



ALUMINUM 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 an Aluminum Etching solution. The solution is a pre-made commercial product. Aluminum etchant has an etch rate of $\sim 35\text{nm}/\text{min}$.

2. SAFETY PRECAUTIONS

Aluminum etchant is a 16:1:1:2 solution of Phosphoric Acid, Nitric Acid, Acetic Acid and Water. It is a corrosive liquid which will cause skin, eye and lung irritation if contact or inhalation occurs. It is reactive with water and care should be taken upon use. Please consult the MSDS for further information.

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

Aluminum etchant is used in a glass or Teflon container within the wetdecks.

NO CHEMICALS ARE TO BE REMOVED FROM THE 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

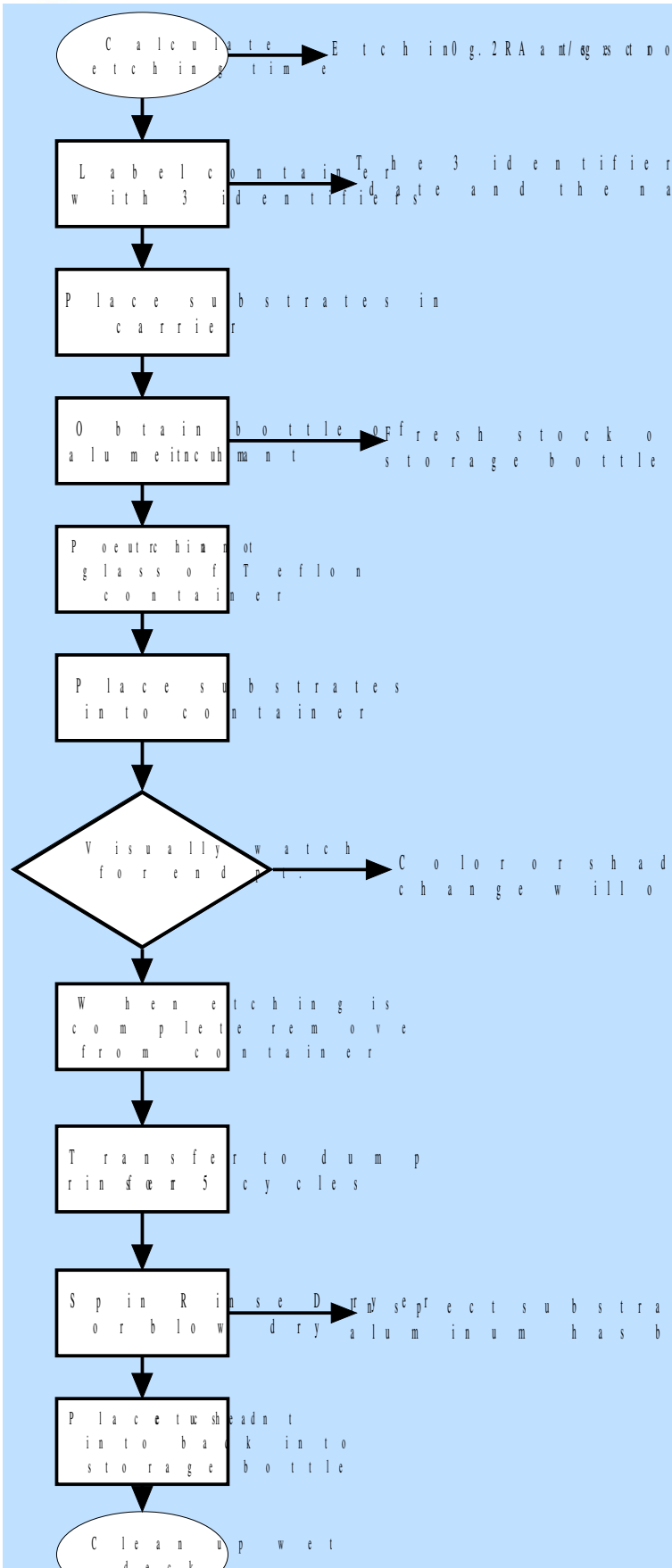
- 1.0 Calculate the amount of time required for the substrates to be in the etching solution.
- 2.0 Transfer your substrates to a carrier
- 3.0 Label a glass or Teflon container with the chemical name (Aluminum Etchant), your name and the date. Choose a container large enough to hold your carrier of wafers.
- 4.0 Use NanoFab stock solution of Aluminum Etchant or create your own etchant from a fresh bottle.
- 5.0 Pour etchant into the glass or Teflon container. Ensure the container is far enough back in the working area of the wet deck as to not introduce vapors into the air.
- 6.0 Place carrier of substrates into the container and agitate gently.
- 7.0 Visually watch for endpoint. Set timer for future reference.
- 8.0 When aluminum is fully etched, remove carrier of substrates slowly out of the container allowing excess solution to drip back into the container.
- 9.0 Carefully place the carrier into the dump rinser and start rinser for 5 cycles.
- 10.0 When rinse cycle is complete, remove substrates and place in Spin Rinse Dryer or use Nitrogen gun to blow dry.
- 11.0 Inspect substrates to ensure complete Aluminum etching.
- 12.0 Document amount of time taken for etching.
- 13.0 Transfer Aluminum Etchant to storage bottle marked with the chemical name, the date and your name. Place storage bottle into cabinet for later use.
- 14.0 Place used glass or Teflon container in dump rinser for 5 cycles and wash wet deck thoroughly after use.
- 15.0 Once Aluminum Etchant becomes too slow it can be disposed of down the drain with lots of water.



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4. TROUBLESHOOTING

If the etch time increases 2xs, the etchant may be disposed and replaced with new etchant.

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