

Example – Peroxide Forming Chemicals

Table 1 – Severe Peroxide Hazard

Chemicals that can spontaneously decompose, becoming explosive after exposure to air without concentration. These chemicals must be stabilized or decontaminated and discarded within 3 months of opening.

Butadiene (liquid monomer)	Isopropyl ether	Sodium amide (sodamide)
Chloroprene (liquid monomer)	Potassium amide	Tetrafluoroethylene (liquid monomer)
Divinylacetylene	Potassium metal	Vinylidene chloride

Table 2 – Concentration Hazard

These chemicals require external energy for spontaneous decomposition, forming explosive peroxides when distilled, evaporated or otherwise concentrated. These chemicals must be tested for peroxides and discarded within 6 months of opening.

Acetal	Diethylene glycol dimethyl ether (diglyme)	2-Pentanol
Acetaldehyde	Diethyl ether	4-Penten-1-ol
Benzyl alcohol	Dioxanes	1-Phenylethanol
2-Butanol	Ethylene glycol dimethyl ether (glyme)	2-Phenylethanol
Cumene	4-Heptanol	2-Propanol
Cyclohexanol	2-Hexanol	Tetrahydrofuran
Cyclohexene	Methylacetylene	Tetrahydronaphthalene
2-Cyclohexen-1-ol	3-Methyl-1-butanol	Vinyl ethers
Decahydronaphthalene	Methylcyclopentane	Other secondary alcohols
Diacetylene	Methyl isobutyl ketone	
Dicyclopentadiene	4-Methyl-2-pentanol	

Table 3 – Shock and Heat Sensitive

These chemicals are highly reactive and can autopolymerize as a result of internal peroxide accumulation. The peroxides formed in these reactions are extremely shock and heat sensitive. The liquid chemicals in this group should be tested for peroxides and discarded within 6 months of opening.

Acrylic acid	Chlorotrifluoroethylene	Vinyl acetate
Acrylonitrile	Methyl methacrylate	Vinylacetylene (gas)
Butadiene (gas)	Styrene Vinylpyridine	Vinyladiene chloride
Chloroprene	Tetrafluoroethylene (gas)	Vinyl chloride (gas)

Table 4 – Potential Peroxide Forming Chemicals

Chemicals that may form peroxides but cannot be clearly categorized in Tables 1-3.

Acrolein	p-Chlorophenetole	2,5-Hexadiyn-1-ol
Allyl ether	Cyclooctene	4,5-Hexadien-2-yn-1-ol
Allyl ethyl ether	Cyclopropyl methyl ether	n-Hexyl ether
Allyl phenyl ether	Diallyl ether	o,p-Iodophenetole
p-(n-Amyloxy)benzoyl chloride	p-Di-n-butoxybenzene	Isoamyl benzyl ether
n-Amyl ether	1,2-Dibenzoyloxyethane	Isoamyl ether
Benzyl n-butyl ether	p-Dibenzoyloxybenzene	Isobutyl vinyl ether
Benzyl ether	1,2-Dichloroethyl ethyl ether	Isophorone
Benzyl ethyl ether	2,4-Dichlorophenetole	b-Isopropoxypropionitrile
Benzyl methyl ether	Diethoxymethane	Isopropyl-2,4,5-trichlorophenoxy acetate
Benzyl-1-naphthyl ether	2,2-Diethoxypropane	n-Methylphenetole
1,2-Bis(2-chloroethoxy)ethane	Diethyl ethoxymethylenemalonate	2-Methyltetrahydrofuran
Bis(2-ethoxyethyl)ether	Diethyl fumarate	3-Methoxy-1-butyl acetate
Bis(2-(methoxyethoxy)ethyl) ether	Diethyl acetal	2-Methoxyethanol
Bis(2-chloroethyl) ether	Diethylketene	3-Methoxyethyl acetate
Bis(2-ethoxyethyl) adipate	Diethoxybenzene (m-,o-,p-)	2-Methoxyethyl vinyl ether
Bis(2-methoxyethyl) carbonate	1,2-Diethoxyethane	Methoxy-1,3,5,7-cyclooctatetraene
Bis(2-methoxyethyl) ether	Dimethoxymethane	b-Methoxypropionitrile
Bis(2-methoxyethyl) phthalate	1,1-Dimethoxyethane	m-Nitrophenetole
Bis(2-methoxymethyl) adipate	Di(1-propynyl) ether	1-Octene
Bis(2-n-butoxyethyl) phthalate	Di(2-propynyl) ether	Oxybis(2-ethyl acetate)
Bis(2-phenoxyethyl) ether	Di-n-propoxymethane	Oxybis(2-ethyl benzoate)
Bis(4-chlorobutyl) ether	1,2-Epoxy-3-isopropoxypropane	b,b-Oxydipropionitrile
Bis(chloromethyl) ether	1,2-Epoxy-3-phenoxypropane	1-Pentene
2-Bromomethyl ethyl ether	p-Ethoxyacetophenone	Phenoxyacetyl chloride
beta-Bromophenetole	1-(2-Ethoxyethoxy)ethyl acetate	a-Phenoxypropionyl chloride
o-Bromophenetole	2-Ethoxyethyl acetate	Phenyl-o-propyl ether
p-Bromophenetole	(2-Ethoxyethyl)-a-benzoyl benzoate	p-Phenylphenetone
3-Bromopropyl phenyl ether	1-Ethoxynaphthalene	n-Propyl ether
tert-Butyl methyl ether	o,p-Ethoxyphenyl isocyanate	n-Propyl isopropyl ether
n-Butyl phenyl ether	1-Ethoxy-2-propyne	Sodium 8-11-14-eicosatetraenoate
n-Butyl vinyl ether	3-Ethoxypropionitrile	Sodium ethoxyacetylde
Chloroacetaldehyde diethylacetal	2-Ethylacrylaldehyde oxime	Tetrahydropyran
2-Chlorobutadiene	2-Ethylbutanol	Triethylene glycol diacetate
1-(2-Chloroethoxy)-2-phenoxyethane	Ethyl-b-ethoxypropionate	Triethylene glycol dipropionate
Chloroethylene	Ethylene glycol monomethyl ether	1,3,3-Trimethoxypropene
Chloromethyl methyl ether	2-Ethylhexanal	1,1,2,3-Tetrachloro-1,3-butadiene
b-Chlorophenetole	Ethyl vinyl ether	4-Vinyl cyclohexene
o-Chlorophenetole	Furan	Vinylene carbonate