



GOLD ETCHING



LOCATION: Wet deck Aisle 1 and Drop deck Aisle 1+2

PRIMARY TRAINER: Stephanie Bozic (2-6724, sbozic@ualberta.ca)

SECONDARY TRAINER: Jolene Chorzempa (2-4823, jolenec@ualberta.ca)

1. OVERVIEW

This document outlines the process for using a Gold Etching solution. The solution is a pre-made product prepared by the NanoFab staff. The etch rate of the Gold Etchant is approximately 5.3nm/sec.

2. SAFETY PRECAUTIONS

Gold Etchant is comprised of Potassium Iodide, Iodine, and water. It is a corrosive dark amber liquid. It will stain the clean room suits orange which is not removable. Exercise caution when handling the etchant. Please consult the MSDS for further information.

Potassium Iodide: Eye, skin, respiratory, digestive tract irritant. If ingested, may cause fetal effects.

Iodine: Eye, skin, respiratory, and digestive tract irritant with possible burns. The vapor or mist may cause irritation and burns. Epiphora, or excessive flow of tears is a common result if contacted with vapors. May cause fetal effects;

Specialized acid gear (chemical resistant gloves, chemical apron, and face shield) are available for your use, but not required.

Gold etchant is used in a glass or Teflon container within the wetdeck.

Do not pour Gold Etching solution down the drain. It must be disposed of as Hazardous waste.

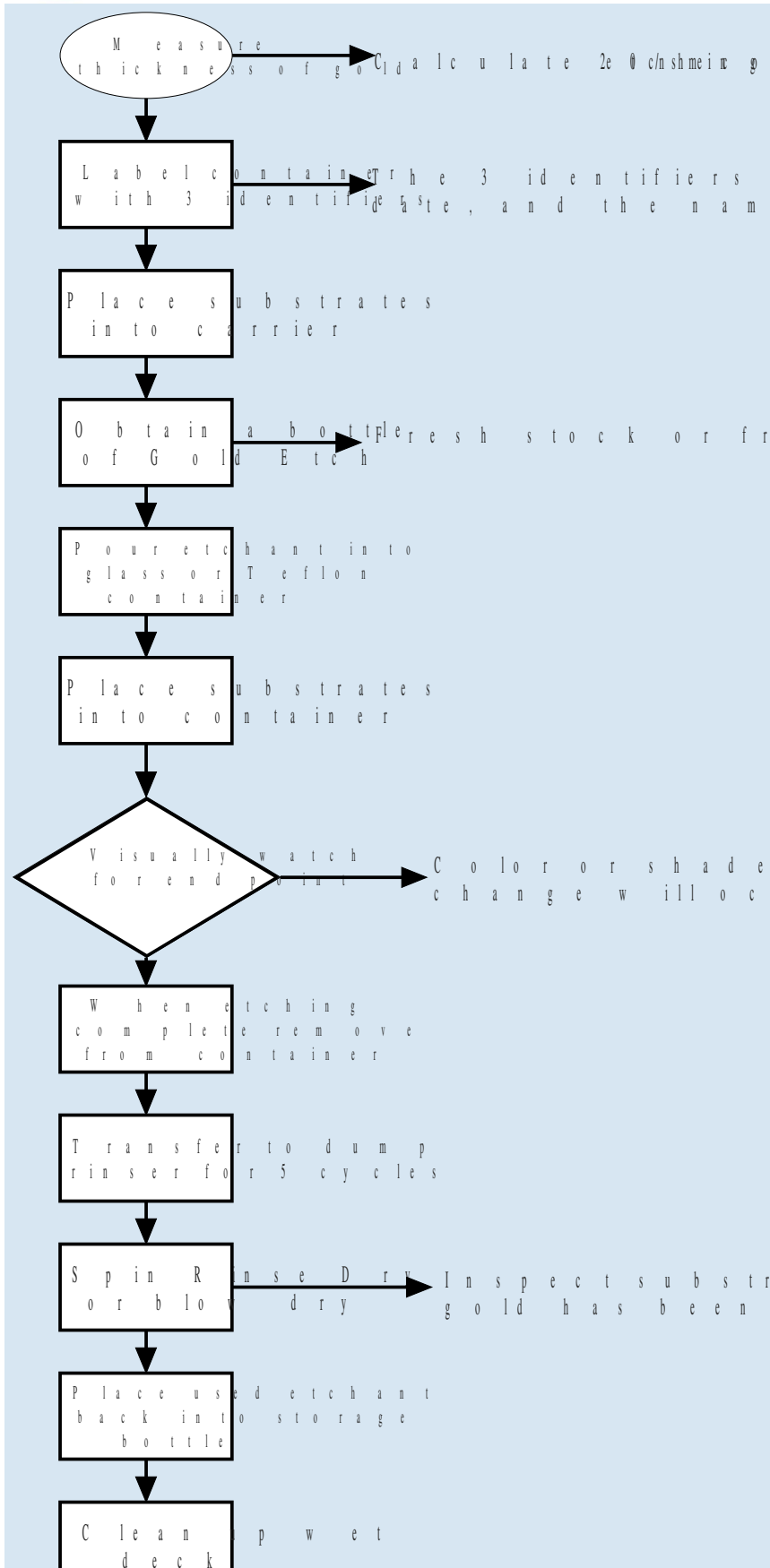


NO CHEMICALS ARE TO BE REMOVED FROM WET DECK IN OPEN CONTAINERS.

If you are bringing any new materials into the NanoFab for use in your process, it is necessary to fill out a chemical import form (available on our website, <http://www.nanofab.ualberta.ca>) and supply an MSDS data sheet to Stephanie Bozic.

3. OPERATING INSTRUCTIONS

- 3.1 Calculate the amount of time required for the substrates to be in the etching solution.
- 3.2 Transfer your substrates to a carrier (*or have a set of tweezers set aside so as to grab the substrate when endpoint is reached*)
- 3.3 Choose a container large enough to hold your carrier of wafers. Label a glass or Teflon container with the chemical name (Gold Etchant), your name, and the date.
- 3.4 Use NanoFab stock solution of Gold Etchant from a fresh bottle or your own etchant. Pour etchant into the glass or Teflon container. Ensure there is enough etchant to submerge your substrate.
- 3.5 Place carrier of substrates into the container and visually watch for endpoint. Set timer for future reference. (*Please note, gold etch is a very dark liquid and is difficult to see any substrates. It is recommended either the substrates or the gold etch is continuously agitated in order to better see the substrate*).
- 3.6 When gold is fully etched, remove carrier of substrates slowly out of the container allowing excess solution to drip back into the container.
- 3.7 Carefully place the carrier into the dump rinser and start rinser for 5 cycles.
- 3.8 When rinse cycle is complete, remove substrates and place in Spin Rinse Dryer or use nitrogen gun to blow dry.
- 3.9 Inspect substrates to ensure complete gold etching. Document amount of time taken for etching.
- 3.10 If etching complete, transfer gold etchant to storage bottle marked with the chemical name, the date, and your name.
- 3.11 Wash the outside of the bottle with water and place anything contaminated with gold etch into the dump rinser. Start the dump rinser for 5 cycles.
- 3.12 Place storage bottle into cabinet for later use. Wash the deck with water and dry the front of wet deck.
- 3.13 Once Gold Etchant becomes too slow it can be collected as Hazardous waste. Wash the outside of the hazardous waste container and dry. Put back into storage. Wash the old storage container 3 times on the inside with water and once on the outside. If the bottle is still reusable, place the bottle with the other empty storage containers. If the bottle isn't reusable put in garbage for waste.





4. TROUBLESHOOTING

If you encounter an unexpected error or require assistance please contact the primary or secondary trainer listed above. Should they not be available, please contact any staff member for assistance.

6. APPROVAL

QUALIFIED TRAINER: Jolene Chorzempa
TRAINING COORDINATOR: Stephanie Bozic