

# CONDUCTIVE ADHESIVES

FOR PRODUCT DETAILS AND COMPLETE SELECTIONS  
[www.tedpella.com](http://www.tedpella.com)



## EPO-TEK® H-22 SILVER CONDUCTIVE EPOXY

Excellent handling characteristics, extremely long pot life at room temperature for this electrically conductive silver adhesive. High speed epoxy chip bonding systems are suitable for very fast cures, such as fast circuit repairs. Can be screen printed, machine dispersed or stamped and can withstand wire bonding temperatures in the range of 300 - 400°C.

Two-component, silver-filled epoxy system, consisting of a silver resin paste and a liquid hardener (100:4.5). It is a free flowing paste, 100% solids system characterized by outstanding high temperature properties as well as excellent solvent, chemical and moisture resistance. It has a long pot life and is fast curing at relatively low temperatures. Containing no solvents or thinners; it will not outgas. It can be applied by brush, spatula or hypodermic needle. EPO-TEK® H-22 can be useful for small angle cleavage in material science and semi-conductor applications. EPO-TEK® H-22 silver content is 60% by weight of composition. Higher viscosity - 20,000 cps. **F I M T**

16016 EPO-TEK® H-22 Conductive Silver Epoxy, 28.35g .....each



## EPO-TEK® H20E SILVER CONDUCTIVE EPOXY

Two component, silver filled, epoxy system consisting of a silver resin paste and a silver resin hardener (1:1). It is a smooth, thixotropic paste, 100% solids system characterized by outstanding high temperature properties and excellent solvent, chemical and moisture resistance. It has a long pot life and is fast curing at relatively low temperatures.

Will withstand 200°C for 1,000 hours. Containing no solvents or thinners, it will not outgas. EPO-TEK® H20E is ideal for electronic applications. Cures rapidly. Easy to use; the pure silver powder is dispersed in both the resin and the hardener so that it can be used in a convenient 1:1 mixing ratio. Non-toxic – complies with USP Class VI Biocompatibility standards. NASA approved. Lower viscosity - 2000 cps. **F I M T**

16014 EPO-TEK® H20E Conductive Silver Epoxy, 28.35g .....each



## SILVER CONDUCTIVE EPOXY

Strong, highly conductive solderless connections and repairs. Can be used for repairs of circuit boards, static discharge shielding, grounding and conductive paths for specimens. Bonding surface mount components, high strength conductive bonds, quick, low or no-heat cure (air dries), rework or remove with hot soldering iron. Excellent electrical conductivity. Two-part epoxy, reusable applicator stick. **F I M T**

16043 Silver Conductive Epoxy, 14g .....each



## SILVER CONDUCTIVE PEN

Draws highly conductive silver traces, jumpers and shielding with high precision. Instantly creates traces that dry in just minutes at room temperature. Valved pen tip for easy application. Can be soldered at low temperature. Speeds prototyping and design. Choice of two

tip sizes. **M T**

16041 Silver Conductive Pen, Standard Tip .....each

16042 Silver Conductive Pen, Micro Tip .....each



## PELCO® FINE CONDUCTIVE POWDERS

High purity, high density fine conductive powders for making conductive adhesives or embedding materials. Can be mixed with epoxies such as #14420 or #14443 or with cyanoacrylate gel (#14478) for a super

fast drying, conductive adhesive to mount specimens.

61-310 PELCO® Silver Powder, 7-15µm, 25g .....each

61-312 PELCO® Carbon Powder, 200 mesh, 25g .....each

61-314 PELCO® Nickel Powder, 1-5µm, 25g .....each

**M** = MSDS on web page **T** = Tech Note on web page **H** = Hazard Fee may apply **F** = Flammable **I** = Irritant **CG** = Suspected Carcinogen

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[www.tedpella.com](http://www.tedpella.com) [sales@tedpella.com](mailto:sales@tedpella.com) 800-237-3526

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## PELCO® WATER BASED CARBON PAINT



Water based graphite paint contains no hydrocarbons as solvents and will give less contamination in high vacuum. Good choice for mounting samples for FESEM applications. Flat surface texture. Average flake size 1µm. Service temperature: 149°C. **I M T**

16051 PELCO® Conductive Carbon, Water Base, 50g .....each

## PELCO® ISOPROPANOL BASED CARBON PAINT



Conductive graphite paint, primarily designed for SEM sample preparation. The graphite flakes, with an average size of 1µm, are bonded by a cellulose resin with isopropanol as diluent. Good bonding properties on most materials. Graphite content is

20%. Ideal to mount samples on sample stubs or to make a conductive path to the sample surface. Let fully dry before using in the SEM. Maximum service temperature: 200° C. **F I M T**

16053 PELCO® Conductive Carbon, Isopropanol Base, 30g..each  
 16053-20 PELCO® Conductive Carbon, Isopropanol Base, Squeeze Bottle 20g .....each  
 16054 Carbon Paint Thinner/Extender, 30ml.....each

## DAG-T-502 CARBON PAINT



Formerly called *Electrodrag 502*.

DAG-T-502 is a combination of specially processed carbon particles in a fluoroelastomer resin system. It remains flexible over a temperature range of -40°C to 260°C and cures at room temperature. It resists oxidation and has good adhesion qualities. The diluent is methyl ethyl ketone (MEK) and has fluid consistency. Solids content is 12.6%. Service temperature range is -40°C to 260°C. **F I M T**

16056 DAG-T-502, 30g .....each

## PELCO® CONDUCTIVE CARBON GLUE



Conductive carbon glue with an acrylic binder. The acrylic binder provides a much stronger bond than water or isopropanol based carbon paints. This carbon glue forms a thin, conductive and flexible layer with excellent adhesion on a wide variety of substrates. Ideally suited for conductive bonding or conductive painting where a strong bond and good conductivity is required. Let air dry or speed up heating up to max. 65°C (149°F). Supplied in a bottle with a brush, 30g. Acetone can be used as thinner. **CG I F**

16050 PELCO® Conductive Carbon Glue, 30g .....each

## GRAPHITE AEROSOL



Forms a thin, uniform conductive surface when sprayed on the sample. Dries very quickly; can be used for low magnification imaging of non-conductive samples.

Excellent adhesion to most plastics, glass and metals. Other applications are for use as a lubricant (use dry in vacuum systems) and for plating non-conductors. **F I M T H F**

16058 Graphite Aerosol, 283.5g (10 oz.) .....each

## PELCO® CONDUCTIVE LIQUID SILVER PAINT



Air drying silver paint to make effective ground. Curable at room temperature and has high adhesion to any material. Surfaces do not have to be prepared prior to application and will adhere to such materials as polymer (phenolic) boards, ceramic, glass, metal, plastic and fiberglass. It should be mixed well with a spatula before using. RoHS compliant. Composition: 1-Methoxy-2 Propanol Base, 60% Ag, Specific Gravity = 2.25 g/cc, Viscosity = 455 poise.

Silver flake grain size is an average of 80%, <1.0µm. Sheet resistance is 0.02 ohms per square @1 mil (0.001" = 0.025mm) thickness and is a function of the coating. Service temperature range is -40°C to 260°C. **F I M T**

16031 PELCO® Colloidal Silver, 30g.....each  
 16034 PELCO® Colloidal Silver, 15g.....each  
 16021 PELCO® SEM Gold/Silver Thinner / Extender, 25ml.....each

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# CONDUCTIVE ADHESIVES

## PELCO® CONDUCTIVE SILVER PAINT



Replacement for #16045.

A highly conductive silver paint with an acrylic binder. High purity silver flakes, fast drying with a low VOC content. The fast drying silver paint forms a thin, highly conductive and flexible layer. Ideally suited to form conductive paths or conductive bonding for SEM sample preparation. Durable acrylic resin minimizes metallic loss, flakes ensure maximum conductivity. Other applications are conductive paths for electronic components and EMI/RFI shielding. Excellent adhesion to most nonconductive materials such as plastics, ceramics, wood, glass, epoxies and most metals. Supplied in a bottle with a brush, 30g. Acetone can be used as thinner.

16062 PELCO® Conductive Silver Paint, 30g .....each

## FAST DRYING SILVER PAINT



This very fine flake silver is suspended in isobutyl methyl ketone (4-methylpentan-2-one) and forms a thin, smooth, highly conductive silver film which is both adherent and flexible. Fast drying silver suspension has been specifically designed to give increased coverage while maintaining a very high conductivity.

Service temperature: 105°C (225°F). Solids content (silver):

57.5 - 59%. Sheet resistance (on Lexan panels, dried to 30 min/70°C): <0.015 ohms/sq/mil (25µm). **F I M T**

16040-30 Fast Drying Silver Paint, 30g .....each

16048-25 Silver Paint Diluent, 25ml .....each



## PELCO® COLLOIDAL SILVER PASTE, CONDUCTIVE

Ideal where a nonflowing paste is needed for special applications. Particle size: 0.4-1.0µm, 80% are below 1.0µm. Cures in 16-20 hours, or 30 minutes @125-150°C. Clear lacquer base.

Approximate Specific Gravity 2.25g/cc3. Service temperature = 200°C. **F I M T**

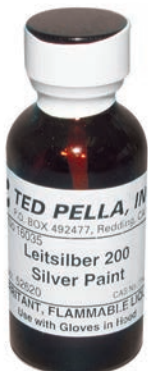
PELCO® Colloidal Silver Paste Shown with 15012 Specimen Preparation Stand

16032 PELCO® Colloidal Silver Paste, 25g .....each

16032-20 PELCO® Colloidal Silver Paste, Squeeze Bottle, 20g .....each

16021 PELCO® SEM Gold / Silver Paste Extender, 25ml.....each

## “LEITSILBER” CONDUCTIVE SILVER CEMENT



Leitsilber is fast drying and has a flat surface texture. Silver content: 45%. Resistance: 0.02 - 0.04 ohms<sup>2</sup>. Drying time: ~10 minutes at 20°C. Application can be by brush, dipping or spraying. Maximum grain size: 16µm. Maximum service temperature: 120°C. Consumption rate: 0.6 - 2g per 100cm<sup>2</sup>. Refrigerate for best life. Bring to room temperature gradually. **F I M**

16035 Leitsilber 200 Silver Paint, 30g .....each

## PELCO® FAST DRYING NICKEL PAINT

Conductive nickel paint with an acrylic binder. High purity nickel flakes (8-13µm), fast drying with a VOC content of 27.5%. The fast drying nickel paint forms a thin, conductive and flexible layer with good adhesion on most substrates. Can be used to form conductive paths, conductive bonding or conductive painting where silver can't be tolerated, but where high conductivity is required.



The conductivity of this nickel cement paint is approximately 20x better than graphite paint and approximately 10% of silver paint. The high oxidation resistance of pure Nickel ensures a

long-term conductivity. Nickel is a magnetic material, not suitable for high resolution SEM imaging close to the pole piece in most SEMs. Supplied in a bottle with a brush, 30g. **CG I M**

16055 PELCO® Fast Drying Nickel Paint, 30g.....each

# CONDUCTIVE ADHESIVES

## PELCO® CONDUCTIVE GOLD PASTE



Gold paste is fast drying and useful for analytical analysis over time where a high signal is desired. The gold is in microfine form and contains organic binders and a solvent. Dries at room temperature. Not intended for permanent use, but for testing and temporary work. Sheet resistance is .02 to .05 ohm/sq @1 mil thickness. Contacts hold down to very low temperatures (<200°C), but are not permanent since this type of product has low mechanical strength. 75% gold content; sphere size <2µm, flake size <10µm. Maximum service temperature is 65°C.

Refrigerate for best life. Bring to room temperature gradually. Approximate calculated specific gravity 3.18g/cm<sup>3</sup>. **F I M**

- 16022 PELCO® Conductive Gold Paste, 2g .....each
- 16021 PELCO® SEM Gold / Silver Paste Extender, 25ml.....each

## PELCO® HIGH PERFORMANCE SILVER PASTE



Silver flakes in an inorganic silicate aqueous solution, specially formulated adhesive for demanding bonding applications such as: high temperatures up to 927°C (1700°F), ultra high vacuum - no hydrocarbon, no VOC's and cryogenic temperatures (suitability depends on matching properties).

The excellent thermal and electrical conductivity, coupled with the absence of hydrocarbons, makes this product ideal for demanding

specimen preparation in FESEM, XPS, ESCA, SIMS, Auger and other applications. PELCO® High Performance Silver Paste provides both high and thermal conductivity with a silver particle size of 20µm. Silver content >60% by weight. Cures at room temperature, but requires a 2 hour cure at 93°C (200°F) to achieve high conductivity and strong bond. Must be fully cured before using this product at cryogenic temperatures. Soluble in water to 260°C (500°F). Above this temperature it becomes almost insoluble. For nonconductive, high temperature adhesive use Product No. 16026. **M** **I**

- 16047 PELCO® High Performance Silver Paste, 50g.....each

## PELCO® HIGH TEMPERATURE CARBON PASTE



Carbon flakes in an inorganic silicate solution for bonding resisting up to 2000°C.

PELCO® High Temperature Carbon Paste is aimed for applications where a conductive cement is needed to withstand temperatures up to 2000°C (3632°F). This paste is ideally suited for mounting specimens on hot stages for SEM, FESEM, XPS, ESCA, SIMS and AUGER systems. Also for applications where silver migration or a reaction with silver or nickel flakes could be a problem, this product would be an excellent alternative. Carbon content is 50-60% by

weight in an inorganic silicate aqueous solution. Conductivity in cured state is 4.6 ohm/square/mil. Must be fully cured to achieve good conductivity and strong bond. Soluble in water to 260°C (500°F). Cure schedule is: air dry at room temperature for 2-4 hours, step cure at 93°C (200°F) and final cure at 260°C (500°F). **I**

- 16057 PELCO® High Temperature Carbon Paste, 50g .....each

## PELCO® HIGH PERFORMANCE NICKEL PASTE



Nickel flakes in an inorganic silicate aqueous solution providing a conductive adhesive for bonding applications such as: high temperature up to 538°C (1000°F), ultra high vacuum - no hydrocarbon, no VOC's and cryogenic temperatures (suitability depends on matching properties).

The good thermal and electrical conductivity of this adhesive, coupled with the absence of hydrocarbons, makes this product suitable for demanding specimen preparation in surface science and SEM applications. Nickel particle size is 20µm, nickel content is >60%. PELCO® High Performance Nickel Paste needs to be cured for 2 hours at 93°C (200°F) to achieve final electrical and mechanical properties. It is soluble in water to 260°C (500°F), above this temperature it becomes almost insoluble. **I**

- 16059-10 PELCO® High Performance Nickel Paste, 50g.....each
- 16059 PELCO® High Performance Nickel Paste, 1 pint.....each

Conductive Adhesives Comparison Table with links to products go to:  
[www.tedpella.com/adhesive\\_html/Adhesive-Comparison](http://www.tedpella.com/adhesive_html/Adhesive-Comparison)