**Standard Operating Procedures**

Laboratory Specific

**Chemical:** **Potassium Hydroxide**

Please fill out the form completely.  Print a copy and insert into your

 *Laboratory Safety Manual and Chemical Hygiene Plan*.

Refer to instructions for assistance.

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Department:\_­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_                     Date when SOP was written: \_\_\_\_\_\_\_\_\_

Date when SOP was approved by the lab supervisor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Principal Investigator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Internal Laboratory Safety Coordinator/Lab Manager: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Laboratory Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Office Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Emergency Contact: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

                                    *(Name and Phone Number)*

Location(s) covered by this SOP: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

                                                *(Building/Room Number)*

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**Type of SOP:** Process Hazardous Chemical Hazardous Class

**Purpose**

KOH is highly basic, forming strongly alkaline solutions in water and other polar solvents. These solutions are capable of deprotonating many acids, even weak ones. Potassium hydroxide is used in neutralization reactions to yield many potassium salts. KOH works well in the manufacture of biodiesel by transesterification of the triglycerides in vegetable oil. Aqueous potassium hydroxide is employed as the electrolyte in alkaline batteries based on nickel-cadmium and manganese dioxide-zinc.

**Physical & Chemical Properties/Definition of Chemical Group**

CAS# 1310-58-3

Class: **Corrosive, Water-Reactive**

Molecular Formula: KOH

Form (Physical State): White solid

Boiling Point: 1320OC

Melting point: 361OC

**Potential Hazards/Toxicity**

Harmful through inhalation or skin absorption, Destructive to the Tissue or the Mucous Membranes and Upper Respiratory Tract, Causes Burns to the Skin and Eyes, Toxic through Ingestion, Causes Severe Digestive Tract Burns with Abdominal Pain, Vomiting and Possible Death

Acute toxicity

Oral LD50 [rat] 273 mg/kg

**Personal Protective Equipment (PPE)**

**Respirator protection**

Please use potassium hydroxide in a chemical fume hood at all times. When a respirator is the sole means of protection, use a full-face supplied air respirator.

Respirators should be used only under any of the following circumstances:

* As a last line of defense (i.e., after engineering and administrative controls have been exhausted).
* When Permissible Exposure Limit (PEL) has exceeded or when there is a possibility that PEL will be exceeded.
* Regulations require the use of a respirator.
* An employer requires the use of a respirator.
* There is potential for harmful exposure due to an atmospheric contaminant (in the absence of PEL)
* As PPE in the event of a chemical spill clean-up process

Lab personnel intending to use/wear a respirator mask must be trained and fit-tested by ORS and should contact occhealt@uga.edu. This is a UGA requirement described in more detail in the [UGA Respiratory Protection Plan](https://esd.uga.edu/sites/default/files/respiratoryprotection.pdf) and supported by the [Office of Research Occupational Health and Safety Program](https://research.uga.edu/ohsp/).

**Hand protection**

Neoprene, nitrile or butyl rubber gloves are recommended. Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with Potassium Hydroxide.

Refer to glove selection chart from the links below:

<http://www.ansellpro.com/download/Ansell_8thEditionChemicalResistanceGuide.pdf>

OR

<http://www.allsafetyproducts.biz/page/74172>

OR

<http://www.showabestglove.com/site/default.aspx>

OR

<http://www.mapaglove.com/>

**Eye protection**

When handling the chemical, wear safety glasses and a face shield.

**Skin and body protection**

Lab personnel working with the chemical need to wear full-length pants or its equivalent, closed-toe footwear with no skin being exposed, and a lab coat.

**Hygiene measures**

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

**Engineering Controls**

Work with this chemical in a certified ducted fume hood. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**First Aid Procedures**

**If inhaled**

Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing immediately. Wash off with soap and plenty of water for 15 minutes. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Continue to wash eyes during transport to the hospital.

**If swallowed**

Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Special Handling and Storage Requirements**

**Precautions for safe handling**

Wash thoroughly after handling. Use with adequate ventilation. Do not allow water to get into the container because of violent exothermic reaction. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids. Keep away from water. Keep away from metals. Keep away from flammable liquids. Keep away from organic halogens. Absorbs CO2 from the air.

**Spill and Accident Procedure**

**Chemical Spill Dial 911**

**24-7 On-Call Response to Research, Environment, Health or Safety Concerns Dial 2-5561 from a campus phone or 706-542-5561 from a non-campus line.**

**Spill** – Follow the procedures set out in the [UGA Chemical and Laboratory Safety Manual.](http://research.uga.edu/docs/units/safety/manuals/Chemical-Laboratory-Safety-Manual.pdf)

[If there are any chemical-specific protocols for responding to a spill, insert them here or mark “none”:]

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# **Medical Emergency Dial 911**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** or the emergency phone numbers listed at the beginning of the UGA Chemical and Laboratory Safety Manual

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Non-Life Threatening Emergency** – Follow the instructions in the UGA Chemical and Laboratory Safety Manual.

*Note: All incidents that result in an injury or property damage must be reported to ORS / ESD using a University Incident/Accident Report.*

**Decontamination/Waste Disposal Procedure**

**For general hazardous waste disposal procedures, see Appendix H of the UGA Chemical and Laboratory Safety Manual.**

**Chemical Specific Procedures: [to be inserted or marked as “none”]**

Wearing proper PPE, please decontaminate equipment and bench tops using soap and water. Please dispose of the spent potassium hydroxide and disposables contaminated with potassium hydroxide as hazardous waste.

**Safety Data Sheet (SDS) Location**

UGA personnel can access Online SDS through a link in the upper left corner of the ESD home page (<https://esd.uga.edu>) and logging in by using their UGA email user name and password.

**Protocol/Procedure**

(Add specific description of procedure)

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work with Potassium Hydroxide, designated personnel must provide training to his/her laboratory personnel specific to the hazards involved in working with this substance, work area decontamination, and emergency procedures.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP and access to the SDS provided by the manufacturer.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last 12 months.

I have read and understand the content of this SOP:

**Name Signature Date**

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