetic acid	Methylacetylene
Acrylonitrile	Methylcyclopentane
Butadiene	Methyl iso-butyl ketone
Chlorobutadiene	Methyl methacrylate
Chlorotrifluoroethylene	Potassium
Cumene	Potassium amide
Cyclohexene	Sodium amide
Cyclooctene	Styrene
Cyclopentene	Tetrafluoroethylene
Diacetylene	Tetrahydrofuran
Dicyclopentadiene	Tetrahydronaphthalene
Diethylene glycol dimethyl ether	Vinyl acetate
Diethyl ether	Vinyl acetylene
Dioxane	Vinyl chloride
Divinyl ether	Vinyl ethers
Divinylacetylene	Vinyl pyridine
Ethylene glycol dimethyl ether	Vinylidene chloride
Furan	