

CARBON CONDUCTIVE TAPE, DOUBLE-COATED



Both sides of the 200µm thick conductive polycarbonate base have 30µm thick conductive glue. Total thickness is 260µm.

Protection for handling, storage and shipping is provided on one side by the 25µm thick, transparent liner and on the other side by the 40µm thick, white liner.

The conductive adhesive is a carbon-filled acrylic glue, free of solvents. It can be removed from the specimen mount with ethyl acetate, ethanol, isopropanol or alcohols. Temperature maximum is 60°C (140°F). Small impurities of Cu, Si, Sb, S, Na, P and very small impurities of Fe and Mg can be found. Refrigeration will increase shelf life but a warm-up time of 1 hour is then required before use. Please observe that 16084-9 carbon conductive tape, 65mm wide, might be applied for particle collection and analysis in clean rooms or other purposes.

- 16084-7 12mm W x 5m L each
- 16084-8 25mm W x 5m L each
- 16084-9 Sheet Form, 65mm W x 300mm L each

CARBON CONDUCTIVE TAPE, DOUBLE-COATED



These carbon tapes are conductive and may be used conveniently for scanning electron microscopy or EDS applications.

This is the same material as the PELCO Tabs™, Carbon Conductive Tabs, but

in tape form. The tape form allows for special application uses such as custom sizes, cut-outs and shapes. The purity of this tape is identical to the standard tab form at top of page.

Both sides of the tape have a thick conductive adhesive (conductive inner film is 35µm and the adhesive is 45µm on each side for a total of 125µm [5 mils]) with a white liner. The double adhesive and conductive design permits quick mounting of samples without using liquid or colloidal adhesives.

The tape is relatively solid and non-porous and does not absorb small samples. The variety of widths affords efficient application to various specimen mount surface sizes. Thickness is 0.16mm. Available in four widths. Can be used down to -20°C (-4°F) and temperature maximum is 60°C (140°F). Core diameter is 76mm (3").

- 16073 Carbon Tape, 8mm W x 20m L each
- 16073-1 Carbon Tape, 12mm W x 20m L each
- 16073-2 Carbon Tape, 20mm W x 20m L each
- 16073-3 Carbon Tape, 50mm W x 20m L each

3M™ XYZ-AXIS ELECTRICALLY CONDUCTIVE TAPE, TYPE 9712 AND 9713



Magnification of fibers



SEM micrograph of fiber in adhesive

This highly conductive double sided tape with excellent adhesion and conductivity properties has been initially developed for bonding EMI/RF shields. Advantages of this new tape are:

- Improved adhesion creates a solid bond and allows attachment of dissimilar materials
- Easy handling - more solid tape, conductive fibers reinforced and easier to remove

Due to the high electrical conductivity and excellent bonding properties these tapes are ideally suited for bonding conductive samples on SEM specimen mounts or directly on SEM specimen holders. They can be used under clean room conditions. The conductive nickel fibers extend above the adhesive ensuring a solid electrical connection between parts. It is less suitable for mounting small or powder like specimen due to the fibers in the adhesive and the topographic surface. Type 9713 has less resistance than Type 9712, see chart below:

| Resistance Type 9712 and 9713 | | | | |
|-------------------------------|--------------------|---------------------------|------------------|----------------|
| Substrate Tested | Aluminum/ Aluminum | Aluminum/ Stainless Steel | Copper/ Aluminum | Copper/ Copper |
| Type 9712 | <24Ω | <21.5Ω | <16Ω | <.66Ω |
| Type 9713 | <2.5Ω | <2.0Ω | <1.0Ω | <0.5Ω |

Based upon four wire (Kelvin probe) resistance measurements made with crossed pieces of Foil/Type 9712 or 9713/Rigid plate construction using a 1.0" x 1.0" square piece of 3M™ tape Type 9712 or 9713. The rigid metal surface was prepared with a Scotch-Brite™ pad to roughen the surface and cleaned with isopropyl alcohol.

XYZ highly conductive tape comes on a 76mm (3") plastic core and sizes for Type 9712 are 6.35mm, 12.7mm and 25mm W x 32.9m L (1/4", 1/2" and 1" x 36 yd) and for Type 9713 is 12.7mm, 25mm, and 100mm W x 32.9m L (1/2", 1", and 4" x 36 yd), .61m W x 98.6m L (24" x 108 yd), .61m W x 32.9m L (24" x 36 yd).

Thickness: 0.127mm (5 mil). The tape adhesive can be removed relatively easily by pulling off, rubbing or by application of packaging tape over the residual adhesive. Adhesive can be dissolved in acetone. **M** **T** (continued next page)

M = MSDS on web page **T** = Tech Note on web page

CONDUCTIVE TAPES

3M™ XYZ-AXIS ELECTRICALLY CONDUCTIVE TAPE, TYPE 9712 AND 9713 *(continued)*

XYZ highly conductive tape comes on a 76mm (3") plastic core and sizes for Type 9712 are 6.35mm, 12.7mm and 25mm W x 32.9m L (1/4", 1/2" and 1" x 36 yd) and for Type 9713 is 12.7mm, 25mm, and 100mm W x 32.9m L (1/2", 1", and 4" x 36 yd), .61m W x 98.6m L (24" x 108 yd), .61m W x 32.9m L (24" x 36 yd).

Thickness: 0.127mm (5 mil). The tape adhesive can be removed relatively easily by pulling off, rubbing or by application of packaging tape over the residual adhesive. Adhesive can be dissolved in acetone. **M** **T**

| | | |
|----------|--|------|
| 16081 | 6.35mm W x 32.9m L (1/4" x 36 yd)..... | each |
| 16081-2 | 12.7mm W x 32.9m L (1/2" x 36 yd)..... | each |
| 16081-4 | 25mm W x 32.9m L (1" x 36 yd)..... | each |
| 16081-4 | 25mm W x 32.9m L (1" x 36 yd)..... | each |
| 16081-82 | 12mm W x 32.9m L (1/2" x 36 yd)..... | each |
| 16081-83 | 25mm W x 32.9m L (1" x 36 yd)..... | each |
| 16081-85 | 100mm W x 32.9m L (4" x 36 yd)..... | each |
| 16081-89 | 0.61m W x 98.6m L (24" x 108 yd)..... | each |
| 16081-22 | 0.61m W x 32.9m L (24" x 36 yd)..... | each |

3M™ Z-AXIS TAPE, ELECTRICALLY CONDUCTIVE, DOUBLE SIDED, TYPE 9703

This is a double sided tape with high electrical conductivity. The adhesive is filled with silver coated nickel particles which results in a contact resistance of less than 0.5 ohms through the adhesive layer. Tape has low outgassing and yields excellent bonding of flat and electronic assembly applications. Use at room temperature, no thermal bonding required. Standard plastic core of 76mm (3"). thickness of liner is 0.1mm, adhesive 0.05mm. **M** **T**

| | | |
|----------|--|------|
| 16081-10 | 6.35mm W x 32.9m L (1/4" x 36 yd)..... | each |
| 16081-11 | 12.7mm W x 32.9m L (1/2" x 36 yd)..... | each |

3M™ COPPER CONDUCTIVE TAPE, DOUBLE COATED



The tape is easily cut to size and may be quickly applied to a specimen mount or other surface. Carbon or metallic coating normally is applied to the sample and mount. An electrical discharge bridge is then completed from sample, through the copper and its conductive glue to the grounded specimen mount.

The tape is dead soft copper with a conductive acrylic adhesive. It is supplied on a removable liner for easy handling and cutting. The tape offers excellent conductivity through the foil backing.

This tape is 6.3mm W x 16.46m L (1/4" x 18 yd) or 12.7mm W x

16.46m L (1/2" x 18 yd) and the core diameter is 76mm (3").

Foil Thickness: 0.04mm (.0016")
 Total Thickness: 0.07mm (.0028")
 Resistance through Adhesive: 0.005 ohm **M** **T**

| | | |
|-------|--|------|
| 16074 | 12.7mm W x 16.4m L (1/2" x 18 yd)..... | each |
|-------|--|------|

COPPER CONDUCTIVE TAPES, SINGLE ADHESIVE SURFACE



This tape is easily cut to size and may be quickly applied to a specimen mount or other surface. Carbon or metallic coating normally is applied to the sample and mount. An electrical discharge bridge is then completed from sample, through the copper and its conductive glue to the grounded specimen mount.

The tape is dead soft copper with a conductive acrylic adhesive. It is supplied on a removable liner for easy handling and cutting. The tape offers excellent conductivity through the foil backing.

This tape is 6.3mm W x 16.46m L (1/4" x 18 yd) or 12.7mm W x 16.46m L (1/2" x 18 yd) and the core diameter is 76mm (3"). **M** **T**

Foil Thickness: 0.04mm (.0016")
 Total Thickness: 0.07mm (.0028")
 Resistance through Adhesive: 0.005 ohm

| | | |
|---------|---|------|
| 16072 | 6.3mm W x 16.46m L (1/4" x 18 yd)..... | each |
| 16072-1 | 12.7mm W x 16.46m L (1/2" x 18 yd)..... | each |

COPPER TAPE, WITH NICKEL, SINGLE ADHESIVE SURFACE



SEM conductive tape, electrically conductive with a clean, smooth background. Nickel is embedded in the adhesive. Overall thickness is .075 mm (3.0 mil), adhesive is 0.040mm (1.6 mil). Conductive resistivity is 0.004 ohm/square. Available in 8 and 20mm W x 20m L (.315" and .787" x 21.9 yd). Core diameter is 76mm (3").

| | | |
|---------|---|------|
| 16067 | Copper/Nickel Tape, 8mm W x 20m L..... | each |
| 16067-1 | Copper/Nickel Tape, 20mm W x 20m L..... | each |

CONDUCTIVE TAPES

ALUMINUM CONDUCTIVE TAPE, SINGLE ADHESIVE SURFACE

Single coated conductive smooth surface.



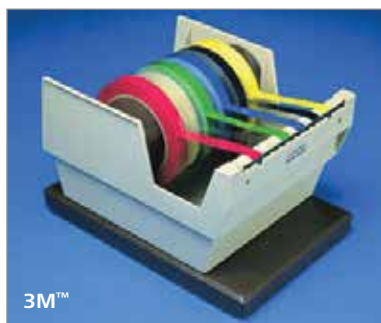
This tape is dead soft aluminum, is easily cut to size and may be quickly applied to a specimen mount or other surface. Carbon or metallic coating normally is applied to the sample and mount. An electrical discharge bridge is then completed from sample through the aluminum and

its conductive acrylic glue to the grounded specimen mount. Foil Thickness: 0.05 mm (2.0 mil). Total Thickness (foil + adhesive): 0.081mm (3.2 mil). Electrical Resistance through adhesive: 0.010 ohm. Available in: 6.3mm, 12.7mm and 25.4mm W x 16.4m L (1/4", 1/2" and 1" x 18 yrd). Core diameter is 76mm (3").

- 16071 6.3mm W x 16.4m L (1/4" x 18 yd) each
- 16071-1 12.7mm W x 16.4m L (1/2" x 18 yd) each
- 16071-2 25.4mm W x 16.4m L (1" x 18 yd)..... each

3M™ MULTIPLE TAPE DISPENSER

Neat tape storage.



Holds multiple tape rolls with a 76mm (3") inside diameter core; up to 15.2cm (6") total width. The special weight holds the dispenser steady during pulling/cutting. Maximum roll outside diameter 17.5cm (6-7/8").

- 114-4 3M™ Multiple Tape Dispenser..... each

CONDUCTIVE SHEETS

CARBON CONDUCTIVE SHEET, DOUBLE ADHESIVE COATED



This electrically conductive sheet is suitable for cutting and sizing to samples, with application to SEM Energy Dispersive Spectrometry (EDS) X-ray studies. This product provides little outgassing under vacuum. It will not absorb or penetrate

specimens, as liquid adhesives might. Sheet size: 50mm W x 120mm L x 0.16mm thick (1.97" x 4.72" x 6.3 mil).

- 16085-1 Carbon Conductive Sheet, 50 x 120mm pkg/10

SILVER CONDUCTIVE SHEET, DOUBLE ADHESIVE COATED



This highly electrically conductive sheet is suitable for cutting and sizing to samples, with application to SEM and conductive pads.

Highly conductive: Resistance only 0.002 ohm / 5 x 5 square.

Little outgassing under vacuum. Will not absorb or penetrate specimens, as liquid adhesives might. Silver Sheet Size: 50mm W x 120mm L x

- 0.125mm thick (1.97" x 4.72" x 5 mil). Thickness 2.7 mil (0.07mm).
- 16086-1 Carbon Conductive Sheet, 50 x 120mm pkg/10

CONDUCTIVE SILVER PASTE

PELCO® HIGH PERFORMANCE SILVER PASTE



Silver flakes in an inorganic silicate aqueous solution, specially formulated adhesive for demanding bonding applications such as:

- High temperature up to 927°C (1700°F)
- Ultra high vacuum - no hydrocarbon, no VOC's
- 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. **M** **T**

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

FOR PRODUCT DETAILS AND COMPLETE SELECTIONS

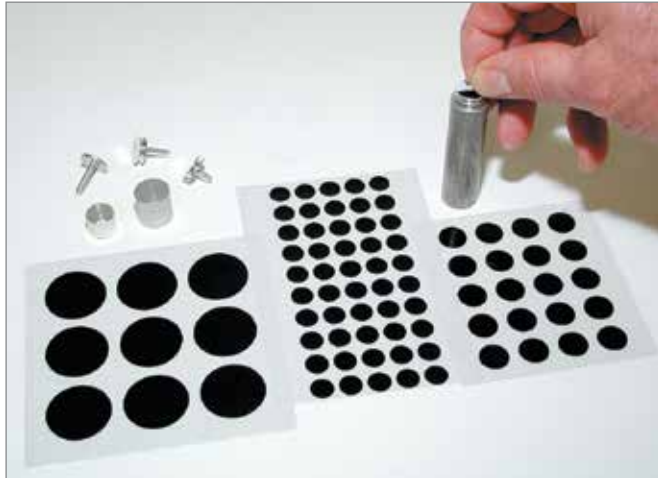
www.tedpella.com

M = MSDS on web page **T** = Tech Note on web page

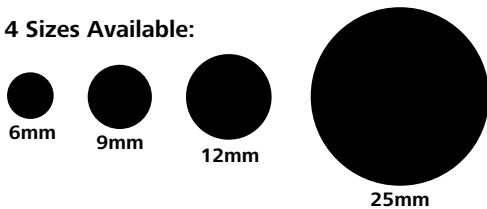
CONDUCTIVE TABS

FOR PRODUCT DETAILS AND COMPLETE SELECTIONS
www.tedpella.com

PELCO TABS™, DOUBLE COATED, CONDUCTIVE



4 Sizes Available:





The simplicity of application, and smooth, clean surfaces of the static-free PELCO Tabs™, Carbon Conductive Tabs, are a significant improvement compared to many of the other common adhesives that have been used in microscopy mounting. Both tab sides have a thick conductive adhesive (conductive inner film is 35µm and the adhesive is 45µm on each side for a total of 125µm [5 mils]) with a liner on both sides, a transparent liner and white liner respectively. They are ready for immediate use. On the other hand, the top liner does not have to be removed until the sample is ready to be mounted. This reduces possible contamination. Outgassing is negligible.

Application of the tab to a mount or surface may be done slowly and carefully to maintain surface smoothness.

The conductive adhesive is a carbon filled acrylic glue, free of solvents. It can be removed from the specimen mount with ethyl acetate, ethanol, isopropanol or alcohols. Temperature maximum is 60°C (140°F). Small impurities of Si, Sb, S and very small impurities of Fe, Mg and Na can be found.

This product may also be used for gunshot residue analysis.

Many laboratories use these tabs for SEM in a large diversity of applications. Refrigeration will increase shelf life but a warm up period of one hour is then required before use. The specimen should be placed on the surface under the white liner.  

(Use Spectro-Pure Tabs where necessary – see following).

- 16084-6 PELCO Tabs™, 6mm OD..... pkg/100
- 16084-3 PELCO Tabs™, 9mm OD..... pkg/98
- 16084-1 PELCO Tabs™, 12mm OD..... pkg/100
- 16084-2 PELCO Tabs™, 25mm OD..... pkg/54

“SPECTRO TABS”

When you need higher purity carbon.

A need existed for a tab with a purer composition in situations such as X-ray analysis. The EDX graph (see webpage) shows a cleaner and smoother surface for those applications that require critical composition study.

- 16084-4 Spectro Tabs, 12mm OD..... pkg/120

PELCO® IMAGE TABS™, 260µm (10mil) CARBON CONDUCTIVE TABS, DOUBLE COATED

Back by popular demand, the thicker PELCO® Image Tabs™ are a return to the stiff 260µm (10mil) thick smooth conductive tab. Though not as conductive or sticky as the current 4mil PELCO Tabs™, the PELCO® Image Tabs™ are suitable as a photographic background and are repositionable. This tab is also suitable for Jet Scan applications where the tab must be removed and archived. The surface of the PELCO® Image Tabs™ is less prone to bubbling and cracking when metal coated under vacuum and thus better than the 125µm (5mil) PELCO Tabs™ as a photographic background for small particles like pollen and insect parts.

Both sides of the 200µm thick conductive polycarbonate base have 30µm thick conductive glue. Total thickness is 260µm with a liner on both sides. Protection for handling, storage and shipping is provided on one side by the transparent liner sheet and on the other side by the white liner cover.

The conductive adhesive is a carbon-filled acrylic glue, free of solvents. It can be removed from the specimen mount with ethyl acetate, ethanol, isopropanol or alcohols. Temperature maximum is 60°C (140°F). Small impurities of Ni, Cu, Si, Sb, S, Na, P and very small impurities of Fe and Mg can be found. Refrigeration will increase shelf life but a warm-up time of 1 hour is then required before use.

- 16084-20 PELCO® Image Tabs™, 12mm O.D. pkg/100