# Chemical Hygiene Plan Appendix F: Potential Peroxide Forming Chemicals

Peroxide formation in common laboratory chemicals is caused by an autoxidation reaction. The reaction can be initiated by light, heat, introduction of a contaminant, oxygen or the loss of an inhibitor. Some chemicals have inhibitors such as BHT (Butylated hydroxytoluene), hydroquinone, and diphenylamine to slow peroxide formation. Most organic peroxide crystals are sensitive to heat, shock, or friction, and their accumulation in laboratory chemicals has resulted in numerous explosions. For this reason it is important to identify and control chemicals which form potentially explosive peroxides.

In general, the more volatile the compound is the greater its hazard, since the evaporation of the compound allows the peroxide to concentrate. Peroxide accumulation is a balance between peroxide formation and degradation. Refer to the tables below for some common peroxide forming chemicals and testing procedures.

Follow these guidelines:

* Check each material’s SDS to determine if a chemical can form peroxides, and check for other hazards.
* Purchase the smallest amount necessary for ongoing work.
* Purchase peroxide formers with inhibitors added by the manufacturer when possible.
* Mark the container with the date it was received and the date it was opened. If tested for peroxides, note the date tested.
* Do not allow materials to evaporate to near dryness.
* Periodically test opened containers with peroxide test strips. See testing section.
  + Note: Some peroxide formers (including alkali metals and their amides) should not be tested with standard peroxide tests because they are both water and oxygen reactive.