

Peroxide-Forming Chemicals



Certain chemicals can form dangerous peroxides upon exposure to air and light. Peroxides may **detonate with extreme violence** when concentrated by evaporation or distillation, when combined with other compounds, or when disturbed by unusual heat, shock or friction. Formation of peroxides is accelerated in opened and partially emptied containers.

MAY DETONATE WITH EXTREME VIOLENCE



TABLE A

Peroxidizable Classification	Dispose or Test After* ‡
Unopened from Manufacturer	18 months
Opened Containers	
List A (in situ)	3 months
List B (upon concentration)	12 Months
List C uninhibited (autopolymerizes)	24 hours
inhibited (autopolymerizes)	12 months**
List D (other)	12 months

* Never open or test containers of unknown origin or age, or those that have evidence of peroxide formation

‡ Unless otherwise specified on the original container

**Do not store under inert atmosphere



Peroxide Testing

- Peroxide forming chemicals should be used or disposed of prior to the expiration date. If extenuating circumstances exist for keeping the chemical, routine testing is necessary.
- Visually inspect containers for crystal formation or cloudiness before opening. If either of these conditions are observed, **DO NOT OPEN** and **ALERT EHS**.
- Test strips are available from EHS.
- Any chemical that tests greater than 100ppm should be labeled as containing peroxides; please contact EHS for disposal assistance.
- All test results should be recorded directly on the container.
- Refer to **TABLE A** for testing or disposal frequency.

List A – form peroxides without concentration by evaporation or distillation

Butadiene	Divinylacetylene	Tetrafluoroethylene
Chloroprene	Isopropyl ether	Vinylidene Chloride

List B – form explosive levels of peroxides upon concentration by evaporation or distillation

Acetal	Diethyl Ether	4-methyl-2-pentanol
Acetaldehyde	Diglyme	2-Pentanol
Benzyl Alcohol	Dioxanes	4-Pentene-1-ol
2-Butanol	Glyme	1-Phenylethanol
Cyclohexanol	4-Hepitanol	2-Phenylethanol
2-Cyclohexen-1-ol	2-Hexanol	2-Propanol
Cyclohexene	Methyl Acetylene	Tetrahydrofuran
Decahydronaphthalene	3-Methyl-1-butanol	Tetrahydronaphthalene
Diacetylene	Methylcyclopentane	Vinyl Ethers
Dicyclopentadiene	Methyl Isobutyl Ketone	Other Secondary Alcohols

List C – autopolymerize as a result of peroxide accumulation

Acrylic Acid	Methyl Methacrylate	Vinylacetylene
Acrylonitrile	Styrene	Vinyl Chloride
Butadiene	Tetrafluoroethylene	Vinylpyridine
Chloroprene	Vinyl Acetate	Vinylidene Chloride
Chlorotrifluoroethylene		

List D – do not fall into the above categories, but require special handling nonetheless. Common chemicals are listed below. Contact EHS for a more extensive list.

Acrolein	Furan
Ethyl Vinyl Ether	Limonene

LABEL

PEROXIDE FORMING CHEMICAL	
Date Received	<u>10/16/2012</u> Date Opened <u>10/26/2012</u>
Date/Test Results	<u>1/26/2013 - 25ppm</u>
Date/Test Results	<u>4/26/2013 - 46ppm</u>
Date/Test Results	_____
Date/Test Results	_____
Date/Test Results	_____
Date/Test Results	_____



Princeton University
Environmental Health & Safety
ehs.princeton.edu

262 Alexander St.
Princeton, NJ 08540
609-258-5294
ehs@princeton.edu