

Water Reactive Chemicals

Last Reviewed: June 2022

Water reactive chemicals are materials that may react violently with aqueous solutions or atmospheric moisture to produce a flammable or toxic gas and heat. Typical gases produced are: H₂, CH₄ and other low molecular weight hydrocarbons.



Personal Protective Equipment & Personnel Monitoring



Lab Coat

Flame resistant lab coat



Gloves

Nitrile or neoprene gloves typically provide adequate protection against minor splashes. Consult with your PI or supervisor to determine whether any materials involved in your process require alternative hand protection.



Eye Protection

ANSI Z87.1-compliant safety glasses or safety goggles if a splash hazard is present

Labeling & Storage

Store upright & tightly closed in a desiccator, glove box, or some other dry place away from water/humid environments, heat sources, and any other chemically incompatible material. Many chemicals that fall within this class are incompatible with most other hazard classes so it is advisable to keep them away from all other chemicals (aside from compatible pyrophoric chemicals). These materials should not be stored near any water source such as a sink, safety shower, eyewash, or out in the open on a lab bench if the laboratory has sprinkler heads. Consult the safety data sheet for additional storage compatibility information. Many water reactive chemicals will come from the manufacturer in plastic bags or metal cans; it is best to keep the reagents inside of these secondary containers. It is also strongly recommended to keep the items in sealed secondary containers if they must be kept in refrigerators or freezers

Engineering Controls, Equipment & Materials

Glove Box

Work under an inert atmosphere (e.g. argon, nitrogen) in a glove box.

Fume Hood

If a glove box is unavailable or impractical, work in a chemical fume hood away from any water sources. If the use of a fume hood is impossible or impractical, please contact the Office of Research Safety (ORS) to determine whether additional respiratory protection is required.



Housekeeping

Spills

Notify others in the area. Please refer to the Spill Control Guidelines for additional information.

Decontamination

Avoid using water. Please review the chemical Safety Data Sheets for guidance on cleaning specific materials.

Any waste from this chemical class should be disposed of through the UGA Hazardous Waste Program. For assistance with arranging a waste pickup, you may contact the Environmental Safety Division (ESD) at 706-542-5801. Prior to pickup, any container used to hold hazardous waste should be labeled with the following:

- "Hazardous Waste"
- Chemical contents: Enough detail should be provided so that the full contents of the container are readily apparent. Labeling may include any of the following:
 - Percentages (Ex: 70% water, 30% hydrochloric acid)
 - Volumes (Ex: 1L of acetone, 500mL of water)
 - Chemical classes (Ex: halogenated solvents)
 - Method (Ex: EPA 515.1 Herbicide Extraction Solvent Waste)
 - Referenced Log (Ex: See Laboratory Waste Log, Volume 2)
 - Utilizing Chematix waste profiles
 - Any other labeling method providing enough detail to accomplish this requirement
- One or more of the following waste characteristics recognized by EPA: Ignitable, Corrosive, Reactive, or Toxic.

Waste



First Aid & Emergencies

Fire	DO NOT use water to put out fire, instead use a dry chemical Class ABC or Class BC fire extinguisher. Class D extinguishers may be necessary in some cases.
Skin or Eye Contact	Remove contaminated clothing and accessories and wipe any particles from skin immediately; flush affected area with water for at least 20 minutes Get medical attention. For eye contact, flush with water for 20 minutes. Get medical attention.
Inhalation	Move person into fresh air. If not breathing, give artificial respiration. Get medical attention.
Ingestion	Do not induce vomiting. Rinse mouth with water. Get medical attention.

Contacts

Office of Research Safety: 706-542-5288
Environmental Safety Division: 706-542-5801