

Potassium Hydroxide – Heated Operating Procedure

Updated on 11/27/2018 by IC

Warnings and Notes

- Potassium Hydroxide (KOH) is a corrosive liquid; it can burn your flesh, eyes, lungs, and mucous membranes.
- You must read its safety data sheet (SDS) before you use the solution; the SDSs are available in the yellow binders located in the cleanroom, on the UNDF-Tools shared drive, and in the “Current Users” section of the website (udnf.udel.edu).
- Use only glass beakers for KOH.
- KOH may only be used in the short plastic wet bench in Bay 1 of the UDNF cleanroom.
- You must have a safety buddy to use KOH. The safety buddy does not have to stand by you, nor wear the PPE listed in this document. However, the safety buddy: (1) must be present in the cleanroom at all times while you use KOH and while you clean up and (2) must check on you at least every 10 minutes.
- You must log into the “Chem – Potassium Hydroxide” tool in FOM before you start work and log out once you are done using the chemical. You must make reservations in advance in FOM.
- Identify the closest eye wash and safety shower before you start work.
- You must report all chemical spills and exposures to UDNF staff.
- KOH may be used only during staffed hours (typically 08:30-17:00, M-F while the University is open). Unstaffed hours will be announced via email and will be posted on the UNDF Calendar in FOM.
- You should expect to find the working area clean and dry and are required to leave the working area clean and dry. Please ask for staff assistance as needed.

- You may not leave the solution unattended while inside the hot water bath.

Emergency Procedures

- In case of **skin contact**: Flush the affected area(s) while removing all contaminated clothing with large amounts of water for at least 15 minutes. Seek immediate medical attention.
- In case of **eye contact**: Flush the affected eye(s) with large amounts of water for at least 15 minutes. Seek immediate medical attention.
- In case of **inhalation**: Remove the exposed person to fresh air – only if it is safe to do so. Seek medical attention for symptoms such as respiratory irritation, cough, or tightness of chest; please keep in mind that symptoms may be delayed.

Personal Protective Equipment and Tools

- In addition to the normal UDNF cleanroom suit, the following safety PPE must be worn when handling KOH:
 - Chemical apron
 - Face shield
 - Heavy duty chemical resistant gloves
- The PPE must be inspected before you start any work:
 - If the chemical resistant gloves have any cracks, tears, holes, etc. please do not use them; ask staff for a new pair of gloves.
 - If the apron is not completely dry, please do not use it; please notify staff.
- Only use plastic tweezers or the blue locking forceps when working with KOH.

Use Procedure

- Identify your safety buddy.
- Inspect PPE; if anything is not right with the PPE, please **STOP** and notify UDNF staff.
- If the water bath is not at the appropriate temperature, please notify staff.
- Log into “Chem – Potassium Hydroxide” tool in FOM. Enter the name of your safety buddy in the “Comment” section of the pop up window.
- Bring the following beakers into the wet bench:
 - Glass beaker to pour the solution in
 - Glass beaker to rinse your sample(s) in
- Use one of the pre-formatted labels available in the file folder in Bay 1 to write the name of the chemicals that are part of the solution and their mixing ratios, date and time, your name, and contact info.
- Bring a number of cleanroom wipers into the wet bench and separate them; you will need them to dry the chemically resistant gloves if they get wet and to clean up when you are done using the chemicals.
- Attach your sample(s) to blue locking forceps and place them in the wet bench.
- Put on the additional PPE in the following order:
 - Apron
 - Face shield
 - Chemical resistant gloves
- Fill a glass beaker with DI water for rinsing your sample(s).
- Move the bottle with fresh chemical from the gray bin located under the wet bench into the wet bench. Use both hands to carry the bottle.
- Dispense the necessary amount of KOH solution into the glass beaker.
- Place the bottle with the fresh chemical into the gray bin located under the wet bench. Use both hands to carry the bottle.
- Place the beaker containing KOH solution into one of the cutouts of the water bath.
- Once the solution reaches the temperature, place the sample into the beaker containing the KOH solution.

- Start the timer.
- Do not leave the solution unattended while inside the water bath.
- Remove the sample from the KOH beaker and place it into the DI water beaker for rinsing.
- Dry the sample with nitrogen.

Waste Disposal

- Allow the solution to cool to room temperature.
- **CAUTION:** Do NOT pour hot KOH solutions into the waste bottle!
- Once the solution has reached room temperature, remove the cap from the waste bottle.
- Rinse the funnel with water over the sink.
- Pour the KOH into the appropriate waste bottle using the funnel; do not overfill.
- **Note:** If you start a new waste bottle make sure it is dry on the inside and outside.
- Place the cap on the waste bottle.
- Rinse the funnel with water over the sink.

Cleanup and Final Steps

- Wash all beakers with DI water three times over the sink.
- Place the beakers in the designated location.
- Remove the label and dispose of it into the white “base” trash can located in front of the wet bench.
- Wipe off any liquids from the bench, and dispose of the wipers into the white trash can located in front of the wet bench.
- Wash the chemical resistant gloves with DI water over the sink.
- Dry the chemical resistant gloves with wipers, and dispose of the wipers into the white “base” trash can located in front of the wet bench. Pay attention to the under the forearm areas of the gloves.
- Wipe off any liquids from the apron, and dispose of the wipers into the

white trash can located in front of the wet bench.

- Dry the chemical resistant gloves with wipers, and dispose of the wipers into the white “base” trash can located in front of the wet bench. Pay attention to the under the forearm areas of the gloves.
- Remove PPE in the following order:
 - Remove gloves and place them in the wet bench.
 - Remove face shield.
 - Remove apron.
- Log out of “Chem – Potassium Hydroxide” tool in FOM.