COPPER ETCHING

Company Name: ____________________________

Equipment Address: ____________________________

A. EQUIPMENT DESCRIPTION

List equipment used in the process:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Manufacturer</th>
<th>Model</th>
<th>S/N</th>
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<tbody>
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</table>

B. PROCESS DESCRIPTION

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

C. OPERATING SCHEDULE

Average: ________ Hrs/Day ________ Days/Wk ________ Wks/Yr

Maximum: ________ Hrs/Day ________ Days/Wk ________ Wks/Yr

D. ETCHING SOLUTION INFORMATION

Type of Etching Solution: ____________________________

Operating Temperature of Etching Solution: ________ °F; or ________ °C

<table>
<thead>
<tr>
<th>Material</th>
<th>Product Manufacturer</th>
<th>Product ID. Number</th>
<th>Max. Use (Gals/Day)</th>
<th>NH₃ M1/M2</th>
<th>Cu₁/Cu₂ (g/l)</th>
</tr>
</thead>
<tbody>
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</table>

Rev. 3/03 1 of 3 (32A) OVER
Total Average of Materials used: __________gal/month

Additional Anhydrous Ammonia (NH₃)/liter of etching solution:

_________ lb/day (Max.); _________ lb/month (Avg.); _________ lb/year (Avg.); or

_________ gal/day (Max.); _________ gal/month (Avg.); _________ gal/year (Avg.)

- Attach a current Material Safety Data Sheet (MSDS) for each material listed.

Molarity (M) Moles of compound (NH₃)/liter of etching solution

M₁: Molarity of NH₃ in original etching solution includes free NH₃ and complexed NH₃

M₂: Molarity of NH₃ in original etching solution which will be recycled

Cu₁ (gram/liter): Copper Concentration in original etching solution

Cu₂ (gram/liter): Copper Concentration in remaining etching solution which will be recycled

pH range for normal operation (if applicable): __________________________

pH range for remaining etching solution which will be: ____________________

E. EMISSION CONTROL EQUIPMENT

Describe how process equipment is vented: ________________________________

Length of Venting Cycle: _______ minutes Ventilation Flow Rate: _______ cu ft/min

Description of Control Equipment (if applicable): __________________________

If control equipment is a water scrubber, is the water pH enhanced? □ Yes □ No

Is the water scrubber equipped with a permanent pH meter? □ Yes □ No Specify pH level: ___________________

Specify type of chemical used to maintain pH level: _________________________

Control Efficiency for NH₃: ________________________________

F. STACK DATA

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Stack #1</th>
<th>Stack #2</th>
<th>Stack #3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height above top of bldg. (ft)</td>
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</tr>
<tr>
<td>Height above ground (ft)</td>
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<tr>
<td>Stack Diameter (ft)</td>
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<tr>
<td>Exhaust gas temp. (°F)</td>
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<tr>
<td>Exhaust gas flow (scfm)</td>
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<tr>
<td>Building dimensions L x W x H ft</td>
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</tbody>
</table>
G. FACILITY DATA

Please attach a site sketch or drawing and provide the following information:

- Distance from emission point(s) to the nearest property line.
- Distance from emission point(s) to the nearest residence.
- Distance from emission point(s) to the nearest significant terrain feature.
- Distance from emission point(s) to other large buildings in the vicinity.

- Attach a copy of Thomas Bros. map page and identify your source location.
- Attach a sketch of the process equipment configuration and associated ventilation equipment including duct sizes and fans.

Name of Preparer: _______________________________ Title: _______________________________

Phone No.: (____) ___________________________ Date: ___________________________

NOTE TO APPLICANT:

Before acting on an application for Authority to Construct or Permit to Operate, the District may require further information, plans, or specifications. Forms with insufficient information may be returned to the applicant for completion, which will cause a delay in application processing and may increase processing fees. The applicant should correspond with equipment and material manufacturers to obtain the information requested on this supplemental form.