STANDARD OPERATING PROCEDURE - WATER REACTIVE CHEMICALS

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| **CONTACT INFORMATION** | | | |
| **Location** | Building: | | Room: |
| **Street Address:** |  | | |
| **Lab Safety Contact:** | Name: | | |
| Lab Phone: | Office Phone: | |
| **Emergency Contact** | Name: | Phone: | |
| **TYPE OF STANDARD OPERATING PROCEDURE** | | | |
| Indicate which type of Standard Operating Procedure applies  Specific Process or Equipment  Specific Hazardous Chemical  Hazard Class for a Group of Chemicals: Water Reactive Chemicals | | | |
| **DESCRIBE PROCESS/EQUIPMENT, HAZARDOUS CHEMICAL or HAZARD CLASS** | | | |
| Water reactive materials are materials that, by contact with water, are liable to become spontaneously flammable or to give off flammable or toxic gas at a rate greater than 1 liter per kilogram of the material, per hour, when tested in accordance with the UN Manual of Tests and Criteria. Common water reactive chemicals include (but are not limited to) sodium, potassium, lithium metals, and aluminum alkyls. | | | |
| **HAZARD SUMMARY** | | | |
| Water reactive chemicals are dangerous because they undergo a chemical reaction with water that may release a flammable or toxic gas. In addition, the heat generated on contact with water may cause it to spontaneously combust or explode. Hazard assessment of work involving water reactive chemicals should address proper use and handling techniques, fire safety (including the need for Class D fire extinguishers), storage (protection from water), and waste disposal. Not all risks can be eliminated from work with hazardous chemicals, but a thorough hazard assessment will help in mitigating the risks. Do not begin work with a water reactive chemical unless you have been adequately trained in proper handling and emergency procedures. | | | |
| **SPECIAL HANDLING AND STORAGE REQUIREMENTS** | | | |
| Water reactive chemicals should never be allowed to come into contact with water except under carefully controlled conditions, otherwise there may be a fire or explosion. Water reactive chemicals should be stored in a cool and dry location, under an inert atmosphere or under kerosene as appropriate. Do not store with flammable materials or flammable liquids. Avoid contact with skin, eyes, and clothing. Keep water reactive chemicals segregated from all other chemicals in the laboratory. Minimize the quantities of water reactive chemicals stored in the laboratory. Date all containers upon receipt. Examine storage containers frequently. Keep all containers tightly sealed and stored upright to avoid leakage. Dispose of any container that exhibits salt build up on its exterior. Dispose of all water reactive chemicals whenever they are no longer required for current research. Never return excess chemicals to the original container. Small amounts of impurities may be introduced into the container which may cause a fire or explosion. | | | |
| **ENGINEERING AND VENTILATION CONTROLS** | | | |
| Many water sensitive chemicals will liberate hydrogen when they react with water. The use of a fume hood is recommended to prevent the buildup of combustible gases. A glove box may be used to handle water sensitive chemicals when a dry atmosphere is required. The room in which water reactive chemicals are used should be well ventilated. Locate the nearest fire-extinguisher (class D) before beginning work. Emergency eyewash and safety shower must be available. | | | |
| **PERSONAL PROTECTIVE EQUIPMENT** | | | |
| **PPE Requirements:**  Long pants or clothing that covers all skin below the waist  Shoes that cover the entire foot  Gloves; indicate type: Heavy chemical resistant gloves (neoprene, butyl, or flame resistant). See the chemical glove compatibility chart to choose appropriate chemical resistant gloves specific to the chemical being used.  Gloves must be clean and dry.  Safety goggles: Wear chemical safety goggles when using small quantities or safety glasses or chemical safety goggles with face shield when using large quantities or when a splash potential exists.  Safety glasses  Face shield: Safety shielding is required any time there is a risk of explosion, splash hazard or a highly exothermic reaction.  Lab coat: Long-sleeved clothing should be worn when handling water reactive chemicals.  Flame-resistant lab coat: Wear a fully buttoned, flame-resistant lab coat (Nomex material or equivalent) with sleeves extended to the wrists.  Other: Click here to enter text.  If the use of an N95, half mask, or full-face respirator is requested, the individual and/or their supervisor must first contact Environmental Health & Safety for a consultation to determine if respirator use is necessary. If EH&S determines the use of a respirator is necessary, the individual must participate in the University’s respirator program. This includes a medical evaluation, respirator fit test, and training. | | | |
| **EMERGENCY PROCEDURES** | | | |
| In case of fire or large and/or extremely hazardous chemical releases pull the fire alarm and evacuate the area. A class (D) fire extinguisher should be kept readily available.  If someone is seriously injured or unconscious  **CALL 911 or CAMPUS POLICE AT <enter your campus PD #>**  From a safe place, provide as much information as possible to the emergency responders including chemical name, volume, hazards, injuries, and location.  **Chemical Exposure**: Remove any contaminated clothing, and IMMEDIATELY flush contaminated skin with water for at least 15 minutes following any skin contact. For eye exposures, IMMEDIATELY flush eyes with water for at least 15 minutes. Consult SDS for guidance on appropriate first aid. In case of ingestion, DO NOT induce vomiting unless directed otherwise by the SDS. Never give anything by mouth to an unconscious person. Rinse mouth with water.  **Evacuation Procedure**   * Immediately evacuate the building via the nearest exit when the fire alarm is activated. * If unable to evacuate due to a disability, shelter in the area of rescue / refuge, typically a stairwell landing, and wait for assistance from drill volunteers or emergency responders. * Instruct visitors and students to evacuate and assist them in locating the nearest exit. * Do not use elevators to exit the building during an evacuation as they may become inoperable. * Carry only those personal belongings that are within the immediate vicinity. * Close doors to limit the potential spread of smoke and fire. * Terminate all hazardous operations and power off equipment. * Close all hazardous materials containers. * Remain outside of the building until the building is released for reentry. * Do not restrict or impede the evacuation. * Convene in the designated grassy gathering area and await instruction from emergency responders or drill volunteers. Avoid parking lots. * Report fire alarm deficiencies, (e.g., trouble hearing the alarm) to facilities personnel for repair. * Notify evacuation drill volunteers or emergency responders of persons sheltering in the areas of rescue/ refuge. * **Never assume that an alarm is a “false alarm”. Treat all fire alarm activations as emergencies. Get out of the building!**   **Incident and Near Miss Reporting**: Report any incident that occurs in any University of South Florida affiliated teaching or research laboratory/studio or field research project. An incident means any unplanned event within the scope of a procedure that causes, or has the potential to cause, an injury or illness and/or damage to equipment, buildings, or the natural environment. Due to medical privacy concerns, no personal identifying information of the person involved in the incident shall be entered or submitted with the form. <https://www.usf.edu/administrative-services/environmental-health-safety/reporting/>  **Workers’ Compensation Procedure:** Call AmeriSys at 800-455-2079 to report a work-related injury or illness. Complete the Supervisor’s Accident Investigation Report available at the link above and send it to EH&S within 24 hours. | | | |
| **WASTE DISPOSAL** | | | |
| All chemical waste generated within USF System laboratories is considered hazardous waste and must be disposed of as hazardous waste in accordance with the USF Hazardous Waste Management Procedure, the U.S. EPA, and the FDEP. The USF Hazardous Waste Management Procedure can be found using the following link. <https://www.usf.edu/administrative-services/environmental-health-safety/documents/hazwaste-managementprocedure.pdf> | | | |
| **TRAINING REQUIREMENTS** | | | |
| All individuals working with chemicals in USF laboratories must take EH&S’s Laboratory & Research Safety Training. To register for Laboratory & Research Training, please use the following link. <https://www.usf.edu/administrative-services/environmental-health-safety/training/course-descriptions.aspx#labsafety>  This procedure may warrant additional safety training per the PI, EH&S, or an authorizing unit such as the Biosafety or Radiation Safety programs. Check training requirements for this activity below:  Research Specific Training from the PI/Lab Supervisor or their designee  EH&S Laboratory & Research Safety Training  EH&S Safety and Compliance in the Arts  EH&S Respirator Fit Test  EH&S Biomedical Waste  EH&S Universal Pharmaceutical Waste Testing  EH&S Fire Prevention Safety  EH&S Slips, Trips, and Falls  RIC Biosafety Core Course  RIC Shipping Biohazardous Materials  RIC BSL 3  RIC Radiation Safety  RIC Laser Safety  RIC Boating Safety  RIC Scientific Diving  Other:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **PRIOR APPROVALS** | | | |
| This activity requires prior approval from the PI/designee.  If this box is checked, working alone is not allowed. | | | |

By signing and dating here the Principal Investigator or a designee certifies that the Standard Operating Procedure (SOP) for ***<Water Reactive>*** is accurate and effectively provides safe standard operating procedures for employees and students in this lab who will handle this hazardous chemical.

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Signature Printed Name Date

I affirm that I have read and understand the Standard Operating Procedure for ***\_<Water Reactive>*** *and* have undergone the EH&S Laboratory & Research training and any lab specific training regarding this SOP.

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| Printed Name | Signature | Date |
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