*Norwich Technical High School - Electronics Technology Date Updated: 10/21/23*

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**TITLE:**

**APPROVALS:**

**Author: Matthew Ruddock, Samuel Brownell Date: 10/21/2023**

**Review: Date:**

1. **Revision History:**

| **Initials** | **REV** | **DATE** | **SUMMARY OF CHANGES** |
| --- | --- | --- | --- |
| **M.R. / S.B.** | **A** | **10/21/2023** | **Initial Release** |
| **M.R. / S.B.** | **B** | **1/5/2024** | **Replaced names with initials. Changed “Wear ppe such as safety glasses.” to “Wear safety glasses.” Changed “Optionally you can wear gloves.” to “Optional: gloves.” Changed “ “Acid bin”. “ to “Acid mixing station.” Changed “2 separate glass containers.” to “Measuring cup.” Changed “Scale” to “5kg scale.” Changed “Acid powder” to “Ammonium Persulfate.”**  **Deleted step 3. Added step “you have now made 5 cups of acid” added “with stirrer”** |
| **R.R.** | **C** | **2/9/2024** | **Removed steps 7 and 8, fixed typos (scale scale), and added measurements in step 3. Added proper grammar and period placement.** |

1. **Purpose:**
   1. Etches copper off of circuit boards, to make printed circuit boards.
2. **Safety:**
   1. Wear safety glasses
   2. Optional: gloves
3. **Materials**

* Measuring cup
* Acid mixing station
* Acid mixer
* 5kg scale
* Water
* Ammonium Persulfate

1. **Procedure:**

| **Step** | **Procedure** | **Picture** |
| --- | --- | --- |
|  | **Measure out 5 cups of water in an empty container.** |  |
| 1. **T** | **Press the tare button on scale, scale should read 0 grams.** |  |
|  | **Slowly pour ammonium persulfate powder into water.**  **dissolve 1 part of AP in 5 parts water.**  **1.25 litres for 300sq/cm (or a 100 x 3cm pcb), you should be able to scale it from there.** |  |
|  | **Slowly mix acid powder into water using acid stirrer** |  |
|  | **Keep stirring until the solution is liquid with no clumps.** |  |
|  | **Pour mixed solution into the “acid bin” for later use.** |  |
| 1. **Y** | **You have now made 5 cups of acid** |  |
|  | **Repeat steps 1-8 if more acid is needed.** |  |