Product No. 16050 – PELCO® Conductive Carbon Glue

Description

Product No. 16050 – PELCO® Conductive Carbon Glue is and economical acrylic glue that uses a graphite filter to create a conductive bond between samples and substrates. This electro-conductive, antistatic material also reduces electromagnetic or radio frequency interference (EMI/RFI). The durable acrylic resin affords long-term protection that minimizes loss of graphite through rubbing. The cured coat withstands large temperature changes and marine environmental conditions without cracking, which makes it suitable for a wide range of applications.

Applications & Usages

Its primary application is providing a conductive bond or conductor to provide low cost EMI/RFI shielding or conductive base for some electroplating process. It can be used anywhere in a manufacturing process where it is necessary to impart conductivity to a surface.

Benefits and Features

- High Conductivity – Low Surface Resistivity of 42 Ω·/sq for one coat (1 mil)
- Stronger adhesion than water based coatings
- Rub off resistant
- Tough and durable coating, salt spray tested with excellent weatherability
- Corrosion-proof coat slows or prevents substrate oxidation

ENVIRONMENT
Meets RoHS directive

Curing & Work Schedule

Properties	Value
Dry to Touch (Liquid)[a)]	3 to 5 min
Recoat time (Liquid)[a)]	5 min
Full Cure @room temp.	24 h
Full Cure @65 °C	30 min
Shelf Life	3 y
Storage Temperature Limits [b)]	-5 to +40 °C [+23 to +104°F]

a) Assumes let 1:1 let down with thinner

b) The product must stay within the storage temperature limits stated.

Service Ranges

Properties	Value
Service Temperature	-40 to +120 °C [-40 to +248 °F]
Maximum Coverage Per Liter [c)]	<90 000 cm^2 [<97 ft^2]
Maximum Coverage Per Gallon [c)]	<378 000 cm^2 [<406 ft^2]

c) Idealized coverage based on a coat thickness of 25 µm [1.0 mil] and 65% transfer efficiency.

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Principal Components

Name	CAS Number
Graphite	7782-42-5
Carbon Black	1333 -86 -4
Acrylic Resin	9003 -01 -4
Acetone	67 -64 -1
Ethanol	64 -17 -5
Toluene	108 -88 -3

Properties of Cured Product No. 16050 – PELCO® Conductive Carbon Glue

Electric Properties	Method	Value
Surface Resistance		Resistance [a] / Conductance [a]
: 1 × coat @ 1.0 mil	Square probe	47 Ω/sq / 0.021 S
: 2 × coats @ 2.0 mil	Square probe	28 Ω/sq / 0.036 S
: 3 × coats @ 3.0 mil	Square probe	16 Ω/sq / 0.063 S
: 4 × coats @ 4.0 mil	Square probe	13 Ω/sq / 0.077 S

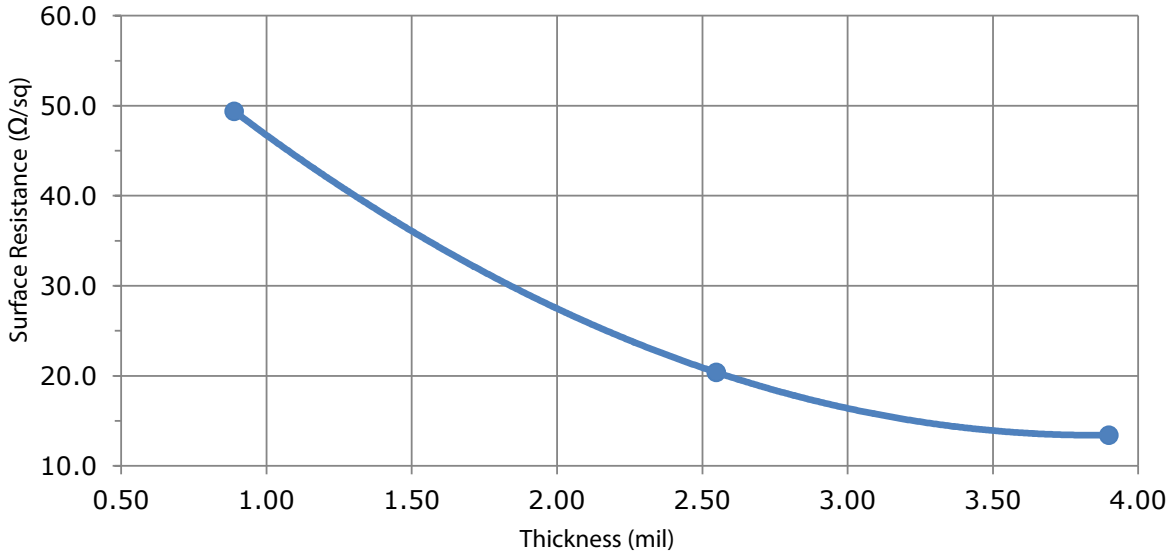
Physical Properties	Method	Value
Color	Visual	Black
Paint type	—	Lacquer (thermoplastic)
Abrasion resistant	—	Yes
Blister resistant	—	Yes
Peeling resistant	—	Yes

Environmental & Ageing Study [a]	Method	Value
Salt Spray Test: 7 day @35 °C +Salt/Fog	ASTM B117-2011	
Cross-hatch adhesion	ASTM D3359-2009	5B = 0% area removed
Cracking, unwashed area	ASTM D661-93	None
Visual Color, unwashed area	ASTM D1729-96	Unchanged
Peeling, unwashed area	ASTM D1729-96	None

Note: The first coat thickness is typically around 25 µm [1 mil].

a) Surface resistance is given in Ω/sq and the corresponding conductance in Siemens (S or Ω^{-1})

Surface Resistance by Coating Thickness



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Properties of Uncured Product No. 16050 – PELCO® Conductive Carbon Glue

Physical Property	Mixture
Color	Black
Density @25 °C	0.996 g/mL
Solids Percentage (wt/wt)[a)]	~39%
Viscosity at 25 °C [77 °F][b)]	9500 cP
Let down ratio (Paint:Solvent)	1:1
Flash Point	-16 °C [3.2 °F]
Odor	Ethereal

a) Percentage for liquid only (before thinning)
b) Brookfield viscometer at 50 RPM with spindle LV4

Compatibility

Product No. 16050 – PELCO® Conductive Carbon Glue coating adheres to most paints, plastics, and fiber surfaces; however, it is not compatible with contaminants like water, oil, and greasy flux residues that may affect adhesion. If contamination is present, clean the surface to be coated first.

Product No. 16050 – PELCO® Conductive Carbon Glue Adherence Compatibility

Substrate	Note
Acrylonitrile Butadiene Styrene (ABS)	Chemically etches[a] and adheres well to this substrate.
Polybutlylene Terephtalate (PBT)	"
Polycarbonate	"
Polyvinyl Acetate (PVA)	"
Acrylics or acrylic paints	Adheres well to clean surface
Polyurethane	Adheres well to clean surface for most urethane types
Wood	Adheres well with surface preparation (use of a primer is suggested)

a) Etching is similar to sanding, except that it also softens the surface helping to meld the paint to the plastic for superior adhesion.

Storage

Store between -5 °C and 40 °C [23°F and 104 °F] in dry area.

To cure at room temperature:

- Let air dry 24 hours

To accelerate cure by heat:

- After flash off, put in over or under heat lamp at ≤65°C for 30 minutes

NOTE: Coats that are very thick require more time to dry.

ATTENTION! If heat curing, do not exceed 65°C as this may cause surface defects due to solvents evaporating off too quickly.

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