UCCS SAFE OPERATING PROCEDURE

57. SAFE STORAGE AND 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 Safety Data Sheet (SDS) for additional precautions and more specific guidance.

- Minimize purchases and storage quantities of water-reactive chemicals. > Segregate from ALL other chemicals.

- Store in a desiccated (dry) atmosphere in a protected location.
  - Examples for storing include desiccators or sealed secondary containers containing desiccant (well-sealed 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, purchase/store under oil (e.g. 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 EH&S to arrange for safe disposal.

- 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 or cover with dry sand to extinguish the fire.

- 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.

Last reviewed by Cynthia Norton on December 14, 2015.