



Chemical Fact Sheet

Water Reactive Chemicals—Chemical Safety Fact Sheet



Many water reactive chemicals are used in research laboratories. Some of these chemicals are degraded by water but other water reactive chemicals may become *more* dangerous when exposed to moisture. **For example, potassium cyanide can react with water to form hydrogen cyanide, acetyl chloride may react with water to form hydrochloric acid, and phosphorus oxychloride can react with water to form phosphoric acid and hydrogen chloride.** As a result, these materials must be stored in a designated area of the laboratory away from moisture and segregated from incompatible materials.

Training

All laboratories working with water reactive chemicals should train laboratory members about proper storage and use. The training shall include reading this data sheet, understanding the chemical's material safety data sheet (MSDS), and receiving appropriate instruction from supervisors on laboratory procedures at the Harvard Institutes of Medicine (HIM) and New Research Building (NRB).

Hazards from Water Reactive Chemicals

- Many water reactive chemicals are also toxic or corrosive. A MSDS must be read prior to use.
- Water reactive chemicals can react with water to create more toxic or corrosive byproducts.
- Water reactive chemicals should be stored in a designated area protected from moisture. Review specific MSDS for additional storage and incompatibility information.

The Following Practices Must Be Followed Within Laboratories Using Water Reactive Chemicals

- Provide job-specific training to staff.
- Provide appropriate employee chemical hygiene plan (CHP) training for all work processes.
- Water reactive chemicals are hazardous. Exposure should be avoided with engineering controls such as a fume hood and proper chemical handling.
- Limit access to work areas with hazardous chemicals.
- Do not eat, drink, smoke, chew gum, apply cosmetics or lip balm within laboratory areas, ever.
- Wear appropriate personal protective equipment (PPE) (lab coat, gloves, safety glasses.)
- **Select a glove with the greatest resistance to the chemical being handled. If unsure, check with the glove manufacturer or call the HIM/NRB Environmental Health and Safety (EH&S) office.**
- Water reactive chemicals need to be marked "reactive" and disposed of as hazardous waste. Additional hazards should be checked off on hazardous waste tags as appropriate (e.g., corrosive, toxic).
- These chemicals should be stored together in an area away from moisture and labeled with appropriate signage. Do not store these materials on the bench-top or underneath a sink.
- Call 617-432-1901 if there has been a chemical spill.

Also See:

- Full Unstable Material Standard Operating Procedure available from the HIM/NRB EH&S office
- Water Reactive Chemical MSDS
- HIM-NRB Chemical Hygiene Plan available on the HIM/NRB EH&S Webpage:
<http://www.himnrbehs.com/himnrbehs/chemicalSafety.asp>