



CHROME ETCHING



LOCATION: Wet Aisle 1 and 2

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

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

1. OVERVIEW

This document outlines the process for using a Chrome Etching solution. The solution is a pre-made commercial product. This solution can be used on the wet deck and drop deck in Aisle 1 as well as the drop deck in Aisle 2.

2. SAFETY PRECAUTIONS

Chrome Etch is a pre-made solution which contains Ceric Ammonium Nitrate, Nitric Acid and water. It is a corrosive liquid which will cause skin, eye, and lung irritation if contact or inhalation occurs. Please consult the MSDS for further information. Care should be taken upon using this chemical.

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

Chrome Etchant is used in a glass or Teflon container within the wet deck.

When using multi-layer thin films, be aware of etchant etching more than one layer. Some etchants can etch several metals.

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



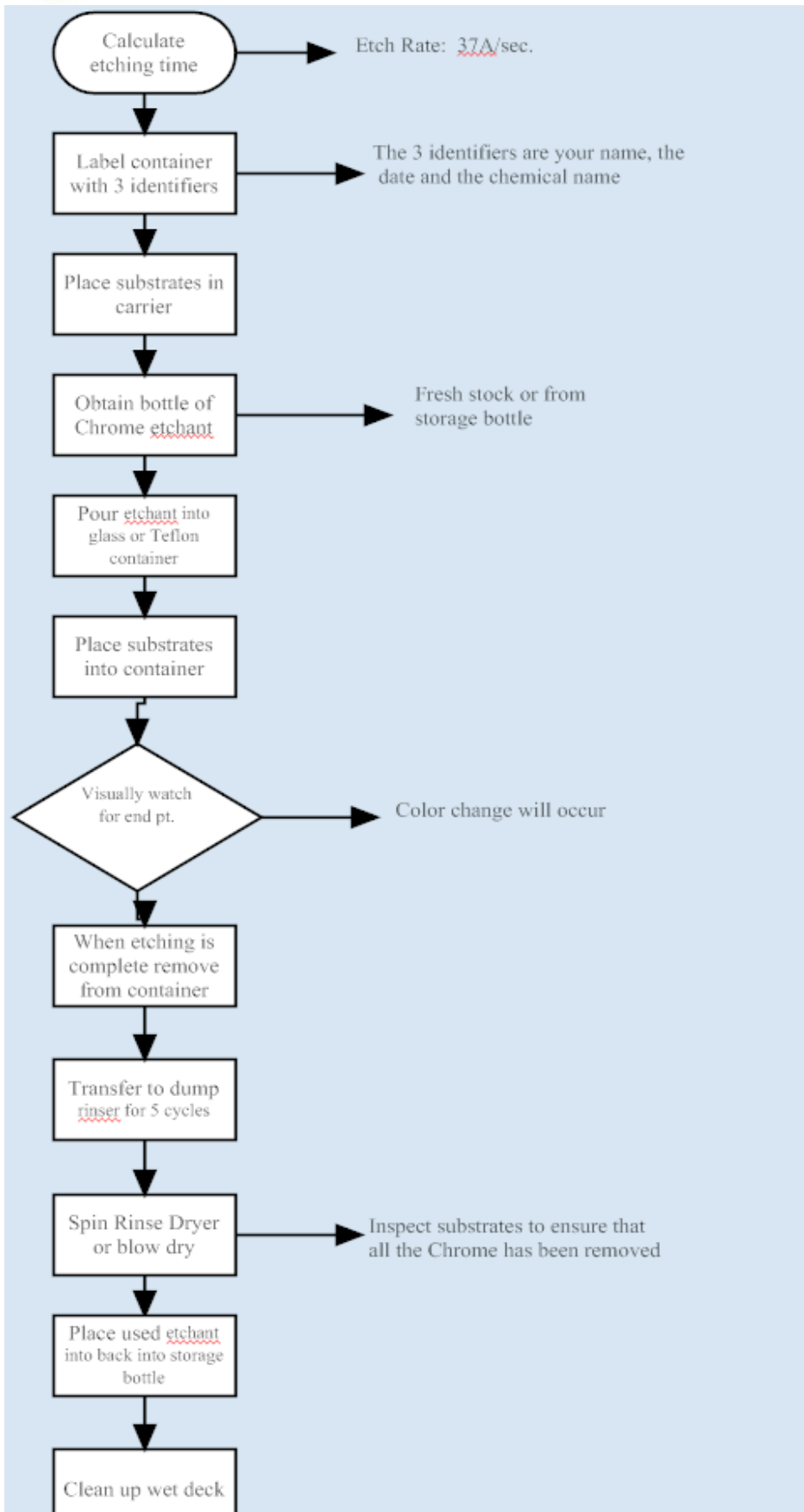
NO CHEMICALS ARE TO BE REMOVED FROM WET DECK IN OPEN CONTAINERS.

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

Chrome Etch rate is 37Angstroms/second. Chrome etchant can be reused until the etch rate becomes too slow.

- 1.0 Calculate the approximate time needed in order to etch the desired thickness.
- 2.0 Transfer your substrates to a carrier
- 3.0 Label a glass or Teflon container with the chemical name (Chrome Etchant), your name and the date. Choose a container large enough to hold your carrier of wafers.
- 4.0 Use NanoFab stock solution of Chrome Etchant or your own etchant.
- 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 Ensure there is enough solution to completely immerse the wafers.
- 7.0 Place carrier of substrates into the container and start timer.
- 8.0 When Chrome is fully etched (visual endpoint), remove carrier of substrates slowly out of the container allowing excess solution to drip back into the container. Stop timer.
- 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 all the Chrome has been removed.
- 12.0 Transfer Chrome Etchant to storage bottle marked with the chemical name, the date and your name. Place storage bottle into cabinet for later use.
- 13.0 Place used glass or Teflon container in dump rinser for 5 cycles and wash wet deck thoroughly after use.
- 14.0 Once the Chrome Etchant becomes too slow (ie. etch time doubles) it must be disposed of as Hazardous Waste. **It cannot be poured down the drain. Dispose of Chrome Etchant in the waste bottle marked "Chrome Etch".**





4. TROUBLESHOOTING

If the etch rate becomes too slow, dispose of etchant in the chrome waste bottle and use fresh solution.

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