

STANDARD OPERATING PROCEDURE FOR POTASSIUM HYDROXIDE



USC University of
Southern California

NATURE OF HAZARD

NOTE: This SOP only covers Potassium Hydroxide (KOH) and does NOT cover other corrosives.

Potassium Hydroxide is corrosive and produce injury through contact with any internal or external part of the body, including skin, eyes, mucous membranes, mouth, throat, lungs, and digestive tract. Potassium Hydroxide injury manifests at the site of contact.

DIRECT ACTING + THERMAL BURN

Potassium Hydroxide can dissolve in water to create heat on reaction with skin. The temperature rise may be sufficient to produce thermal burn damage as well as chemical damage. However, immediate drenching with water (e.g. using a safety shower/eyewash) is still recommended for removing water reactive corrosives as sufficient water will overwhelm thermal effects. Any delay caused by trying to remove contamination using non-aqueous methods will likely result in more severe injury.

HAZARD IDENTIFICATION

Classification and identification of corrosives, including Potassium Hydroxide, is covered in detail in Section 6 of the CHP. Further details of the OSHA/GHS classification, with examples, may also be found in Appendix G of the CHP. All personnel who agree to abide by this SOP are required to familiarize themselves with the contents of Section 6 of the CHP.

WORK PRACTICES

A number of bases produce large temperature rises on dissolving in water (sodium hydroxide, potassium hydroxide) or reacting with water (CaO, SrO, BaO). When mixing a base with water, always add base to water with stirring and caution.

PREPARATION

- Do not handle Potassium Hydroxide while working alone in the cleanroom area.
- Remove hand and wrist jewelry. Do not wear contact lens (Contact lens are not permitted in the cleanroom).
- Identify the locations of safety equipment (Eyewash and Shower station, Hazardous Waste Container, Emergency buttons and Phones).
- Save DPS emergency line 213-740-4321 into personal phone.
- Read the Safety Guideline and Material Safety Data Sheet for Potassium Hydroxide
- Wear all appropriate PPE (Safety Goggles, Two layers of nitrile gloves, Long Butyl gloves over nitrile gloves). A splash shield may be required for experiments involving large quantities of chemicals or splash hazards.
- Ensure an adequate supply of clean-up material is within reach in case of spills.
- Ensure an appropriate waste container is accessible to dispose contaminated clean-up material.
- For more hazardous work involving Potassium Hydroxide, restrict access to work area with sign labelled "Warning – Corrosive – Base".

- Use only the minimal amounts of Potassium Hydroxide. Potassium Hydroxide must be handled under a fume hood.
- Clearly label all containers with any liquids, including containers with water. Place containers with Potassium Hydroxide into secondary polypropylene container while not in use.
- Labels must include User Name, Group (PI) Name, Contact Email or Phone Number, Chemical Name, and Chemical Formula.

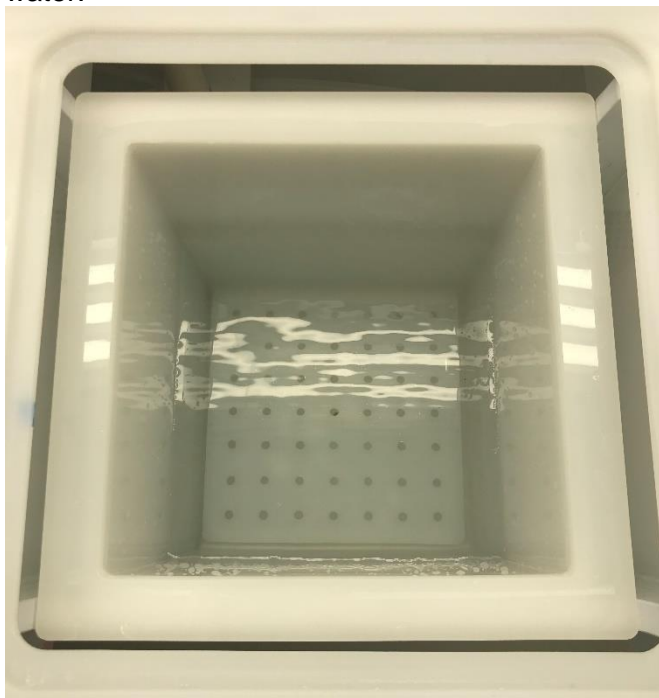
STORAGE REQUIREMENT

Potassium Hydroxide should be stored in cool, dry well-ventilated areas below eye level, away from sunlight in an upright and tightly closed manner. Concentrated acids and bases should be stored in dedicated cabinets in appropriate secondary containment (e.g. polypropylene trays). Separate cabinets should be used to segregate acids from bases, segregate organic from inorganic acids, segregate oxidizing acids from reducing/flammable/combustible acids, and segregate organic from inorganic bases. If there is lack of space, separate secondary containment within the same cabinet may separate incompatible materials provided excessive hazard is not thereby created; EH&S can advise on a case-by-case basis.

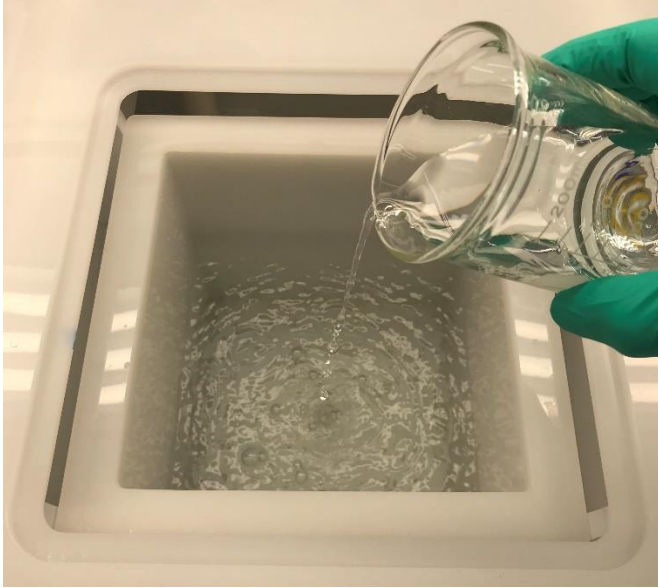
Please refer to the CHP (Section 7) for detailed requirements and recommendations for appropriate acid and base storage.

DILUTING POTASSIUM HYDROXIDE

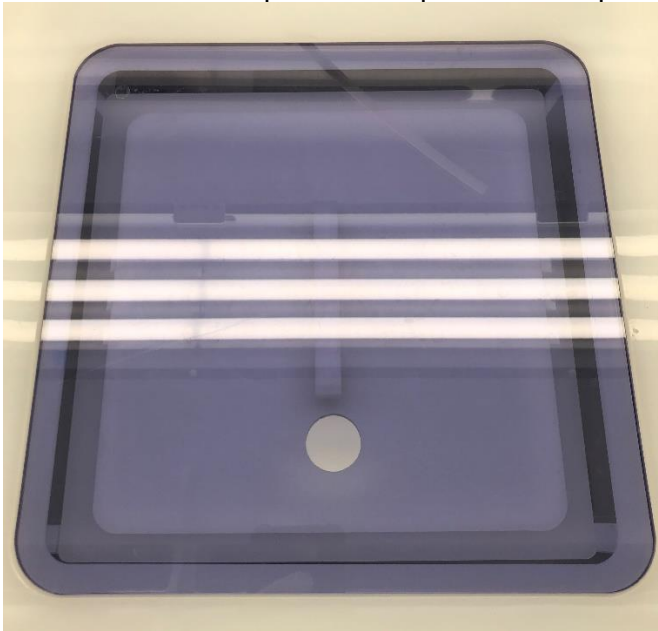
- Remove the two lids covering the large drain compartment of the fumehood.
- Use a large beaker to fill the large drain compartment of the fumehood to halfway with DI water.



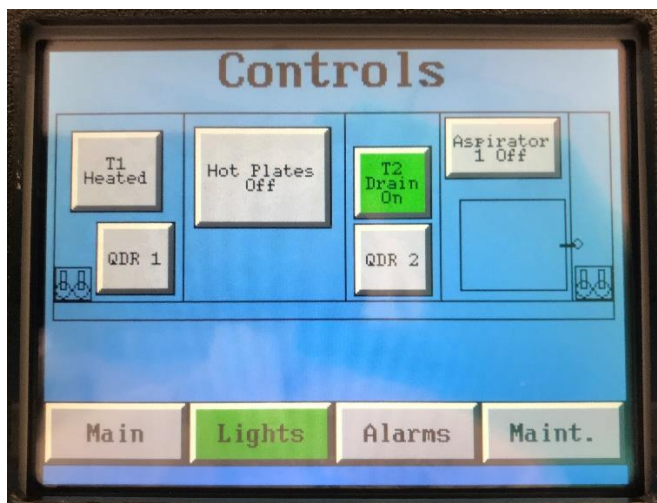
- Slowly pour the liquid Potassium Hydroxide waste into the large drain compartment filled halfway with DI water.



- Close the drain compartment to prevent the liquids from splashing up during draining process.



- Push the Drain On button in the UI for the large drain compartment number in use. The button will turn green to indicate it is draining.



- Allow the large drain compartment to continue draining until bubbles or air suction noises can be heard.
- Push the Drain On button in the UI again to turn off the drain.
- Open the large drain compartment to ensure all liquids have drained.
- Close the large drain compartment.

WASTE DISPOSAL

- Wash all beakers and cylinders used in handling.
- Wipe down and dry all surfaces.
- Ensure stock bottles are cleaned before transporting to chemical cabinets.
- Dispose of neoprene gloves into bags labelled “Corrosive Wastes” found in Yellow Waste Containers.
- Inspect reusable PPEs for holes and tears.
- Remove and return PPEs to storage racks.

SKIN AND EYE EXPOSURE

- For skin exposure, immediately flush with cool water for a minimum of 15 minutes. Remove contaminated clothing and footwear while rinsing.
- For eye exposure, forcibly hold eyes open and flush for at least 15 minutes. Continue flushing area with water if pain continues.
- Do not use neutralizing chemicals, creams, abrasives, or lotions.
- Contact DPS and alert cleanroom staff.

INHALATION EXPOSURE

- Move to location with fresh air.
- Obtain medical attention immediately if symptoms develop (coughing, shortness of breath, wheezing, burning in mouth or throat, or chest pain).
- Alert cleanroom staff and call DPS for medical assistance.

INGESTION

- Alert cleanroom staff and call DPS for medical assistance.
- If possible, determine what material was ingested by victim.
- If victim begins to vomit, turn head or entire body to one side to avoid choking.
- Do not induce the victim to vomit or drink any beverage unless instructed to by qualified medical personnel.

ACCIDENTAL SPILLS

Chemical spill clean-up shall not be attempted if lab personnel do not have proper training and experience, necessary spill kit supplies, and/or appropriate personal protective equipment. Before starting work, review the Spill Response and Clean-Up web page and Section 10 of the CHP. All personnel operating under this SOP shall familiarize themselves with this information and shall re-review these references at least annually.

Please refer to the EH&S Chemical Spill Kit Guide Sheet for guidance on appropriate spill kit materials.

Call DPS for all spills, even if they get cleaned up by lab personnel. DPS will pass information to the EH&S and Hazmat on-call system. If needed, trained staff will be sent to the lab to clean and decontaminate the spill. If lab personnel clean the spill themselves, notification should still be made as lab safety specialists may wish to follow up with a routine safety investigation.

Spills posing a respiratory hazard SHALL NOT be cleaned by lab personnel. Evacuate the area, restrict access, call DPS.

UNATTENDED EXPERIMENTS

- Chemicals may not be left unattended for more than 15 minutes.
- For unattended experiments longer than 15 minutes, notify cleanroom staff to get permission.
- The maximum time for unattended chemicals is one hour.
- Unattended chemicals require displayed signage at fume hood.
- The sign must contain the hazards of the experiment, the experimenter's name and contact information, responsible PI's name and contact information, expected date and time of disposal.
- For more information on unattended hazardous experiments, please refer to the [Unattended Hazardous Operations Fact Sheet](#).

EMERGENCY NOTIFICATION

- Notify the Department of Public Safety (DPS) at (213) 740-4321 or (323) 442-1000. For a non-emergency, dial (213) 740-6000.
- State the nature of the emergency (e.g., injury, hazardous materials or biohazards spill, fire) and provide details.
 - a) Location of injury/incident
 - b) Name(s) of injured and name(s) of witness(es)
 - c) Contact information (your name and call-back number)
 - d) Injury/incident summary

- Notify EH&S immediately at (323) 442-2200 or injuryprevention@usc.edu to report the injury/incident.
- Notify the cleanroom staff and your supervisor.

References

- [SOP – CORROSIVES | USC Environmental Health & Safety](#)
- [Chemical Hygiene Plan](#)

Contributors	Revised Date
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