Chemistry Department
Standard Operating Procedure
Title: Reactive Liquids

Reactive liquids are chemicals that react vigorously with moisture or oxygen or other substances.

Decontamination procedures

Personnel: Wash hands and arms with soap and water immediately after handling reactive liquids.

Area: Carefully clean work area after use.

Equipment: Decontaminate vacuum pumps or other contaminated equipment (glassware) before removing them from the designated area.

Emergency procedure

Emergency procedures that address response actions to fires, explosions, spills, injury to staff, or the development of signs and symptoms of overexposure must be developed. The procedures should address as a minimum the following:

Who to contact: (University police, and Office of Environmental Health and Safety, Principal investigator of the laboratory including evening phone number)

The location of all safety equipment (showers, spill equipment, eye wash, fire extinguishers, etc.)

The location and quantity of all reactive liquids in the laboratory

The method used to alert personnel in nearby areas of potential hazards

Special first aid treatment required by the type of reactive liquids handled in the laboratory

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Eye protection

Eye protection in the form of safety glasses must be worn at all times when handling reactive liquids. Ordinary (street) prescription glasses do not provide adequate protection. (Contrary to popular opinion these glasses cannot pass the rigorous test for industrial safety glasses.) Adequate safety glasses must meet the requirements of the Practice for Occupational and Educational Eye and Face Protection (ANSI Z.87.1 1989) and must be equipped with side shields. Safety glasses with side shields do not provide adequate protection from splashes; therefore, when the potential for splash hazard exists other eye protection and/or face protection must be worn.

Eyewash

Where the eyes or body of any person may be exposed to reactive liquids, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use. Bottle type eyewash stations are not acceptable.

Fume hood

Many reactive liquids will ignite or liberate combustible gas when exposed to water vapor or air. The use of a fume hood is recommended to prevent the buildup of flammable gases.

Glove (dry) box

A glove box may be used to handle reactive liquids if an inert or dry atmosphere is required.

Gloves

Gloves should be worn when handling reactive liquids. Disposable latex or nitrile gloves provide adequate protection against accidental hand contact with small quantities of most laboratory chemicals. Lab workers should contact the departmental storeroom for advice on

chemical resistant glove selection when direct or prolonged contact with hazardous chemicals is anticipated.

Hazard assessment

Hazard assessment of work involving reactive liquids should address proper use and handling techniques, fire safety (including the need for Class D fire extinguishers), storage, the specific reactive nature of the material (such as water and air reactivity), and waste disposal issues.

Protective apparel

Lab coats, closed toed shoes and long sleeved clothing should be worn when handling reactive liquids. Additional protective clothing should be worn if the possibility of skin contact is likely.

Safety shielding:

Safety shielding is required any time there is a risk of explosion, splash hazard or a highly exothermic reaction. All manipulations of reactive liquids that pose this risk should occur in a fume hood with the sash in the lowest feasible position. Portable shields, which provide protection to all laboratory occupants, are acceptable.

Safety shower:

A safety or drench shower should be available in a nearby location where the reactive liquids are used.

Signs and labels:

Containers: All reactive liquids must be clearly labeled with the correct chemical name. Handwritten labels are acceptable; chemical formulas and structural formulas are not acceptable.

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Special storage

Reactive liquids should be stored in a cool and dry location. Keep reactive liquids segregated from all other chemicals in the laboratory. Minimize the quantities of reactive liquids stored in the laboratory.

Date all containers upon receipt. Examine storage containers frequently. Dispose of any container that exhibits salt build up on its exterior. Dispose of all reactive liquids whenever they are no longer required for current research.

Never return excess chemicals to the original container. Small amounts of impurities introduced into the container may cause a fire or explosion.

Special ventilation

Special ventilation may be required if these materials are used outside a fume hood. If your research does not permit the handing of reactive liquids in a fume hood you must consult with the Principle Investigator to review the adequacy of proposed ventilation.

Spill response

Anticipate spills by having the appropriate clean up equipment on hand. The appropriate clean up supplies can be determined by consulting the material safety data sheet. This should occur prior to the use of any reactive liquids. Spill control materials for reactive liquids are designed to be inert and will not react with the reagent.

In the event of a spill alert personnel in the area that a spill has occurred. Do not attempt to handle a spill of reactive liquids. Turn off all ignition sources and vacate the laboratory immediately. Call for assistance.

- Office of Environmental Health & Safety 335-3041 or 911
- University Police 911
- This is a 24-hour service.

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Remain on the scene, but at a safe distance, to receive and direct safety personnel when they arrive.

Waste disposal

All materials contaminated with reactive liquids should be disposed of as hazardous waste. Contact the chemistry department storeroom to dispose of wastes. See the Waste Disposal SOP for collection, storing, submitting and labeling instructions.

These wastes may pose a flammability risk and should not remain in the open laboratory overnight.