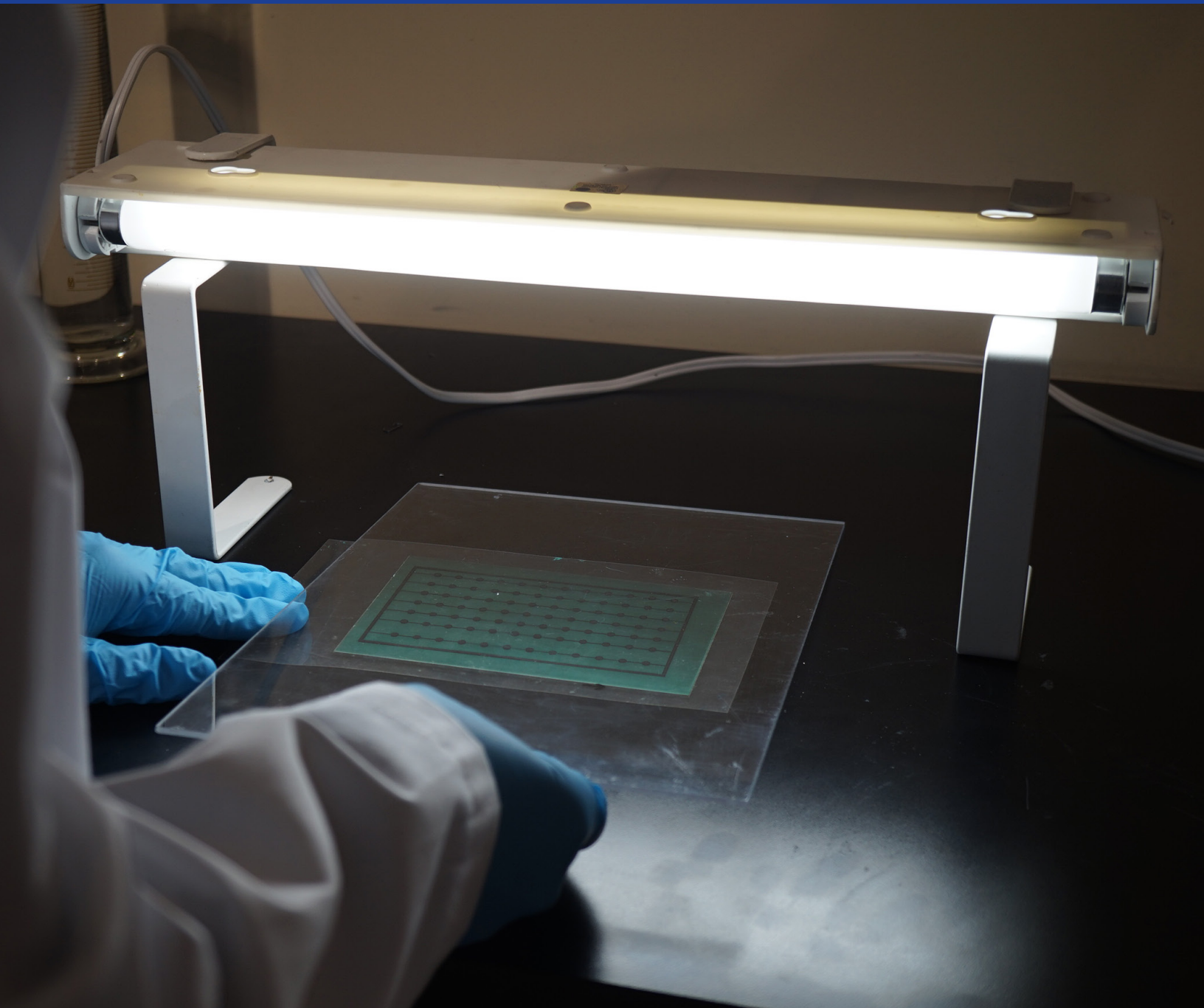


# PROTOTYPING EQUIPMENT & CHEMICALS

Prototyping made simple



## Prototyping Equipment, Accessories & Chemicals

### 416-K - PHOTOFABRICATION KIT

A 9-piece set of items needed for producing a printed circuit board using positive photofabrication.

**Includes:**

- 3 x 5" PCB
- 4 x 6" PCB
- 6 x 6" PCB
- 1 418-500ML Positive Developer
- 1 415-500ML ferric chloride
- 2 Foam brushes
- Plastic development tray
- Rubber gloves
- Instruction sheet

**This kit requires one of the following copper etchants:**

- Exposure source and transparent weight
- Etchant tank, or glass tray, or plastic tray (for etching purposes)
- Artwork laser printed on a transparency.
- Eye protection



### 416-T - TRANSPARENCY FILM

8½" x 11" heat stabilized film sheets for use in most laser printers



### 410 - AMMONIUM PERSULFATE

Copper Etchant Ammonium Persulfate crystals are used as an alternative to the traditional ferric chloride to produce a cleaner copper etchant solution. One kilogram of crystals will produce four liters of etching solution when mixed with water.



Cat. No.	Net Volume	
	1 kg	2.2 lbs
410-1KG	1 kg	2.2 lbs

### 415 - FERRIC CHLORIDE

Ready to use solution designed for etching printed circuit boards and other metals.



Cat. No.	Net Volume	
	475 mL	1 pt
415-500ML	475 mL	1 pt
415-1L	945 mL	1.99 pt
415-4L	4 L	1.06 gal
415-20L	20 L	5.3 gal

### 418 - POSITIVE DEVELOPER

For removing exposed resist during the positive photofabrication process



Cat. No.	Net Volume	
	500 mL	17 fl oz
418-500ML	500 mL	17 fl oz

### 421 - LIQUID TIN

Quickly tinplates copper circuits on PC boards in 5 minutes or less at room temperature.



Cat. No.	Net Volume	
	125 mL	4.2 oz
421-125ML	125 mL	4.2 oz
421-500ML	500mL	17 oz

### 500 SERIES - COPPER CLAD BOARDS

Made of a translucent laminate consisting of a continuous woven glass cloth impregnated with epoxy resin. The boards are made of FR4, which is a flame retardant version of G-10 material.

- Complies with UL (file number E214381) and IPC-4101C/21 DICY (dicyandiamide) Cured System
- Easy to cut with no specialized equipment required
- UV blocking
- Available in 1 oz (1.37 mil, 35 µm) and ½ oz (0.67 mil, 17 µm) copper cladding
- Comes in 1/16" (1.60 mm) and 1/32" (0.80 mm) laminate thicknesses

Cat. No	Size mm	Size in.
<b>FR4 1/16" (1.60mm), single sided</b>		
503	76 x 127	3 x 5
506	101 x 152	4 x 6
509	152 x 152	6 x 6
512	152 x 228	6 x 9
515	203 x 254	8 x 12
521	304 x 304	12 x 12
575	609 x 914	24 x 36
580	914 x 1219	36 x 48
<b>FR4 1/16" (1.60mm), double sided</b>		
540	76 x 127	6 x 6
550	152 x 152	6 x 6
555	304 x 304	12 x 12
<b>FR4 1/32" (0.80mm), single sided</b>		
586	101 x 152	4 x 6
588	152 x 228	6 x 9
590	304 x 304	12 x 12
<b>FR4 1/32" (0.80mm), double sided</b>		
587	101 x 152	4 x 6
589	152 x 228	6 x 9

### 500 SERIES - COPPER CLAD BOARDS (HALF OUNCE)

- 1/16" thickness
- ½ oz copper
- Flame retardant laminant

Cat. No	Size mm	Size in.
<b>Single sided</b>		
510	152 x 152	3 x 5
516	203 x 254	8 x 10
<b>Double sided</b>		
551	152 x 152	6 x 6

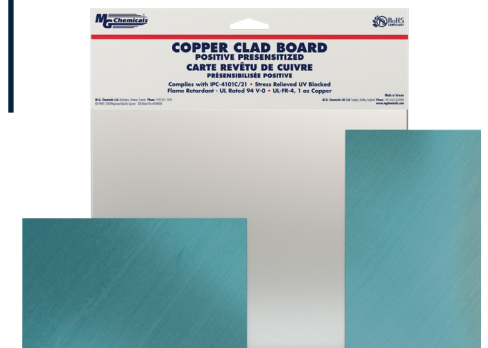


### 600 SERIES - POSITIVE PRESENSITIZED COPPER CLAD BOARDS

Made of a translucent laminate consisting of a continuous woven glass cloth impregnated with epoxy resin. The boards are made of FR4, which is a flame retardant version of G-10 material.

- 1 oz copper boards (1.37 mil, 35 µm)
- Flammability meets UL 94V-0 (file # E98983)
- High heat resistance
- UV blocking
- Comes in single-sided and double-sided boards of 1/16" (1.60 mm), 1/32" (0.80 mm), and 1/64" (0.40 mm) thicknesses

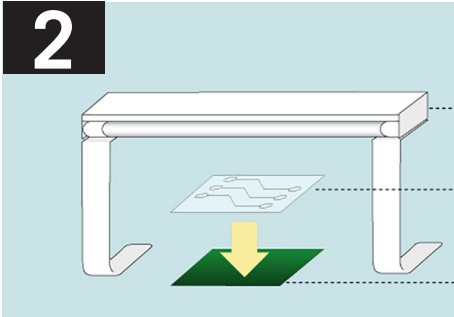
Cat. No	Size mm	Size in.
<b>FR4 1/16" (1.60mm), single sided</b>		
603	75 x 125	3 x 5
606	100 x 150	4 x 6
609	150 x 150	6 x 6
612	150 x 228	6 x 9
630	200 x 300	8 x 12
<b>FR4 1/16" (1.60mm), double sided</b>		
650	150 x 150	6 x 6
660	150 x 230	6 x 9
<b>FR4 1/32" (0.80mm), single sided</b>		
687	100 x 150	4 x 6
689	150 x 230	6 x 9
<b>FR4 1/32" (0.80mm), double sided</b>		
690	150 x 230	6 x 9
<b>FR4 1/64" (0.40mm), double sided</b>		
698	150 x 230	6 x 9



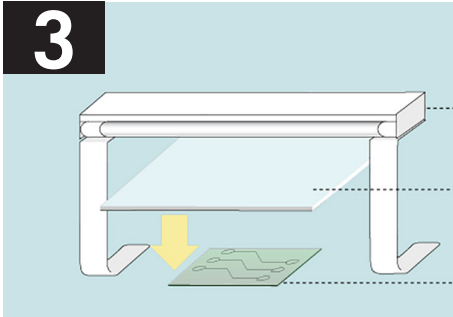
# Prototyping process using pre-sensitized boards to prototype single sided circuits.



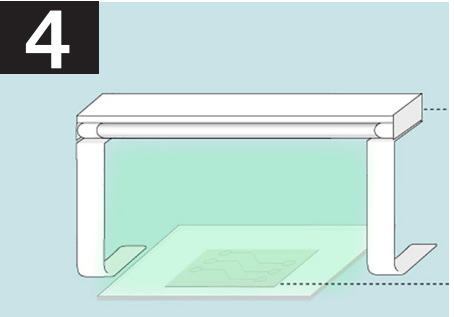
1 Peel the white protective coating off of your Presensitized Copper Clad Board (600 Series)



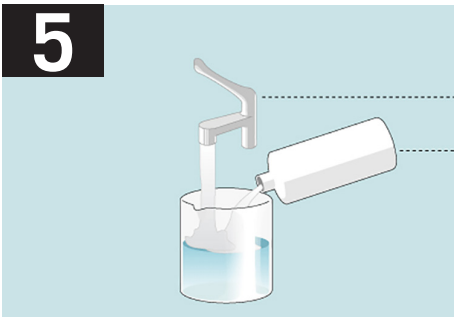
2 Place artwork on board



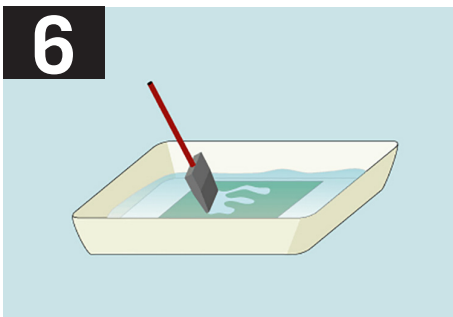
3 Secure artwork with an acrylic weight



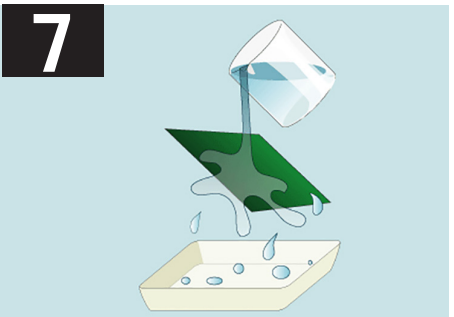
4 Expose board for 10 minutes using a 15W daylight fluorescent bulb 6 inches above the board.



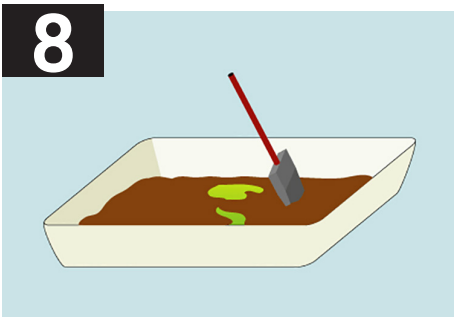
5 Dilute the developer 1:10 with water.



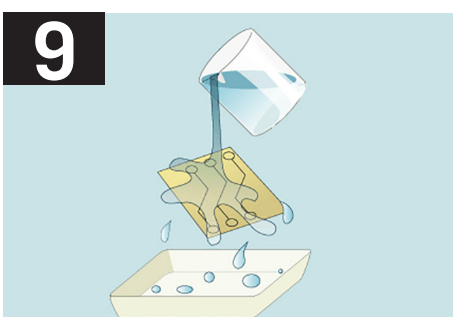
6 Put on rubber gloves. Peel protective covering and place your exposed board in the diluted developer solution. Brush lightly with smoother brush until exposed resist is removed. (1 - 2 min)



7 Rinse board in water. Dispose of the residue solution properly.



8 Place board in Ferric Chloride until the unprotected copper is removed and your artwork becomes visible on the board. (10 - 15 min). use the Economy Etching Kit



9 Rinse board in water to finish your board. Dispose of the residue etchant according to your local regulations.