

## Description

The simplicity of application and smooth, clean surfaces of PELCO Tabs™ Carbon Conductive Tabs are a significant improvement compared to many of the other common adhesives that have been used in SEM mounting. Both tab sides have a thick conductive adhesive (conductive inner tab is 35µm and the adhesive is 45µm on each side for a total thickness of 125µm [5 mils]) with a liner on both sides, a transparent liner and white liner respectively. They are ready for immediate use. The top protective 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 should be done slowly and carefully to maintain surface smoothness.

The conductive adhesive is a carbon filled acrylic, free of solvents. It can be removed from the specimen mount with ethyl acetate, ethanol, isopropanol, alcohols or our 3M™ Adhesive Remover 80924 which is solvent-free. 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.

(Use Spectro Tabs where a purer composition is required.)

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 analysis clearly shows a higher purity surface for those applications that require critical composition study.

Back by popular demand, the thicker PELCO Image Tabs™ is a return to the stiff 260µm (10mil) thick smooth conductive tab. Though not as conductive or sticky as the current 10mil PELCO Tabs™, 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 PELCO Image Tab's™ surface is less prone to bubbling and cracking when metal coated under vacuum and thus better than the 125µm (5mil) PELCO Tab™ 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 adhesive. 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, free of solvents. It can be removed from the specimen mount with ethyl acetate, ethanol, isopropanol, alcohols or our 3M™ Adhesive Remover 80924 which is solvent-free. 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 period of one hour is then required before use.

## SPEC

PELCO Tabs™, Carbon Conductive Tabs, 6mm OD

PELCO Tabs™, Carbon Conductive Tabs, 9mm OD

PELCO Tabs™, Carbon Conductive Tabs, 12mm OD

PELCO Tabs™, Carbon Conductive Tabs, 25mm OD

Spectro Tabs, higher purity conductive carbon tabs, 12mm O.D.

PELCO Image Tabs™, Carbon Conductive Tabs, 12mm OD

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. Sizes are 12mm and 25mm W x 5m L (1/2" and 1" x 5.46 yd) with a core diameter of 76mm (3"). Also available in sheet form: 65 W x 300mm L (2.5" x 11.8").

Please observe that 16084-9 carbon conductive tape, 65mm wide, might be applied for particle collection and analysis in clean rooms or other purposes

Carbon Conductive Tape, 12mm W x 5m L

Carbon Conductive Tape, 25mm W x 5m L

Carbon Conductive Tape in sheet form, 65mm W x 300mm L

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 (top of page), 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). Available in 8, 12, 20 and 50mm W x 20m L (.31, .47, .79 and 1.96" x 21.8 yd). Core diameter is 76mm (3").

Carbon Tape, 8mm W x 20m L

Carbon Tape, 12mm W x 20m L

Carbon Tape, 20mm W x 20m L

Carbon Tape, 50mm W x 20m L

3M™ XYZ Axis Tape, Electrically Conductive, Double Sided, 9712 and 9713

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

High conductivity - creates solid electrical connections

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, as below:

Resistance Comparison Between Type 9712 and Type 9713

**Type 9712**

Aluminum/Aluminum <24Ω

Aluminum/ Stainless Steel <21.5Ω

Copper/ Aluminum <16Ω

Copper/ Copper <.66Ω

**Type 9713**

Aluminum/Aluminum <2.5Ω

Aluminum/ Stainless Steel <2.0Ω

Copper/ Aluminum <1.0Ω

Copper/ Copper <0.5Ω

Based upon four wire (Kelvin probe) resistance measurements made with crossed pieces of Foil/Type 9712 using a 1.0" x 1.0" square piece of 3M tape Type 9712 or 9713. The rigid metal surface was prepared with a 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, 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 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 over the residual adhesive. Adhesive can be dissolved in acetone.

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.

This tape retains the features of the #16072, while enabling the investigator to attach objects directly to the top surface of the tape. The adhesive is conductive. The tape is useful, for example, in attaching insects for SEM investigation. Dimensions are 12.7mm W x 16.4m L (1/2" x 18 yd). Core diameter is 76mm (3").

Type 9712

3M™ Type 9712 XYZ Axis Electrically Conductive, Double Sided Tape, 6.35mm W x 32.9m L(1/4" x 36yd)

3M™ Type 9712 XYZ Axis Electrically Conductive, Double Sided Tape, 12.7mm W x 32.9m L(1/2" x 36yd)

3M™ Type 9712 XYZ Axis Electrically Conductive, Double Sided Tape, 25mm W x 32.9m L(1" x 36yd)

Type9713

3M™ Type 9713 XYZ Axis Electrically Conductive, Double Sided Tape, 12.7mm W x 32.9m L(1/2" x 36yd)

3M™ Type 9713 XYZ Axis Electrically Conductive, Double Sided Tape, 25mm W x 32.9m L(1" x 36yd)

3M™ Type 9713 XYZ Axis Electrically Conductive, Double Sided Tape, 102mm W x 32.9m L(4" x 36yd)

3M™ Z-Axis Electrically Conductive, Double Sided, 9703 Tape, 6.35mm x 32.9m (1/4" x 36yrds)

3M™ Z-Axis Electrically Conductive, Double Sided, 9703 Tape, 12.7mm x 32.9m (1/2" x 36yrds)

3M™ Copper Conductive Tape, Double Coated, 12.7mm W x 16.4m L

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

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 yrd). Core diameter is 76mm (3"). 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/5x5 square.

Little outgassing under vacuum. Will not absorb or penetrate specimens, as liquid adhesives might. Silver Sheet Size: 50mm W x 120mm L x 0.16mm thick (1.97" x 4.72" x 6.3 mil)

3M™ Copper Conductive Tape, 6.3mm W x 16.46m L (1/4" x 18 yd)

3M™ Copper Conductive Tape, 12.7mm W x 16.46m L (1/2" x 18 yd)

Copper/Nickel Tape, 8mm W x 20m L

Copper/Nickel Tape, 20mm W x 20m L

Silver Conductive Sheet, 50 x 120mm

Scotch® 1170 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").

3M™ Aluminum Conductive Tape, 6.3mm W x 16.4m L

3M™ Aluminum Conductive Tape, 12.7mm W x 16.4m L

3M™ Aluminum Conductive Tape, 25.4mm W x 16.4m L

This tape has a high temperature polyimide film backing and silicone adhesive. This tape is comparable with Kapton® Tape. It is specially treated for enhanced electrostatic discharge performance (electrostatic dissipative). Translucent gold. Temperature use range -75 to +260 °C (-100 °F to +500 °F). Standard 76mm (3") plastic core. Backing thickness 1.0 mil (0.03mm). Total tape thickness 2.7 mils (0.07mm).

Can be used at high temperatures in harsh environments such as masking circuit boards for wave soldering, masking during vacuum deposition and positioning tape for cryo-applications.

3M™ Cleanroom Tape, ESD, 25.4mm x 32.9m (1" x 36yds)

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 out-gassing under vacuum. It won't 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)

Carbon Conductive Sheet, 50 x 120mm

Composed of a thin film of strong conductive adhesive approx. 1/2" (12.7mm) dia.; >99% transparent to EDS, with 0.6% nickel and <0.3% copper content. To apply, place "Press" portion of tab on SEM mount surface, lift "Lift Off" tab and peel, slightly rotating tab when lifting. Can be cut to size as desired.

Conductive Lift-N-Press, roll/250

Low Static Polyimide Film Tape, with or without liner versions, 2.7 mil (0.07 mm), polyimide-film backed silicone adhesive tape with unique and extremely good electrostatic discharge properties. Liner version has an easy release layer that covers the silicone adhesive surface to provide capability to produce die cut parts or position tape prior to exposing adhesive. Comparable with Kapton® Tape. Temperature range -73° to 260°C (-100° to 500°F). Translucent gold-amber. Standard 76mm (3") core. Thickness 2.7 mil (0.07mm).

3M™ Polyimide Lo Stat Tape 5433, with liner, 25.4mm x 32.9m (1" x 36yds)  
3M™ Polyimide Lo Stat Tape 5433, with liner, 49mm x 32.9m (2" x 36yds)

3M™ Polyimide Lo Stat Tape 5419, without liner, 6.35mm x 32.9m (1/4" x 36yds)  
3M™ Polyimide Lo Stat Tape 5419, without liner, 12.7mm x 32.9m (1/2" x 36yds)

This tape consists of a Kapton® polyimide film with a silicone adhesive, compatible with a wide temperature range. Kapton® tape with silicone adhesive exhibits better adhesion to "difficult surfaces", but at the same time the high adhesive film bond greatly reduces adhesive transfer to leave a cleaner surface. This tape can be used in harsh environments and has a specified temperature use range is -75° to +260°C (-100° to +500°F). However, successful applications have been reported in the temperature range of -196° to +400°C (-321° to +752°F). Kapton® film thickness is 1.0mil (0.03mm), total tape thickness with adhesive is 2.7 mils (0.07mm). Standard 76mm (3") plastic core.

Kapton® Tape, 19mm x 32.9m (3/4" x 36 yds)  
Kapton® Tape, 25.4mm x 32.9m (1" x 36 yds)  
Kapton® Tape, 50.8mm x 32.9m (2" x 36 yds)

Applications are as diverse as tape for elevated temperatures, masking for protection of contacts on printed circuit boards during wave solder or dip solder process, masking during vacuum deposition and positioning tape for cryo applications. Relatively low outgassing in vacuum.

Composed of a thin film of strong nonconductive adhesive. Size of adhesive area is 11mm 7/16" (11mm) diameter which is appropriate for 1/2" SEM pin and cylinder mounts. Place the "press" portion of the tab on an SEM mount surface. After pressing, pull tab up and a thin layer of adhesive is left on the mount surface. Contents: 72 sheets, total of 2,592 tabs.

Adhesive Tabs, boxed, 2,592 tabs

A new, improved adhesive tab composed of a thin film of strong, nonconducting, 1/2" (12.7mm) diameter adhesive which has these properties:

- \*Fits 1/2" SEM pin and cylinder mounts
- \*Smoother background
- \*High strength adhesive
- \*Better particle detection
- \*Adhesive only 25um thick
- \*Easy dispensing roll
- \*Longer shelf life

Nonconductive Lift-N-Press, roll/500

This tape is clear, 1/2" x 60 yards and 3/4" x 36 yards in length, has an adhesive thickness of 2.0mil (0.002") (50µm). The 2 acrylic adhesive (high tack) also has a 4.0mil (100µm) 60lb densified kraft paper liner. The adhesive film on the paper liner transfers to most surfaces on contact. Remove the liner and the adhesive remains in place. Used for mounting or attaching. 76mm (3") core

3M™ Adhesive Transfer Tape, 12.7mm (1/2") W x 54.8m L (60 yd)  
3M™ Adhesive Transfer Tape, 19mm (3/4") W x 32.9m L (36 yd)