



FOCUS TECH PROCESS CHEMICALS

Technical Data Sheet

Focus Tech ME-570

Copper Microetch

Product Description

ME-570 is a stabilized, liquid sodium persulfate microetch. Sodium persulfate has long been considered the industry standard for copper microetching but is messy and difficult to use in powdered form. ME-570's liquid formulation eliminates inconsistency and labor intensive make-ups while stabilizer additives increase pot life and lower operating costs. ME-570 combines affordability with ease of use to provide consistent and reliable surface preparation.

Physical Properties

Specific gravity: 1.2
pH: >2
Appearance: clear, water white
Freezing point: <40 °F

Compatible Materials of Construction

Plastics	PVC, CPVC, PVDF, polypropylene and polyethylene
Metals and alloys	Titanium
Elastomers	EPDM, Viton and Buna-N

Bath Make-Up

50 – 100% ME-570
0 – 50% DI water

Operating Parameters

Copper loading: 2 - 5 oz/gal (15 – 37.5 g/L)
Dwell time: 1 – 2 minutes
Temperature: 80 °F – 110 °F

Weight Loss Calculation

1. Weigh a copper coupon to the nearest 0.001g (W_i).
2. Process through microetch at standard operating conditions.
3. Dry coupon thoroughly and reweigh (W_f).

Calculation:

$$\text{Microinches removed } (\mu\text{in}) = \frac{(W_i - W_f)}{\text{*Surface area (in}^2\text{)}} \times 7000$$

* Include both sides of coupon i.e. a 3" X 3" is 18 in²

Analytical Procedures

Copper concentration

Materials required:

1. 250 ml Erlenmeyer flask
2. 2 ml pipette
3. 0.1M EDTA
4. 25% ammonium hydroxide
5. methanol
6. PAN indicator

Procedure:

1. Pipette 2 mls of working etchant into the Erlenmeyer flask and add 100 mls of DI water.
2. Add 20 mls of 25% ammonium hydroxide.
3. Add 10 mls of methanol.
4. Add 5 drops of PAN indicator.
5. Titrate with EDTA from purple to a green endpoint.

Calculation:

$$\text{Copper concentration (oz/gal)} = \text{mls 0.1M EDTA used} \times 0.418$$

Analytical Procedures (continued)

ME-570 concentration

Materials required:

1. 250 ml Erlenmeyer flask
2. 2 ml pipette
3. Potassium iodide
4. Acetic Acid
5. 0.1N sodium thiosulfate
6. Starch solution

Procedure:

1. Pipette 2 mls of working solution into the Erlenmeyer flask and add 30 mls of DI water.
2. Add 4 grams of potassium iodide and mix
3. Let stand in the dark for 30 minutes
4. Add 2 mls of acetic acid and mix.
5. Titrate with sodium thiosulfate to a straw color and add 2-3 mls of starch solution, finish titration to milky white endpoint.

Calculation:

$$\% \text{ v/v ME-570} = \text{mls 0.1N sodium thiosulfate used} \times 4.950$$

Sulfuric acid concentration

Materials required:

1. 250 ml Erlenmeyer flask
2. 5 ml pipette
3. 1.0N sodium hydroxide
4. methyl orange indicator

Procedure:

1. Pipette 5 mls of working etchant into the Erlenmeyer flask and add 100 mls of DI water.
2. Add 5 drops of methyl orange indicator.
3. Titrate with sodium hydroxide from red to yellow-orange endpoint.

Calculation:

$$\text{Sulfuric acid concentration (\% v/v)} = \text{mls 1.0N NaOH used} \times 0.572$$

Storage

Store in original containers above 40 °F. This product, new and spent, must be stored in vented packaging to prevent pressure build up.

Safety

Avoid contact with eyes, skin and clothing. Wear chemical handler's gloves, goggles and protective clothing when handling. Read and understand Material Safety Data Sheet before using this product.

Notice

The information and recommendations, contained herein, regarding this product are, to the best of our knowledge, true and accurate. We make no guarantee of results because the conditions of actual use are beyond our control. We assume no liability for damages or penalties resulting from the use of this product or following our recommendations. Our recommendations and suggestions for use of this product are not intended to grant license to operate under or infringe any patent.