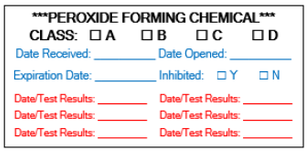
PEROXIDE-FORMING CHEMICALS (PFCs)

SPONTANEOUS DECOMPOSITION OF PEROXIDES MAY CAUSE SERIOUS INJURY OR DEATH

PFCs can undergo violent decomposition upon exposure to heat, mechanical shock, or friction. Users are recommended to purchase PFCs with inhibitors (such as BHT) whenever possible.



ISU requires all peroxide-forming chemicals to be marked with the Peroxide-Forming Chemical Label (available from Chemistry Stockroom).

Always read and understand the chemical Safety Data Sheet (SDS) before use or storage.

Scan the QR code to open the ***EHS Peroxide-Forming Chemicals Guidelines***.

Disposal of PFCs

Most common peroxide formers on ISU campus *This list is not all-inclusive		Testing More frequent testing is recommended for uninhibited PFCs	Disposal	
			Opened	Unopened
Class A Spontaneous decomposition; explosive in air	Isopropyl Ether (Diisopropyl Ether); Potassium Metal; Sodium Amide	Test within 3 months of opening, or upon expiration, then every 90 days if the PFC is retained (not recommended).	Dispose within 3 months of opening or by expiration date.	Dispose by expiration date or within 1 year of receipt.
Class B Forms peroxides when distilled or concentrated	1,4 Dioxane; 2-Butanol; Acetaldehyde; Benzyl Alcohol; Cyclohexanol; Cyclohexene; Diethyl Ether; Benzaldehyde; Isopropanol; Tetrahydrofuran (THF)	Always test Class B prior to concentration or distillation. Test within 12 months of opening, or upon expiration, then every 90 days if the PFC is retained (not recommended).	Dispose within 12 months of opening or by expiration date.	Dispose by expiration date or within 5 years of receipt.
Class C** Polymerizes to form peroxides	Acrylic Acid; Acrylonitrile; Methyl Methacrylate; Styrene			
Class D Forms peroxides but can't be classified as A-C	1,2-Dimethoxyethane; Acrolein; Chloromethyl Methyl Ether; Ethyl Vinyl Ether	Test upon expiration, then at least every 12 months if the PFC is retained (not recommended).	Dispose by expiration date.	Dispose by expiration date or within 5 years of receipt.

**Uninhibited Class C PFCs should not be stored for more than 24 hours.

Testing for Peroxides

Contact EHS immediately if you observe any of the following in your PFC container:

Cloudiness

Precipitate crystal formation appearing as chips or a solid mass

Floating wisp-like structures

Unexpected layering or other visible contamination

QUANTITATIVE TESTING AFTER VISUAL INSPECTION, COMPLETE QUANTITATIVE TESTING. IF PEROXIDES ARE DETECTED, FOLLOW THESE RECOMMENDATIONS FOR CONTINUED USE OR DISPOSAL:	
1 PPM	Okay to keep; Do not concentrate to near-dryness.
3 PPM	Okay to keep; Do not concentrate to near-dryness.
10 PPM	Okay to keep, but must now test every month; Do not concentrate to near-dryness.
>10 PPM	Get 0-25ppm test strips from Stockroom to get accurate readings; Do not concentrate to near-dryness.
≥20 PPM	**19ppm is the maximum level that the hazardous waste hauler will transport.** Combine, bulk, or inhibit/stabilize until concentration is 19ppm or less. Chemistry Stockroom has test strips that read more accurately between 0-25 ppm. Do not concentrate to near-dryness.
>20 PPM <100 PPM	Not recommended for distilling or concentrating.
≥100 PPM	DO NOT USE. Contact EHS for assistance. Additional testing may be required prior to disposal.

Avoid These Conditions to Minimize Peroxide Formation

HEAT OR CONCENTRATION

The rate of peroxide formation increases with concentration or the application of heat.

TIME

The peroxide concentration will increase slowly over time. Do not store PFCs longer than you need to or past the timelines indicated in table above.

OXYGEN

Exposure of PFC to oxygen will always enhance peroxide formation.

LIGHT

Ultraviolet light, including sunlight, promotes both peroxide formation and depletion of the inhibitor.

Environmental Health and Safety
Illinois State University

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