



Guidance Document

Reactive Chemicals

[This is a brief and general summary. Read the full MSDS for more details before handling.]

Introduction: The class of reactive chemicals includes polymerizable compounds, shock sensitive materials, organic peroxides, peroxidable chemicals, air-reactive and water-reactive chemicals.

Polymerization Reactions: Polymerization is a chemical reaction in which two or more molecules of a substance combine to form repeating structural units. Some polymerization reactions may liberate uncontrolled or extreme heat. Examples include the polymerization of styrene or methacrylates.

Shock-sensitive Materials: Shock-sensitive materials are explosive and are sensitive to heat or shock. Examples include dry [picric acid](#), fulminates, dry benzoyl peroxide, ammonium perchlorate, and compounds with functional groups of acetylide, azide, diazo, nitroso, ozonide.

Organic Peroxides: Organic peroxides are often used as reaction catalysts. Peroxides tend to be unstable. Hazards are increased in contact with organic combustible material. Organic peroxides must be protected against heat, shock, friction, contamination, sources of ignition. Many organic peroxides are unstable at room temperature and should be stored under refrigeration. Follow specific manufacturer's instructions for each substance.

Peroxide-Forming Compounds: Peroxide-forming compounds are unusually susceptible to oxidation. Special storage and handling is used to minimize the formation and concentration of unstable peroxides, which could present an explosion hazard. Peroxides may be formed by reaction with oxygen in the air. This can be avoided by maintaining an inert gas atmosphere in the container's vapor space. Store these materials at low temperature and in opaque containers. Avoid concentration during

distillation or evaporation. Types of chemicals which may form peroxides include aldehydes, ethers (esp. cyclic and those derived from primary and secondary alcohol groups), compounds with benzylic H atoms, vinyl and vinylidene compounds. [Click here for more detail](#). Minimize inventory and retention time of peroxide-forming compounds.

Air-Reactive Chemicals: Air-reactive chemicals (pyrophoric compounds) can ignite spontaneously in the presence of air. Examples are diethylzinc, triethylaluminum, many organometallic compounds. Store pyrophoric materials away from other chemicals. Frequently check the integrity of containers of pyrophorics. Minimize inventory. Contact EHS if the container is corroded or damaged.

Water-Reactive Chemicals: Water-reactive materials react violently with water to create one or more of the following hazards: liberation of heat which may cause ignition of the chemical or nearby flammables; release of a flammable, toxic or oxidizing gas; release of metal oxide fumes; formation of corrosive acids. Examples of water-reactive materials include alkali metals (Li, Na, K), silanes, anhydrous aluminum chloride, anhydrides. Store water-reactive chemicals in a cabinet away from water sources, such as sinks, emergency showers and chillers.

Health Hazards: The reactive chemicals are grouped primarily because of the physical hazards associated with use and storage. The chemicals may have additional acute or chronic health effects. Be sure to read the MSDS. Contact EHS with any questions .