

## SPECIALTY CHEMICALS (Cont.)

Chem



### Silicone Dielectric Compound

Soft, inert silicone grease with excellent dielectric properties. Usable over a wide range of temperatures. Its consistency is vaseline-like and it is clear translucent in color. It provides an excellent dielectric coating which excludes moisture and prevents high voltage arcing. Applicable to components in the high voltage section of TV receivers. Protects ignition systems in automobiles and boats, in addition to providing an outstanding corrosion resistant coating on exposed metal surfaces, such as TV antenna terminals as well as general rustproofing. This compound also makes an excellent lubricant for rubber or plastic.

**Part No. 10-8101** 1 fl. oz. Tube  
 N.S.N. 6850-00-268-7963

**Part No. 10-8102** 1 gal. Can

**Part No. 10-568** 1/3 fl. oz. Chem-O-Jector



### Belt & Drive Non-Slip

Prevents slippage in mechanical or electro-mechanical devices which are driven with cords, belts, pulleys and drives. Restores proper functions on belts and drive pulleys in turntables, record changers and tape recorders, especially where the rubber parts have hardened and/or become slick and cause slippage.

**Part No. 10-8602** 2 fl. oz. Bottle w/ Brush

## ACCESSORIES

### Squeeze Bottle & Squeeze Riser

These reliable bottles accurately dispense solvents in the required amounts in the proper location. For use with GC Bulk Chemicals, wipes and brushes. Can be used safely with all GC chemicals. The squeeze riser professionally dispenses chemicals without using an aerosol.



Part No. 19-781

**Part No. 19-781** 4 oz.  
 Squeeze Riser



### GC Touch Dispenser

Stops waste. Dispense only as much fluid as needed for the job. Saves time and effort. No stopper or cap to remove. One-handed touch on the dish dispenses the required amount of fluid, leaving the other hand free. Prevents contamination. Liquid in bottle stays clean until used. Fluid pumped into dish doesn't drip back into bottle. Hinged lid protects dish when not in use. Use with all GC cleaner/degreaser and defluxing solvents. Not for use with iodine, acids or bases.

**Part No. 19-764** 4 oz. Bottle with Pump

~~**Part No. 19-766** 6 oz. Bottle with Pump~~

**Part No. 19-768** 8 oz. Bottle with Pump

## ACCESSORIES (Cont.)



### Chemical Injector

Needle type injector, supplied with 1/2 oz. vial. Ideal for contact cleaners, light oils, etc.

**Part No. 8383** 1/2 oz. Size



### The PUMP

"The Pump" is a new air-powered spray bottle that provides an environmentally conscious alternative to conventional aerosols. The refillable, reusable spray bottle uses air as a propellant with its self-contained "Air Pump." Save money with "The Pump" by buying liquid solvents in bulk. This durable unit replaces the use of aerosol cans. "The Pump" provides an excellent cleaning alternative to aerosols. Use with cleaners, degreasers, alcohol, CFC's, HCFC's and other chemicals.

**Part No. 19-769** 3 fl. oz. Pump Bottle



### Chem-O-Jector

Plunger type applicator for all grease type or semi-liquid chemicals. Made of polyethylene with neoprene plunger unaffected by most chemicals. Length: 5-1/2" (plunger extended).

**Part No. 8887** .2 oz. (6cc)



### GC Wipes

Soft non-woven GC wipes with the strength of rayon. Safe for critical applications. Provides excellent contamination control on precise instrumentation, semi-conductors and other critical uses.

Applications: for cleanroom applications; resistant to most solvents, alcohols and dilute acids; cleaning photo processing equipment; high liquid retention; wiping laboratory instrumentation; will not abrade surfaces; computer screens; contamination control.

**Part No. 19-747** White 9" x 10 1/2"  
Package of 30

Replaces Part No. 19-746



### Poly & Cotton Lint Free Swabs

A special absorbent polyurethane swab with a fine texture that is gentle enough for cleaning delicate surfaces. Particularly good for delicate tape heads and similar usage. Reusable if used with solvents such as TF solvent, alcohol, etc.

**Part No. 10-277** Package of 30



### Double Headed Cleaning Swabs

Cotton tipped swabs for general cleaning with Alcohol, Freon TF, 1,1,1 Trichloroethane, etc. 6" length, package of 50 swabs.

**Part No. 10-270** Package of 50



### Needle Tip Chemical Bottles

GC bottles for quantity chemical use when buying in bulk. These bottles allow you to work with precision and buy economically. Use polyethylene bottles for trouble-free dispensing of oils, mixtures and other liquids.

**Part No. 10-284** 4 oz. Size



### Acid Brushes

Brushes for cleaning with solvents, applying coatings and a host of other uses. These brushes are economical enough to use as throw-away in many applications. Or may be used repeatedly with cleaners such as Freon TF, Chlorothene, Flux Solv, etc. Handles are of tin plated steel and bristles a medium-fine horse hair. Also fine for dusting keyboards, optics, etc. All 6" long, width below refers to width at base of bristles.

Part No.	Description	Width (Bristle)	Qty. Per Pkg.
10-251	No. 1 Acid Brush	3/8"	4
10-252	No. 2 Acid Brush	7/16"	4
10-253	No. 3 Acid Brush	1/2"	3
10-255	No. 5 Acid Brush	3/4"	2
10-259	Acid Brush Set		
	P/N	Quantity	
	10-250	2	1/4"
	10-251	1	3/8"
	10-252	2	7/16"
	10-253	1	1/2"
	10-255	1	3/4"
			7

## ACCESSORIES (Cont.)

Chem



### Anti-Static Applicators

These static-dissipative swabs are designed to attract dust and contaminants for easy cleaning while reducing static electricity. 6" Applicator with Anti-Static polyolefin handle. Head size 3/16" D x 11/16" L.

**Part No. 19-754** Package of 50



### Foam Applicators

6" Foam-tip applicator on polypropylene shaft. Head size 3/16" D x 11/16" L.

**Part No. 19-753** Package of 50

Part No. 19-755/19-756

Part No. 19-759

Part No. 19-758

### Cotton Applicators

6" Pointed cotton-tip applicator on wooden shaft. Head size @.105" D, tapering to .020" Dia.

#### Part No. 19-755

6" Single cotton-tip applicator on wood shaft. Package of 100.

#### Part No. 19-756

6" Pointed cotton-tip applicator on wood shaft. Package of 100.

#### Part No. 19-758

3" Cotton-tip applicator on wood Shaft. Package of 100.

#### Part No. 19-759

6" Double-tipped cotton applicator. Package of 100.

## CIRCUIT BOARDS



### Bare Copper Circuit Boards

One ounce copper (0.0014") on base of either FR-4 (G-10) fiberglass or CEM-1 type epoxy reinforced board, 1/16" thick.

Copper on One Side Only:

**Part No. 22-250** 3" x 5"

**Part No. 22-260** 4" x 6"

**Part No. 22-261** 6" x 6"

**Part No. 22-263** 6" x 9"

**Part No. 22-264** 8" x 10"

**Part No. 22-268** 11" x 14"

Assortment of 4 one sided boards:

**Part No. 22-272** [1] 2" x 4-1/2",  
[1] 3" x 4-1/2",  
[2] 2-1/4" x 3"



### Positive Pre-Sensitized Phenolic Circuit Boards

Made of 1.5 mm (1/16") thick phenolic base with one ounce (0.0014") copper. Coated with POSITIVE photo etch resist. Use with GC Developer, Part No. 22-225 or 22-226 concentrate. Mix at a ratio of 9 parts water to 1 part concentrate. Dielectric constant at 1 MHz=5.3.

Copper on One Side Only:

**Part No. 21-166** 6" x 6"

**Part No. 21-169** 6" x 9"

**Part No. 21-1710** 7" x 10"

**Part No. 21-1212** 12" x 12"



### Positive Pre-Sensitized Circuit Boards

1 oz. copper (0.0014") on a 1/16" (UL 94V-O) epoxy-glass FR-4 board. New high quality positive pre-sensitized PC boards are double protected from light and handling damage. The peel-off coating protects the board while handling or cutting prior to exposure. Can be exposed with common fluorescent lamp. GC makes it easy for anyone to make a professional looking board. Use with GC Developer Part Nos. 22-225 or 22-226 mixed 1 to 9 with water. Dielectric constant at MHz=5.4". Meets Fed. Spec.: S-10941-1.

Copper on Both Sides: Copper on One Side Only:

**Part No. 21-339**

3" x 4"

**Part No. 21-350**

6" x 6"

**Part No. 21-353**

6" x 9"

**Part No. 21-357**

12" x 12"

**Part No. 21-330**

2" x 4"

**Part No. 21-332**

3" x 4"

**Part No. 21-243**

3" x 6"

**Part No. 21-334**

4" x 6"

**Part No. 21-336**

6" x 6"

**Part No. 21-338**

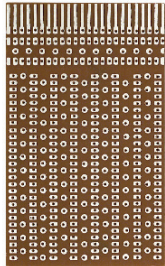
6" x 9"

**Part No. 21-247**

7" x 10"

**Part No. 21-252**

12" x 12"



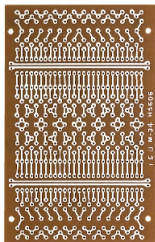
Plug-In IC Phenolic Prototype Board

IC's plug directly into board. 0.1" spacing accepts 14 pin or 16 pin IC's, up to 20 pin IC's. Silver plated lands with 24-way card edge connector plug on one end. Made of tough phenolic. 0.1" centers x 2-3/8" wide x 4" long x 1/16" thick, .035" holes.

Edge connector, 22 circuits, D.100 pitch

*\*No edge connector available*

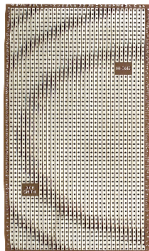
Part No. 22-500



Export Design Phenolic Prototype Board

Accommodates all types of IC's, transistor packages and passive parts. Lands and buss bars are tin-plated. 0.1" centers x 3-1/8" wide x 5-1/16" long x 1/16" thick.

Part No. 22-504

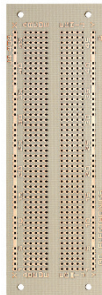


Printed Strip Phenolic Prototype Board



Alpha-numerical indexing. Tin-plated land patterns for positive pin identification. 0.1" centers x 3-1/2" wide x 6" long x 1/16" thick, .035" holes.

Part No. 22-506



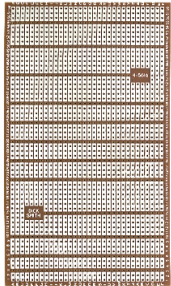
Experimenter's Phenolic Prototype Board



Ready-to-use copper plated printed circuit board has 550 solder tie-points, 94 five-point terminals and two 40-point buss strips on 0.3" centers. Phenolic board has pre-punched holes, mounting holes. 2" wide x 6" long x 1/16" thick.

Part No. 22-508

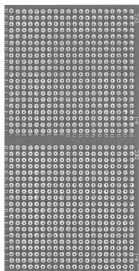
green



Versa Strip Phenolic Prototype Board

Alpha-numerical indexing. Silver-plated land patterns. Predetermined short tracks for multi IC work. 0.1" centers x 3-1/2" wide x 6" long x 1/16" thick, .035" holes.

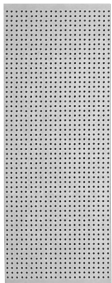
Part No. 22-502



Experimenter's Phenolic Prototype Board

Save time and money with ready-to-use printed circuit boards. Excellent for use in prototype building, experimenting, hobby or science projects and kit building. Made of tough phenolic with .03" punched holes on 0.150" centers. Choice of single or quad land pattern. 3-3/8" wide x 6-3/4" long x 1/16" thick.

Part No. 22-512 Single Land Pattern



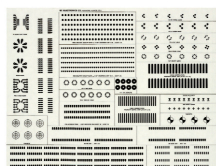
Perforated Bare Phenolic Prototype Boards

Ideal for prototypes, breadboards, hobby or science projects. Made of tough phenolic with punched holes. Boards are bare phenolic—no copper clad.

Part No. 22-514	0.042" holes; 0.100" spacing 2-1/4" wide x 6" long x 1/16" thick
Part No. 22-516	4-1/2" wide x 6" long x 1/16" thick
Part No. 22-518	0.093" holes; 0.265" spacing 3-3/4" x 8"



## DRAFTING AIDS



### Circuit Board Drafting Patterns

An 8-1/2" x 11" sheet containing two dozen of the most commonly used pre-spaced component configurations. Self-adhesive pads may easily be removed from master sheet with printed circuit knife and placed upon Mylar<sup>®</sup> positive artwork. A highly refined process and ink assures true opacity and the excellent definition necessary for quality printed circuit work.

**Part No. 21-677**

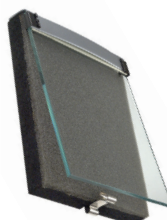


### Etch Resist Ink Pens

Black felt tip pens for marking nomenclature and touching up photo artwork or etch resist circuits directly on the PC board or on the positive. Dries instantly. Easy application. Can be removed with Stripping Solution (22-240) or alcohol.

**Part No. 22-220** Std. Size – draws lines approx. 1/32" wide

**Part No. 22-222** Fine Line – draws lines as thin as 1/64" wide



### Exposing Frame

Assures tight contact between positive or negative and the photosensitive material. Results in perfect transfer of circuit image to the board.

**Part No. 22-393** For boards up to 10" to 12"

## PC DEVELOPING & ETCHING



### Positive Type Developer Concentrate

For developing photo sensitized PC boards coated with positive type etch resist. To be diluted with 9 parts of water to 1 part of developer. 6 oz. will develop 10 to 20 sq. ft. of PC board.

**Part 22-225-A** 2 fl. oz. Bottle

**Part No. 22-226** 6 fl. oz. Bottle



### PC Board Etching Solution

This ferric chloride solution is one of the most effective and safest etching materials for copper clad PC boards. 6 oz. will etch about 180 sq. inches of PC board. Use only in plastic or glass trays. pH. 1.57

**Part No. 22-237** 6 fl. oz. Bottle

**Part No. 22-238** 32 fl. oz. Bottle

**Part No. 22-239** 1 Gallon Container



### Etching Solution Heater

Fits in tank and heats solution up to 38°C (100°F). Used to further reduce etching time. Built-in adjustable thermostat controls temperature continuously to 100°F. 120V AC/100 W Max.

**Part No. 22-392**

## CHEMICAL SPECIFICATION MATRIX (Cont.)

Chem

### Silicone Sealants Specifications

Part No.	MSDS	Specific Description	Contents	Base	Color	HMIS Flammability Rating	Specific Gravity	Consistency	Tensile Strength	Dielectric Strength	Temperature	Shelf Life Months*	Dot Shipping
10-150	149	Silicone Rubber Adhesive/Sealant	3 fl.oz	Vulcanized Silicone	Clear	1	1.03	Non-Slump Paste	220 psi	500 v/mil	-80°F to 400°F	18	Not Regulated
19-155	201	Electronic Grade Silicone Sealant/Adhesive	3 fl.oz	Vulcanized Silicone	Clear	0	1.04	Non-Slump Paste	225-275 psi	18 KV/mm	-70°F to 400°F	12	Not Regulated
19-158	275	Electronic Grade Silicone Sealant/Adhesive	10.2 fl oz	Vulcanized Silicone	White	0	1.04	Non-Slump Paste	225-275 psi	18 KV/mm	-70°F to 400°F	12	Not Regulated
19-159			2.8 fl oz								-70°F to 400°F		
EL-615	202	Silicone Caulk Tube	10.2 fl oz	Vulcanized Silicone	Clear	1	1.03	Non-Slump Paste	220 psi	25 KV/mm	-70°F to 400°F	18	Not Regulated

### Printed Circuit Products Specifications

Part No.	MSDS	Description	Contents	Base	Color	HMIS Flammability Rating	Specific Gravity	Shelf Life Months*	DOT Shipping
22-225-A 22-226	320 208	Positive Type Developer Concentrate	2 fl. Oz 6 fl. Oz	Sodium Hydroxide	Milky White	0	1.08	42	UN 1824 ORM-D
22-237 22-238 22-239	306	PC Board Etching Solution	6 fl.oz 32 fl oz 1 gal.	Ferric Chloride & Water §	Dark Brown	0	1.42	42	UN 2582 ORM-D
22-240	104	Stripping Solution	2 fl. Oz	MEK & Xylene	Clear	3	0.84	42	UN 1993 ORM-D
22-244	131	Etch Resist Lacquer	2 fl. Oz	Hydrocarbon Solvent	Black	3	0.92	36	UN 1263 ORM-D

§ pH Level = 1.57

### Coating Specifications

Part No.	MSDS	Description	Contents	Base	Color	HMIS Flammability Rating	Specific Gravity	Drying Time	Dielectric Strength	Useful Temp. Range	Suggested Solvent	Shelf Life Months*	DOT Shipping
22-023 22-024	278	Silver Print II	1/2 troy oz. 1 troy oz.	Acrylic	Silver	3	1.76	Dry 20-30 min. Force Dry 30 min @ 80°C	N/A	N/A	Butyl Acetate	12	UN 1307 ORM-D
10-9002 10-9008	307	Red Insulation Varnish	2 fl. oz. 8 fl. oz.	Alkyd-Resin Based Enamel	Red	3	1.100	8-24 hours Air Dry @ 77°F	40 - 55 sec. #3 EZ Zahn Cup @ 77°F 3,000 v/Mil	Up to 93°C (200°F)	Use Xylene or 22-209	12	UN 1263 ORM-D
22-203	138	Print Kote Conformal Coating	2 fl. oz.	High Polymer Silicone Resin	Clear	3	0.880	Air Dry 15-30 mins.	850 cp @ 25°C 1,400 v/Mil	-65°C to 200°C (-85°F to 392°F)	Use 22-209	18	UN 1993 ORM-D
10-1762 10-1766	135	Insulating Coating	2 fl. oz. 16 fl. oz.	Synthetic Resin in Solvent	Black	3	0.930	4 hrs.	7,000 - 22,000 cps 1,400 v/Mil	-30°F to +200°F	Use Toluene or 22-209	12	UN 1139 ORM-D
10-8665	159	Acrylic	11 oz. aerosol	Polymeric	Clear	4	0.740	10 mins	250 CP @ 25°C	Up to 190°C	Use Toluene	30	ORM-D
10-4702	209	Corona Dope	2 fl. oz.	Cellulose	Black	3	0.900	30-60 mins.	220 CP @ 25°C 3,800 v/Mil	Up to 340°F	10-312 or Lacquer Thinner	36	UN 1263 ORM-D
10-5002	137	Red-X Corona Dope	2 fl. oz.	Thixotropic Polyester Enamel	Red	3	1.120	2 hrs.	200-400 CP @ 25°C 2,000 v/Mil	Up to 105°C (220° F)	Xylene	36	UN 1263 ORM-D
10-3702 10-3704 10-3709	101	Q Dope	2 fl. oz. 4 fl. oz. 1 gal.	Styrene	Milky White	3	0.878 ± 0.040	80% Strength: 72 Hr.	720 cps	N/A	Use 10-4102	36	ORM-D UN 1133

\*Note: Shelf Life is determined by the Date Of Manufacture (DOM) located on the product. If a product has a shelf life of 12 months, a closed container is good for one year past the DOM.

For the latest information—[www.gcelectronics.com](http://www.gcelectronics.com)

All quantities are single; BU's are packages of 10 Unless otherwise noted.

## PRINTED CIRCUIT BOARD REPAIR



### Silver Print II Conductive Paint



Bottle for PC repair or add-on circuit traces. Pure silver in acrylic lacquer based carrier may be brushed on for either conductors or shielding. Connections have equal or better conductivity than copper (0.1 ohms per square).

**Part No. 22-023** 1/2 troy oz. Bottle  
Replaces Part No. 22-201

**Part No. 22-024** 1 troy oz. Bottle  
Replaces Part No. 22-202



### Print Kote Conformal Coating



The ultimate coating for PC boards. Provides a protective shield to resist environmental contaminants. Prevents arcing and shorting. Air dry 15-30 minutes. May be baked at 200°C for 30-60 minutes for extreme high temperature applications.

**Part No. 22-203** 2 fl. oz. Bottle  
N.S.N. 8010-00-711-2173



### Print Kote Solvent



A solvent to remove silicone and other types of protective coatings from PC boards. Required when modifying PC boards or replacing components where the protective coating interferes with the desoldering and resoldering operation.

**Part No. 22-209** 2 fl. oz. Bottle  
N.S.N. 6810-00-711-2185



### Stripping Solution



Removes remaining etch resist from PC boards. Removes any coating that remains over the copper after etching which may interfere with the soldering of the component leads to the PC board.

**Part No. 22-240** 2 fl. oz. Bottle



### Flux Remover and Cleaner II



Convenient, fast and easy to use. Removes all types of organic flux. Pinpoint applicator supplied. Non ODC.

**Part 22-271-A** 16 oz. Aerosol



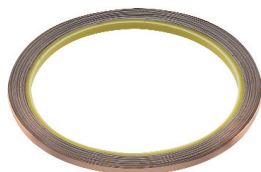
### Etch Resist Lacquer



For touch-up or modification of resist patterns before etching. Fast drying, easy to apply on PC boards. Bottle is supplied with small brush attached to cap.

**Part No. 22-244** 1/2 fl. oz. Bottle

## PRINTED CIRCUIT BOARD REPAIR (Cont.)



### Pure Copper Circuit Tape

1/8" wide roll of self-adhesive pure copper tape for quick repairs or circuit modification. Adheres readily to PC boards and similar surfaces; solders readily. Flexible enough to be used around corners, between PC boards, between board and chassis, etc. Extremely low resistance.

**Part No. 22-511** .0014" Thick 20 foot



### Micro Inspection Magnifier

Superb tool for the close inspection and trouble shooting of micro-circuits and PC boards. Provides 2X magnification from 2-1/2" dia. precision-ground glass that swings a full 360° with positive-lock swivel adjustments.

**Part No. 22-386**



### Drill Bit Sets

For drilling component lead wire holes in phenolic and glass epoxy PC boards. Made of high speed tool steel for long life.

**Part No. 22-275** Set Contains:

No. 66 Bit .0330" Dia.  
No. 60 Bit .0440" Dia.  
No. 1/16 Bit .0625" Dia.

**Part No. 22-276** Set Contains:

No. 31 Bit .1200" Dia.  
No. 27 Bit .1400" Dia.  
No. 3/32 Bit .0938" Dia.

## OLD TO NEW PRODUCT CROSS REFERENCE

### Newest Chemical Products

Old Part No.	New Part No.	Page No.	Description	Change
10-324	19-327	52	General Purpose Plastic Cement II-2 oz.	Environmental Reformulation
10-352	10-354	52	Rubber-to-Metal Cement-2 oz.	Environmental Reformulation
10-984	10-985	49	Reach-All Pen Oiler-1/2 oz.	Environmental Reformulation
10-5302	19-5302	48	VCR/Magnetic Head Cleaner-2 oz.	Environmental Reformulation
10-7521	19-7522-A	47	Static-Free High Strength Flux Remover-18 oz.	Environmental Reformulation
10-228	19-229-A	47	Flux Remover & Cleaner II-16 oz.	Environmental Reformulation
<del>19-624</del>	<del>19-913</del>	<del>42,43</del>	<del>Big Bath3 Contact Cleaner-16 oz.</del>	<del>Environmental Reformulation</del>
19-746	19-747	59	GC Wipes	Size and Texture
19-820	19-826	48	Anti-Oxidant Grease-1 oz.	Environmental Reformulation
19-903	19-906	42,45	Big Bath3 Contact Cleaner & Degreaser-16 oz.	Environmental Reformulation
19-903-6	19-905	42,45	Big Bath3 Contact Cleaner & Degreaser-12 oz.	Environmental Reformulation
19-2903-3	19-905	42,45	Big Bath3 Contact Cleaner & Degreaser-12 oz.	Environmental Reformulation
19-2903-8	19-906	42,45	Big Bath3 Contact Cleaner & Degreaser-16 oz.	Environmental Reformulation
22-201	22-023	55	Silver Print II Conductive Paint-1/2 oz.	Environmental Reformulation
<del>22-202</del>	<del>22-024</del>	<del>55</del>	<del>Silver Print II Conductive Paint-1 oz.</del>	<del>Environmental Reformulation</del>
22-270	22-271-A	63	Flux Remover & Cleaner II-16 oz.	New Size/Environmental Reformulation