WAVEGUIDE TECHNOLOGIES

ENGINEERING NOTES

○ ENGINEERING ○ DESIGN ○ MANUFACTURING

Aluminum Coating Removal Methods

CAUTION:

- It is advisable to perform these types of processes under a well-ventilated chemical hood.
- Wear proper protection on hands, exposed tissue, eyes etc.
- Follow MSDS protocols for safety.

Method #1: Ferric Chloride ($FeCL_3$)

Procedure: Perform the following under a well-ventilated hood to exhaust fumes.

1. In a 250ml beaker place a magnetic spinner.
2. Add the desired amount of Ferric Chloride (~40%) to the beaker to accommodate the desired strip length of the fiber.
3. Switch on the stirrer at a low spin rate, (Low Setting 2-3)
4. Place the beaker in a hot plate.
5. Set the hot plate temperature to 50°C.
6. In a separate 250ml beaker add 200ml of Deionized water for the rinse and if possible, place it in an ultrasonic cleaner.
7. Immerse fiber to the desired strip length into the solution by means of a fixture.
8. After five (5) minutes check to see if the Aluminum is dissolved, if not repeat the dip.
9. Remove the fiber from the etching solution and rinse it in Deionized water for 30 seconds.
10. Although time consuming, this process can be performed at room temperature (+10minutes)

Method #2: Sodium Hydroxide (NaOH)

Procedure: Perform the following under a well-ventilated hood to exhaust fumes.

1. In a 250ml beaker add 25ml of Sodium Hydroxide pellets.
2. Place a magnetic spinner in the beaker.
3. Fill the beaker with Deionized water to the 100ml mark.
4. Place the beaker in a hot plate with stirrer.
5. Switch on the stirrer at a low spin rate, (Low Setting 2-3)
6. Set the hot plate temperature to 80°C.
7. In a separate 250ml beaker add 200ml of Deionized water for the rinse and if possible, place it in an ultrasonic cleaner.
8. Immerse fiber to the desired strip length into the liquid by means of a fixture.
9. After two minutes check to see if the Aluminum is dissolved, if not repeat the dip.
10. Remove the fiber from the etching solution and rinse it in Deionized water for 30 seconds.

Notes:

Times may vary depending on the coating thickness, the temperature of the solution, and the solution agitation speed. The above should work well for fibers between ϕ100 and 200µm.