Appendix E
Peroxide-Forming Chemicals

TABLE 1. COMMON PEROXIDE-FORMING COMPOUNDS

Group A- Chemicals that form explosive levels of peroxides without concentration

(Safe storage time after opening - 3 months)

Chemical Name	CAS Number	Synonym(s)
1,1-Dichloroethylene	75-35-4	Vinylidene Chloride
2-Chloro-1,3-Butadiene[1,3]	126-99-8	Chloroprene
Butadiene[1,3]	106-99-0	
Divinyl Acetylene	821-08-9	
Isopropyl Ether	108-20-3	
Tetrafluoroethylene	116-14-3	
Vinyl Ether	109-93-3	Divinyl ether

Group B-Chemicals that form explosive levels of peroxides on concentration

(Safe storage time after opening - 12 months)

Chemical Name	CAS Number	Synonym(s)
2-Butanol	78-92-2	
2-Cyclohexan-1-ol	822-67-3	
2-Hexanol	626-93-7	
2-Pentanol	6032-29-7	
3-Methyl-1-Butanol	123-51-3	Isoamyl alcohol
4-Heptanol	589-55-9	
4-Methyl-2-Pentanol	108-11-2	
Acetal	105-57-7	
Acetaldehyde	75-07-0	
alpha-Methyl-Benzyl Alcohol	98-85-1	Phenyl Ethanol
Benzyl Alcohol	100-51-6	
Cyclohexanol	108-93-0	
Cyclohexene	110-83-8	
Cyclooctene	931-87-3	
Cyclopentene	42-29-0	
Decahydronaphthalene	91-17-8	
Diacetylene	460-12-8	
Dicyclopentadiene	77-73-6	
Dioxane	123-91-1	1,4 Dioxane
Ethylene Glycol Dimethyl Ether	110-71-4	Diethylene Glycol Dimethyl Ether and Glyme

Ethyl Ether	60-29-7	Diethyl Ether
Furan	110-71-4	
Isopropyl Benzene	98-82-8	Cumene
Methylcyclopentane	96-37-7	
Methyl Isobutyl Ketone	108-10-1	
Penten-1-ol	821-09-0	
Propyne	74-99-7	Methyl Acetylene
Tetrahydrofuran	109-99-9	
Tetrahydronaphthalene	119-64-2	

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)

Note: Do not store inhibited chemicals in this group under inert atmospheres

Chemical Name	**CAS Number**	**Synonym(s)**
1,1-Dichloroethylene	75-35-4	Vinylidene Chloride
2-Chloro-1,3-Butadiene[1,3]	126-99-8	Chloroprene
Acrylic Acid [2]	79-10-7	
Acrylonitrile [2]	107-13-1	
Butadiene[1,3]	106-99-0	
Buten-3-yne	689-97-4	Vinyl acetylene & Butenyne
Chlorotrifluoroethylene	79-38-9	
Methyl Methracrylate[2]	80-62-6	
Phenethyl Alcohol	60-12-8	Phenyl Ethanol
Styrene	100-42-5	
Tetrafluoroethylene	116-14-3	
Vinyl Acetate	108-05-4	
Vinyl Chloride	75-01-4	Monochloroethylene

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.