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| STANDARD OPERATING PROCEDURE-TETRAHYDROFURAN | | | |
| **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 | | | |
| **DESCRIBE PROCESS/EQUIPMENT, HAZARDOUS CHEMICAL or HAZARD CLASS** | | | |
| **Tetrahydrofuran** (C4H8O or (CH2)4O), THF, Oxolane, Butylene oxide, Tetramethylene oxide, 1,4-epoxybutane | | | |
| **HAZARD SUMMARY** | | | |
| Tetrahydrofuran (THF) appears as a clear colorless liquid with an ethereal odor. It is less dense than water but its vapors are heavier than air. It is a member of oxolanes, a saturated organic heteromonocyclic parent, a cyclic ether and a volatile organic compound. Being [polar](https://en.wikipedia.org/wiki/Polar_molecule) and having a wide liquid range, THF is a versatile [solvent](https://en.wikipedia.org/wiki/Solvent). THF is highly flammable both as a liquid and vapor. THF is suspected of causing cancer. Symptoms of overexposure to THF include headache, dizziness, tiredness, nausea, and vomiting (central nervous system depression). THF may cause respiratory and eye irritation and is harmful if swallowed. THF must not be kept for longer than six months as it may form explosive peroxides on prolonged storage.  **Inhalation:** Remove person to fresh air and loosen tight clothing if needed. Give artificial respiration if necessary. Consult a doctor/medical service.  **Skin Contact:** Wash immediately with water (15 minutes)/shower. Remove contaminated clothing. Consult a doctor/medical service if skin irritation persists.  **Eye Contact:** Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a doctor/medical service.  **Ingestion:** Rinse mouth with water and drink plenty of water after exposure. Never give anything by mouth to an unconscious person. Immediately consult a doctor/medical service. | | | |
| **SPECIAL HANDLING AND STORAGE REQUIREMENTS** | | | |
| **Precautions:**  Avoid contact with skin, eyes, and clothing. Avoid ingestion and inhalation. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. If peroxide formation (crystallization) is suspected, do not open or move container – call EH&S immediately at 813-974-4036.  **Storage:**  Store in a cool, ventilated location away from acids or in a designated flammable cabinet. Keep container tightly sealed and away from heat and sources of ignition. Do not store for longer than six months as it may form explosive peroxides on prolonged storage. | | | |
| **ENGINEERING AND VENTILATION CONTROLS** | | | |
| The room where the chemical is being used should be equipped with proper exhaust ventilation to keep the airborne concentration below the allowable exposure limit. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Use explosion-proof electrical, ventilating, and lighting equipment and non-sparking tools. Take precautionary measures against static discharges. | | | |
| **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: Nitrile rubber  Inspect gloves before use. Use proper glove removal technique to avoid skin contact with outer surface of glove. Wash hands after removing gloves.  Safety goggles  Safety glasses  Face shield  Lab coat  Flame-resistant lab coat  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  If someone is seriously injured or unconscious  **CALL 911 or CAMPUS POLICE AT (813)-974-2628**  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. Where medical attention is required, bring the SDS(s) of chemical(s) to aid medical staff in proper diagnosis and treatment.  **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.  <http://www.usf.edu/administrative-services/environmental-health-safety/reporting/index.aspx>  **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 Safety Training. To register for Laboratory Safety 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 Safety Training  EH&S Hazard Communication  EH&S Hazardous Waste Awareness and Handling  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 ***Tetrahydrofuran*** 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***Tetrahydrofuran*** 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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