Standard Operating Procedure

Potassium chlorate

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and insert into your
*Laboratory Safety Manual* and *Chemical Hygiene Plan*.
Refer to instructions for assistance.

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| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Type of SOP:** [ ]  Process [x] Hazardous Chemical [ ]  Hazardous Class

**Purpose**

Potassium chlorate is an **oxidizer** and **toxic** by inhalation or ingestion. Keep away from clothing or combustible materials.

Should be handled with extreme care, Will spontaneously ignite in the presence of combustible material. Keep away from sulfuric acid.

Harmful to the skin, mucous membranes and respiratory system. Harmful or fatal by ingestion, inhalation or skin absorption.

Has a variety of uses in pyrotechnics, medicine, and agriculture. Its decomposition is used to produce oxygen.

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

CAS#: 3811-04-9

Class: **Toxic**

Molecular Formula: KClO3

Form (physical state): solid

Color: white

Boiling point: N/A

**Potential Hazards/Toxicity**

Potassium chlorate is an **oxidizer** and **toxic** by inhalation or ingestion. Keep away from clothing or combustible materials.

Should be handled with extreme care, Will spontaneously ignite in the presence of combustible material. Keep away from sulfuric acid.

Harmful to the skin, mucous membranes and respiratory system. Harmful or fatal by ingestion, inhalation or skin absorption. Targeted organs include the blood, liver, and kidney.

Potassium chlorate has the following acute toxicity data:

Oral LD50 Oral - rat - 1,870 mg/kg

**Personal Protective Equipment (PPE)**

**Respirator Protection**

Use a full-face respirator with multi-purpose combination (US) respirator cartridges as a backup to engineering controls.

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 EH&S. This is a regulatory requirement. (<http://map.ais.ucla.edu/go/1004655>)

**Hand Protection**

Gloves must be worn. Use proper glove removal technique to avoid any skin contact. Nitrile gloves recommended.

NOTE: Consult with your preferred glove manufacturer to ensure that the gloves you plan on using are compatible with Potassium chlorate.

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**

ANSI approved properly fitting safety glasses or chemical splash goggles. Face shield is also recommended.

**Skin and Body Protection**

Flame resistant lab coats must be worn and be appropriately sized for the individual and buttoned to their full length. Laboratory coat sleeves must be of sufficient length to prevent skin exposure while wearing gloves. As outlined in UCLA Policy 905 personnel should also wear full length pants, or equivalent, and close-toed shoes. Full length pants and close-toed shoes must be worn at all times by all individuals that are occupying the laboratory area. The area of skin between the shoe and ankle should not be exposed.

**Hygiene Measures**

Wash thoroughly and immediately after handling. Remove any contaminated clothing and wash before reuse.

**Engineering Controls**

Handle using a chemical fume hood with good ventilation and electrically grounded lines and equipment.

**First Aid Procedures**

**If inhaled**

Move into the fresh air immediately and give oxygen. If not breathing give artificial respiration. Seek medical attention immediately.

**In case of skin contact**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash any contaminated clothing before reuse. Thoroughly clean shoes before reuse. Seek medical attention immediately.

**In case of eye contact**

Check for and remove any contact lenses. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Seek immediate medical attention and continue eye rinse during transport to hospital.

**If swallowed**

Do NOT induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

**Special Handling and Storage Requirements**

Precautions for safe handling: Avoid contact with skin and eyes and inhalation. Keep away from sources of ignition. Avoid heat and shock or friction when handling.

Conditions for safe storage: Flammable materials should be stored in a separate safety storage cabinet or room. Keep container tightly closed in a cool, dry, and well-ventilated. Keep away from incompatible materials and conditions. Store in original container. Store away from heat sources and in a flame proof area. Keep cool and protect from sunlight.

**Spill and Accident Procedure**

**Chemical Spill Dial 911 and x59797**

**Spill** – Assess the extent of danger. Help contaminated or injured persons. Evacuate the spill area. Avoid breathing vapors. If possible, confine the spill to a small area using a spill kit or absorbent material. Keep others from entering contaminated area (e.g., use caution tape, barriers, etc.).

**Small (<1 L)** – If you have training, you may assist in the clean-up effort. Use appropriate personal protective equipment and clean-up material for chemical spilled. Double bag spill waste in clear plastic bags, label and take to the next chemical waste pick-up.

**Large (>1 L)** – Dial **911** (or 310-825-1491 from cell phone) and EH&S at x59797 for assistance.

**Chemical Spill on Body or Clothes** – Remove clothing and rinse body thoroughly in emergency shower for at least 15 minutes. Seek medical attention. *Notify supervisor and EH&S at x59797 immediately.*

**Chemical Splash Into Eyes** – Immediately rinse eyeball and inner surface of eyelid with water from the emergency eyewash station for 15 minutes by forcibly holding the eye open. Seek medical attention. *Notify supervisor and EH&S at x59797 immediately.*

# **Medical Emergency Dial 911 or x52111**

**Life Threatening Emergency, After Hours, Weekends And Holidays** – Dial **911** (or 310-825-1491 from cell phone) or contact the Ronald Reagan UCLA Medical Center (emergency room) directly at **x52111** (located at 757 Westwood Plaza, enter from Gayley Avenue). *Note: All serious injuries must be reported to EH&S at* ***x59797*** *within 8 hours.*

**Non-Life Threatening Emergency** – Go to the Occupational Health Facility (OHF), **x56771,** CHS room 67-120(This is on the 6th floor, 7th corridor, room 120. Enter through the School of Dentistry on Tiverton Drive and proceed to the “O” elevator to the 6th floor.)Hours: M - F, 7:30 a.m. to 4:30 p.m. At all other times report to Ronald Regan UCLA Medical Center (emergency room) at **x52111**. *Note: All serious injuries must be reported to EH&S at x59797 within 8 hours.*

**Needle stick/puncture** **exposure** (as applicable to chemical handling procedure) – Wash the affected area with antiseptic soap and warm water for 15 minutes. For mucous membrane exposure, flush the affected area for 15 minutes using an eyewash station. Page the needle stick nurse by dialing **231** from a campus phone, enter **93333** when prompted and then enter your extension. Hours: M – F, 8:00 a.m. to 4:00 p.m. At all other times report to Ronald Regan UCLA Medical Center (emergency room) at **x52111**. *Note: All needle stick/puncture exposures must be reported to EH&S at x59797 within 8 hours.*

**Decontamination/Waste Disposal Procedure**

Use proper personal protective equipment for chemical and properly dispose chemical and contaminated disposables as hazardous waste following the guidelines below.

*General hazardous waste disposal guidelines:*

**Label Waste**

* Affix an on-line hazardous waste tag on all waste containers using the Online Tag Program <http://otp.ucop.edu/> as soon as the first drop of waste is added to the container

**Store Waste**

* Store hazardous waste in closed containers, in secondary containment and in a designated location
* Double-bag dry waste using transparent bags <http://map.ais.ucla.edu/go/1002774>
* Waste must be under the control of the person generating & disposing of it

**Dispose of Waste**

* Dispose of regularly generated chemical waste within 90 days
* Call EH&S at x61887 for questions
* Empty Containers
* Dispose as hazardous waste if it once held extremely hazardous waste (irrespective of the container size) <http://ehs.ucla.edu/Pub/ExtremelyHazardousWaste.pdf>
* Consult waste pick-up schedule <http://ehs.ucla.edu/pub/HazWaste%20Pickup%20Schedule.pdf>

Prepare for transport to pick-up location

* Check on-line waste tag
* Write date of pick-up on the waste tag
* Use secondary containment

**Safety Data Sheet (SDS) Location**

Online SDS can be accessed at [http://msds.ehs.ucla.edu](http://msds.ehs.ucla.edu/).

**Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**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 chlorate, 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 a copy of 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 one year.

I have read and understand the content of this SOP:

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