

Peroxide Former Management

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

Labs are responsible for monitoring and testing peroxide forming chemicals. If a container does not have a documented testing record, or was mismanaged in a way that caused peroxides to form, a specialized high hazard disposal will be required to remove the chemical. *The associated costs from this special disposal will be the responsibility of the college, department, or lab.*

Safe Handling Requirements

- Purchase only the amount you will use within one year, and only purchase chemicals that are inhibited against peroxide formation.
- Choose container sizes that can be fully used within a short period of time to minimize testing and storage requirements.
- Label every container with the date received, date opened, and date last tested.
 - OEHS can provide labels for containers upon request.
- Test all peroxide formers according to the required schedule based on their classes and document each test with the date it was completed.
- Dispose of peroxide formers promptly when they have reached their expiration date.
- Never distill peroxide forming chemicals to dryness. Always leave a minimum of 20% still bottoms.

Any peroxide forming chemical with visible discoloration, crystallization, multiple layers, or a peroxide test above 25 ppm should be treated as a potential explosive.

Do not move this container – email oehs@uah.edu for immediate assistance.

Storage Requirements

- Store all peroxide forming chemicals in tightly closed, air-impermeable, light resistant containers. Keep these containers away from heat, direct sunlight, sources of ignition, oxidizers, and oxidizing agents.
- Store peroxide forming chemicals at the lowest possible temperature consistent with their solubility or freezing point to minimize the rate of decomposition. Review the SDS for any storage recommendations, which can be found in Section 7 of the SDS.
- Store peroxide forming chemicals in their original manufacturer's container whenever possible.
- Test peroxide forming chemicals as required by their classifications:

Class A: Severe Hazard	Discard within <u>3 months</u> , or within expiration date, whichever comes first.
Class B: Concentration Hazard	Discard or test for peroxides after <u>6 months</u> , dispose after 12 months, or within expiration date, whichever comes first.
Class C: Shock & Heat Sensitive	Discard or test for peroxides after <u>6 months</u> , dispose after 12 months, or within expiration date, whichever comes first.

Disposal Procedures

- Test the container you wish to dispose of for peroxides, if it passes submit it for a waste pickup in [CampusOptics](#).
- OEHS will not collect a peroxide forming chemical container without a recent peroxide test result showing peroxides are lower than 19 ppm.
- If a container has no testing record or is past the manufacturer expiration date OEHS will need to perform a hazard assessment. It is likely that this scenario will result in a high hazard disposal, which will be charged back to the laboratory that was responsible for the container.

The lists below are not exhaustive. The EPA's [CompTox Chemical Dashboard](#) contains more information on additional known peroxide forming chemicals.

Class A Peroxide Forming Chemicals: These chemicals form explosive levels of peroxides without concentration. Severe peroxide hazard after prolonged storage, especially after exposure to air.

Dispose within 3 months of receipt, even if unopened.			
Butadiene (Liquid)	106-99-0	Potassium amide	17242-52-3
Chloroprene	126-99-8	Sodium amide	7782-92-5
Divinylacetylene	821-08-9	Tetrafluoroethylene	116-14-3
Isopropyl ether	108-20-3	Vinylidene chloride	75-35-4
Potassium metal	7440-09-7		

Class B Peroxide Forming Chemicals: Peroxide hazards on concentration.
Test for peroxide formation before distillation or evaporation.

Test for peroxides at least every 6 months, dispose of after 12 months.			
Acetal	105-57-7	4-Heptanol	589-55-9
Acetaldehyde	75-07-0	2-Hexanol	626-93-7
Benzyl alcohol	100-51-6	Methyl cyclopentane	96-37-7
2-Butane	78-92-2	Methyl isobutyl ketone	108-10-1
Cumene	98-82-8	3-Methyl-1-butanol	123-51-3
Cyclohexanol	108-93-0	4-Methyl-2-pentanol	108-11-2
2-Cyclohexen-1-ol	822-67-3	Methylacetylene (gas)	74-99-7
Cyclohexene	110-83-8	Other secondary alcohols	
Decahydronaphthalene (decalin)	91-17-8	2-Pentanol	6032-29-7
Diacetylene (butadiyne, gas)	460-12-8	4-Penten-1-ol	821-09-0
Dicyclopentadiene	77-73-6	1-Phenylethanol	98-85-1
Diethyl ether (ether)	60-29-7	2-Phenylethanol	60-12-8
Diethylene glycol dimethyl ether (diglyme)	111-96-6	2-Propanol (Isopropyl alcohol)	67-63-0
Dioxane (compounds)		Tetrahydrofuran (THF)	109-99-9
Ethylene glycol ether acetates (glyme)	110-71-4	Tetrahydronaphthalene (tetralin)	119-64-2
Furan (compounds)	110-00-9	Vinyl ethers	

Class C Peroxide Forming Chemicals: Chemicals which violently auto-polymerize after internal peroxide accumulation.

Test for peroxides at least every 6 months, dispose of after 12 months.			
Acrylic acid	79-10-7	Tetrafluoroethylene (gas)	116-14-3
Acrylonitrile	107-13-1	Vinyl acetate	108-05-4
Butadiene (solid)	106-99-0	Vinylacetylene (gas)	689-97-4
Chlorobutadiene (Chloroprene)	126-99-8	Vinyl chloride (gas)	75-01-4
Chlorotrifluoroethylene (gas)	79-38-9	Vinyl pyridine	100-69-6
Methyl methacrylate	80-62-6	Vinyldiene chloride	75-35-4
Styrene	100-42-5		