

PELCO[®] Conductive Graphite Product No. 16051

Water based colloidal graphite resistance coating

Description: PELCO[®] Conductive Graphite is a unique dispersion of colloidal graphite in water which combines a submicron particle size distribution with outstanding film forming properties on a wide variety of materials. Very thin films of PELCO[®] Conductive Graphite will conform and adhere to the finest surface details and are readily formed on either hot or cold surfaces, thus taking fullest advantage of the versatile lubricating, anti-adherent, electrical and opaquing properties of pure graphite. In its undiluted form PELCO[®] Conductive Graphite is a stable colloidal gel containing a small quantity of protective ammonia. In final diluted form it finds large scale application as an additive, electrically conductive coating or lubricant.

Specific advantages and benefits offered by PELCO[®] Conductive Graphite include:

- Waterborne product
- Environmental friendly No ozone-depleting chemicals
- Very stable dispersion
- Easy to handle
- Air drying
- Applicable on various substrates
- Very good impregnation properties
- Excellent coverage of all woven and nonwoven materials
- Sub micron particles
- Opaque at very thin layers
- High solids content
- Improved coating build up
- High lubricity
- Good electrical resistivity

Typical Applications:

Electrical

- Specimen preparation for SEM and EM applications
- Charge bleed
- Plating nonconductors
- Static Bleed paths
- Shielding
- Impregnation or coating of gaskets for anti-adherent and anti-static properties

Lubricating, Parting and Optical

- Vacuum lubricant
- Dry lubrication of moving parts in electronic assemblies
- Sliding surfaces
- Mold Release
- Photographic and lithographic opaque

Physical Properties (as supplied):

Pigment	: Graphite 22 ±0.2% by weight 13% by volume
Carrier/diluent	: Demineralised water
Consistency	: Thixotropic gel
Density	: 1.120 kg/l
Ash content	: < 0.1%
pH	: 10.4 - 10.6
<u>Particle size</u>	
Mean value in volume	: About 1µm
Maximum particle size	: 3 µm
Shelf Life	: 12 months from date of shipping under original seal

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Typical Properties (as cured):

Maximum service temperature in air* : 300°F (149°C)
Coverage : 208 sq ft/gal @ 1 mil dry film thickness
*Service temperature under vacuum conditions is significantly higher.

Resistance

The electrical characteristics of the dry coating can be varied by adjusting the ratio of concentrate to diluent, the method of application, thickness, and the type and degree of heat treatment. Resistance coatings have a negative temperature coefficient of resistance. Typical resistance values of the dry coating on a glass substrate are as follows:

<u>Application Method*</u>	<u>Cure Cycle</u>	<u>Resistance at 25µm (1 mil)</u>
Dip 1 : 3	5 min./150°C	30 Ohm/square
Spray 1 : 5	Preheat surface 100°C	75 Ohm/square
Brush 1 : 1	Air dry	300 Ohm/square

* Ratio expressed as grams of PELCO[®] Conductive Graphite to grams of diluting water

Method of Use: Surface Preparation

Before coating, clean all grease and dirt from the surface to be coated. Preheating the substrate to 140°F (60°C) will speed drying and lessen flow marks.

Application

PELCO[®] Conductive Graphite May be applied by brush in its undiluted form. Diluted PELCO[®] Conductive Graphite may be applied by flow, spray, brush, dip, or sponge methods. The optimum viscosity for each method is best established by pretesting. Suggested starting formulations are listed below.

<u>Method</u>	<u>grams of Aquadag[®] E : grams of Water</u>
Brush	1 : 1
Flow, dip, sponge	1 : 3
Spray	1 : 5

Curing

Coating adhesion can be increased and the resistance decreased by drying at 149°F (65°C) for 2 to 5 minutes. A longer cure at 392°F (200°C) for up to 60 minutes will further stabilize the resistance.

Handling

PELCO[®] Conductive Graphite can be stored at temperatures between 41 and 104°F (5° and 40°C). PELCO[®] Conductive Graphite should be stored in a cool place and should not be allowed to freeze. Containers should be tightly re-sealed after use in order to prevent contamination and loss of ammonia.

Precautions: See Material Safety Data Sheet for proper first aid instructions.

Container Size: 50 gm net weight

Note: PELCO[®] Conductive Graphite does not contain any ozone-depleting chemicals.

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guaranty of their accuracy is made. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purposes under their own operating conditions. THE PRODUCTS DISCLOSED HEREIN ARE SOLD WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the non-existence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of this patent.