Environmental Health & Safety
Peroxide-Forming Chemicals List

Class A: Severe Peroxide Hazard

Spontaneously decompose and become explosive with exposure to air without concentration. These are the most hazardous and can form explosive peroxide levels even if not opened.

Test for peroxide formation before all procedures and discard within 3 months of receipt, even if unopened.

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

Class B: Concentration Hazard

Chemicals that form explosive levels of peroxides after concentration. Require external energy for spontaneous decomposition. Form explosive peroxides when distilled, evaporated or otherwise concentrated.

Test for peroxide formation before high-hazard procedures and at least every 6 months after opening. Dispose of by the expiration date or after 12 months unless testing indicates no peroxides present.

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

Class C: Shock and Heat Sensitive

Highly reactive and can auto-polymerize as a result of internal peroxide accumulation. The peroxides formed in these reactions are extremely shock- and heat-sensitive. These materials are typically stored with polymerization inhibitors to prevent the polymerization reactions.

Test for peroxide formation before high-hazard procedures and at least every 6 months after opening. Dispose of by the expiration date or after 12 months unless testing indicates no peroxides present.

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

Class D: Miscellaneous Peroxide Hazard

Chemicals that may form peroxides but cannot clearly be placed in Classes A through C.

Test for peroxide formation before high-hazard procedures and at least every 12 months after opening.

Acrolein	p-Chlorophenetole	4,5-Hexadien-2-yn-1-ol
Allyl ether	Cyclooctene	n-Hexyl ether
Allyl ethyl ether	Cyclopropyl methyl ether	o.p-Iodophenetole
Allyl phenyl ether	Diallyl ether	Isoamyl benzyl ether
p-(n-Amyloxy) benzoyl chloride	p-Di-n-butoxybenzene	Isoamyl ether
n-Amyl ether	1,2-Dibenzyloxyethane	Isobutyl vinyl ether
Benzyl n-butyl ether	p-Dibenzyloxybenzene	Isophorone
Benzyl ether	1,2-Dichloroethyl ethyl ether	b-Isopropoxypropionitrile
Benzyl ethyl ether	2,4-Dichlorophenetole	Isopropyl-2,4,5-trichlorophenoxy acetate
Benzyl methyl ether	Diethoxymethane	n-Methylphenetole
Benzyl-1-naphthyl ether	2,2-Diethoxypropane	2-Methyltetrahydrofuran
1,2-Bis(2-chloroethoxyl) ethane	Diethyl ethoxymethylenemalonate	3-Methoxy-1-butyl acetate

Bis(2-ethoxyethyl) ether	Diethyl fumarate	2-Methoxyethanol
Bis(2-(methoxyethoxy)ethyl) ether	Diethyl acetal	2-Methoxyethyl acetate
Bis(2-chloroethyl) ether	Diethylketene	3-Methoxybutyl 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-propynl) ether	1-Octene
Bis(2-n-butoxyethyl) phthalate	Di(2-propynl) 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 ethoxyacetylide
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
beta-Chlorophenetole	Ethyl vinyl ether	4-Vinyl cyclohexene
o-Chlorophenol	2,5-Hexadiyn-1-ol	Vinylene carbonate

For additional information or guidance, please contact EHS at safety@tcu.edu.