

Group A- Chemicals that form explosive levels of peroxides without concentration				
(Safe storage time after opening - 3 months)				
Chemical	CAS #	Synonym	State	Ref.
Butadiene ^(1,3)	000106-99-0	1,3-Butadiene	gas	4
Chloroprene ^(1,3)	000126-99-8	2-Chloro-1,3-butadiene	liquid	4
Divinyl acetylene	000821-08-9	1,5-Hexadien- 3-yne	liquid	5
Isopropyl ether	000108-20-3		liquid	5
Tetrafluoroethylene	000116-14-3		gas	4
Vinyl ether	000109-93-3	Divinyl ether	liquid	5
Vinylidene chloride	000075-35-4	1,1-Dichloroethylene	liquid	5

Group B-Chemicals that form explosive levels of peroxides on concentration				
(Safe storage time after opening - 12 months)				
Chemical	CAS #	Synonym	State	Ref.
Acetal	000105-57-7		liquid	5
Acetaldehyde	000075-07-0		liquid	4
Benzyl alcohol	000100-51-6		liquid	4
2-Butanol	000078-92-2		liquid	4
Cyclohexanol	000108-93-0		liquid	4
Cyclohexene	000110-83-8		liquid	5
2-Cyclohexen-1-ol	000822-67-3		liquid	4
Cyclopentene	000142-29-0		liquid	5
Decahydronaphthalene	000091-17-8		liquid	4
Diacetylene	000460-12-8		gas	5
Dicyclopentadiene	000077-73-6		liquid	5
Diethylene glycol dimethyl ether	000111-96-6	Diglyme	liquid	5
Dioxane	000123-91-1	1,4-Dioxane	liquid	5
Ethylene glycol dimethyl ether	000110-71-4	Glyme	liquid	5
Ethyl ether	000060-29-7	Diethyl ether	liquid	5
Furan	000110-00-9		liquid	5
4-Heptanol	000589-55-9		liquid	4
2-Hexanol	000626-93-7		liquid	4
Isopropyl benzene	000098-82-8	Cumene	liquid	5
Methyl acetylene	000074-99-7	Propyne	gas	5
3-Methyl-1-butanol	000123-51-3	Isoamyl alcohol	liquid	4
Methyl cyclopentane	000096-37-7		liquid	5

Methyl isobutyl ketone	000108-10-1	Methyl- <i>i</i> -butyl ketone	liquid	5
4-Methyl-2-pentanol	000108-11-2		liquid	4
2-Pentanol	006032-29-7		liquid	4
4-Penten-1-ol	000821-09-0		liquid	4
1-Phenylethanol	000098-85-1	alpha-Methyl-benzyl alcohol	liquid	4
2-Phenylethanol	000060-12-8	Phenethyl alcohol	liquid	4
Tetrahydrofuran	000109-99-9		liquid	5
Tetrahydronaphthalene	000119-64-2		liquid	5

Group C- Chemicals which may autopolymerize as a result of peroxide accumulation

(Safe storage time after opening: inhibited chemicals- 12 months; uninhibited chemicals: - 24 hours)

Chemical	CAS #	Synonym	State	Ref.
Acrylic acid ⁽²⁾	000079-10-7		liquid	5
Acrylonitrile ⁽²⁾	000107-13-1		liquid	5
Butadiene ^(1,3)	000106-99-0		gas	5
Buten-3-yne	000689-97-4	Vinyl acetylene & Butenyne	gas	5
Chloroprene ^(1,3)	000126-99-8	2-Chloro-1,3-butadiene	liquid	5
Chlorotrifluoroethylene	000079-38-9		gas	5
Methyl methacrylate ⁽²⁾	000080-62-6		liquid	5
Styrene	000100-42-5		liquid	5
Tetrafluoroethylene	000116-14-3		gas	5
Vinyl acetate	000108-05-4		liquid	5
Vinyl chloride	000075-01-4	Mono-chloroethylene	gas	5
Vinylidene chloride	000075-35-4	1,1-Dichloroethylene	liquid	5
2-Vinyl pyridine	000100-69-6		liquid	5
4-Vinyl pyridine	000100-43-6		liquid	5

Notes

1. When stored as a liquid monomer.
2. Although these form peroxides, no explosions involving these monomers have been reported.
3. Also stored as a gas in gas cylinders.
4. Kelly, R.J., Review of Safety Guidelines for Peroxidizable Organic Chemicals, Chemical Health and Safety, September/October, 1996
5. National Research Council, Prudent Practices in the Laboratory, Handling and Disposal of Chemicals; National Academy Press; Washington, D.C., 1999