

Standard Operating Procedure

Peroxide-forming Chemicals

Hazard Description: Peroxide-forming chemicals are a class of materials that can form shock-sensitive and explosive peroxide crystals. When triggered by friction or shock the peroxides can explode. Peroxide-forming chemicals include solids, liquids, and gases. Peroxides form after exposure to air. The rate of peroxide formation is dependent on the specific chemical, the amount of air exposure and whether the chemical contains an inhibitor to retard peroxide formation.

Labeling: Peroxide-formers can have varying GHS pictograms depending on the substance's properties. They may or may not include the following hazard statement: "2.3 Hazards not otherwise classified (HNO) or not covered by GHS: may form explosive peroxides".

Storage: Storage of peroxide-forming chemicals must adhere to the requirements outlined in the Chemical Hygiene Plan. Peroxide formers must be stored away from light and heat in sealed airtight containers with tight, nonmetal lids. They must be assigned an expiration date based on the storage limitations for the chemical's class and be checked for peroxides every 3, 6, or 12 months depending on the substance's reactivity. Containers must be labeled with dates of receipt, opening, and every time the container is checked for peroxide concentration (see label below) so that the user can dispose of the material according to the recommendations on the MSDS.

- Class A – Chemicals that form explosive levels of peroxides without concentration. Dispose of three months after opening or before the expiration date if unopened.
- Class B – Chemicals that form explosive levels of peroxides when concentrated through distillation evaporation or exposure to air after opening. Dispose of one year after opening or before the expiration date if unopened.
- Class C – Chemicals which are a hazard due to peroxide initiation of polymerization. Dispose of one year after opening or before the expiration date if unopened.

Handling: In addition to the requirements outlined in the Chemical Hygiene Plan the following should be considered when handling PEC's.

- Immediately close all containers of peroxide-forming chemicals after use.
- Never use peroxide-forming chemicals that have expired.
- Work in a glovebox or a fume hood with sash closed as much as possible.
- Any peroxidizable chemical with visible discoloration, crystallization, multiple layers, or liquid stratification should be treated as potentially explosive. Contact EH&S immediately.
- Never distill peroxide-formers to dryness. When possible, adding a non-volatile organic compound can dilute the peroxides remaining after distillation.

Personal Protective Equipment: Reference SDS.

Spill and Decontamination: Reference SDS.

WARNING MAY FORM EXPLOSIVE PEROXIDE			
Date Received: _____		Date Opened: _____	
Use and store according to EHS guidance: http://ehs.weill.cornell.edu			
TEST RECORD (Dispose if peroxide concentration > 100 ppm)			
Test Date	Peroxides (ppm)	Test Date	Peroxides (ppm)