



ECKERD COLLEGE

Safe Operating Procedure

(2/04)

HANDLING OF WATER-REACTIVE CHEMICALS

In the presence of water, water-reactive chemicals can generate heat and flammable gases (hydrogen or acetylene). Examples of water-reactive chemicals include: alkali metals (sodium, potassium, lithium), metal hydrides, aluminum alkyls, acid anhydrides, and acid chlorides.

General safe storage and handling practices for water-reactive chemicals are listed below. Consult the Material Safety Data Sheets for specific chemicals for additional precautions and specific guidance.

- Purchase and store minimal quantities of water-reactive chemicals.
- Segregate from all other chemical classes.
- Store in a desiccated atmosphere in a protected location. Examples for storing include inside desiccators or sealed secondary containers containing desiccant (i.e. well-sealed "paint" type shipping containers, screw-top bottles, etc.). Desiccants must contain indicators so that the drying quality of the desiccant can be determined. Dry-gas glove boxes meet this standard, as do flammable liquid storage cabinets used exclusively for storing water reactive, flammable solid, and pyrophoric materials.
- Storage areas must be protected from contact with water. Cabinets under sinks or fume hoods supplied with water are not acceptable.
- If appropriate for the specific water-reactive of interest, purchase and store under oil (i.e., mineral oil). Follow the manufacturer's guidelines.
- Even when stored under oil or in a dry atmosphere, some water reactive chemicals can form peroxides over time. Inspect containers frequently for signs of bulging, visual deterioration, salt formation, or other anomalies and contact Fawn Crotty (x8447) to arrange for safe disposal of the material.
- Do not handle in the presence of water. Be especially careful in humid weather. Moisture in the air may be sufficient to initiate a reaction.

- Use a class D fire extinguisher rated for the type of metal.
- Whenever possible, conduct operations in a functional fume hood to prevent the build-up of flammable or toxic gases. Ensure that the sash is at the lowest possible height in the event of splashing or other adverse reaction.
- Finely divided powders and other high surface area water reactive formulations are generally more dangerous than their larger particle size counterparts.