STANDARD OPERATING PROCEDURE-PERCHLORIC ACID

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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 [x]  Specific Hazardous Chemical[ ]  Hazard Class for a Group of Chemicals |
| **DESCRIBE PROCESS/EQUIPMENT, HAZARDOUS CHEMICAL or HAZARD CLASS** |
| **Perchloric Acid** **Formula:** HClO4**CAS Number:** 7601-90-3**Other Names:** Hyperchloric acid |
| **HAZARD SUMMARY** |
| Concentrated perchloric acid is a strong oxidizer. May cause fire or explosion if mixed with organic compounds. It is highly corrosive, causing severe burns. It is harmful if swallowed or inhaled.**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 and shoes. Continue to rinse for at least 10 minutes. Get medical attention.**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 immediately.**Ingestion:** Immediately consult a doctor/medical service. |
| **SPECIAL HANDLING AND STORAGE REQUIREMENTS** |
| **Precautions:**Avoid contact with skin, eyes, and clothing. Keep away from sources of ignition. Avoid heat, sparks, shock or friction. Wash hands before breaks and immediately after handling the product. Always add acid to water for dilutions. Perchloric acid that becomes discolored should be disposed of.**Storage:**Store in secondary containment. Keep container tightly closed in a cool, dry, and well-ventilated area or in a designated corrosives storage cabinet. Opened containers must be carefully resealed and kept upright to prevent leakage. Keep away from acetic acid, acetic anhydride, alcohols, aniline, bismuth, combustible material, dehydrating agents, hydrochloric acid, oxidizers, and organic materials. |
| **ENGINEERING AND VENTILATION CONTROLS** |
| For concentrations less than 72%, handle only in a chemical fume hood. For higher concentrations or when heating or mixing with strong dehydrating chemicals use a specialized perchloric acid fume hood with a water wash down. 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.  |
| **PERSONAL PROTECTIVE EQUIPMENT** |
| **PPE Requirements:** [x]  Long pants or clothing that covers all skin below the waist[x]  Shoes that cover the entire foot[x]  Gloves; indicate type: Nitrile Inspect gloves before use. Use proper glove removal technique to avoid skin contact with outer surface of glove. Wash hands after removing gloves.[x]  Safety goggles [ ]  Safety glasses[ ]  Face shield [x]  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 <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. 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:[x] Research Specific Training from the PI/Lab Supervisor or their designee[x] EH&S Laboratory Safety Training [ ] EH&S Hazard Communication[x] EH&S Hazardous Waste Awareness and Handling[ ] EH&S Respirator Fit Test[ ] EH&S Biomedical Waste[ ] EH&S Hazardous Waste Pharmaceutical Training[ ] 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 ***Perchloric Acid*** 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***Perchloric Acid*** 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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