

Forensic Gunshot Residue Field Kits



2-Disc GSR Field Kit. The most common of our kits used by many forensic departments. Prod. No. 16256-2.



3-Disc GSR Field Kit. A control disc is added to the two sampling discs to enhance certainty of the analysis. Prod. No. 16256-3.

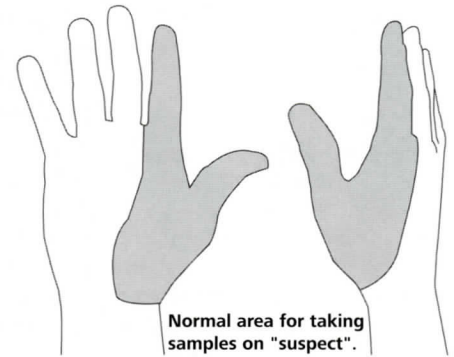


4-Disc GSR Field Kit. Suitable for sampling palm and back separately on both hands. Prod. No. 16256-4.



5-Disc GSR Field Kit. A control disc is added to the four disc sampling kit to make it compatible with FBI requirements. Prod. No. 16256-5.

- 16256-2** 2-Disc Forensic Gunshot Residue Field Kiteach
- 16256-3** 3-Disc Forensic Gunshot Residue Field Kiteach
- 16256-4** 4-Disc Forensic Gunshot Residue Field Kiteach
- 16256-5** 5-Disc Forensic Gunshot Residue Field Kiteach



A complete line of high quality GSR field sampling kits, containing certified SEM pin stubs with double coated adhesive carbon tabs in plastic tubes. The certified SEM pin stubs have very low amounts of Pb, Sb and Ba, not detectable by SEM/EDX. The caps hold the GSR sample disc for easy and secure GSR collection. The discs are ready to use and the tubes are pre-labeled for the sampling areas. The sturdy transport box is tamper evident sealed.

Each kit comes complete with:

- Certified SEM pin mounts with adhesive carbon discs in pre-labeled tubes
- Pair of powder-free nitrile gloves
- Evidence label
- Chain of custody label on box
- Sturdy cardboard transport box (4-1/2" W x 3-3/4" D x 3" H) (114.3 W x 95.3 D x 76.2mm H)
- Tamper evident seal
- Instruction sheet

Forensic Gunshot Residue Lab Kit



Ten SEM pin mounts in clean, glass storage tubes (25mm OD x 55mm high) held in a compact transport box with labels. GSR Kit is designed to avoid any contamination of the GSR samples. Available with or without mounts and tabs.

- 16259** Forensic Gunshot Residue Lab Kit: 10 SEM Pin Mounts (12.7mm; 1/2"), with mounted carbon tabs (12mm; 0.47" dia.) in Glass Tubes with Caps, 12 blank labelseach

Sample Kit without pin mounts:

- 16260** Forensic Sample Kit: 10 Glass Sample Tubes with Caps, 12 blank labelseach

Numbered Gunshot Residue Sampler

Numbered, certified aluminum mount that has a double-coated adhesive carbon tab applied to hold sample in a clean, glass vial. Dimensions are 25mm OD x 55mm high (1" OD x 2.17" high).



- 16251** Numbered Gunshot Residue Samplerbox/100

FORENSIC SUPPLIES

Samplers; Mount Storage; Carbon Conductive Tabs

Forensic Field Sampler



A high purity pin mount (see 16253) is placed in the cap of the glass specimen vial (25mm OD x 55mm H; 0.98" x 2.17") and the carbon conductive tab is attached to the pin mount. The Forensic Field Sampler has been designed to collect forensic evidence with minimum interference and/or contamination coming from the sampler.

Applications for SEM or light microscopy investigation:

- Gunshot residue (GSR)
- Fiber collection
- Particle sampling
- Glass fragments
- Paint chips
- Powder samples

Ideally suited for SEM specimen preparation on the most commonly used SEM pin stub, facilitating easy carbon coating for SEM/EDX investigation.

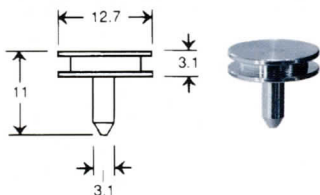
The Forensic Field Sampler can be safely stored in the glass specimen vial and can be easily shipped since the cap holds the sampler stub in place. Evidence material is held by the adhesive carbon tab.

16250 Forensic Field Sampler without Adhesive Carbon Tabpkg/100

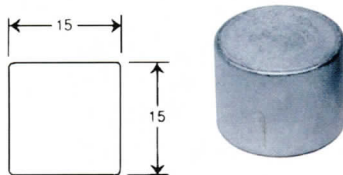
16255 Forensic Field Sampler with Adhesive Carbon Tabpkg/100

Certified Aluminum Alloy Specimen Mounts for Forensic Use

These forensic SEM specimen mounts are made of a special certified aluminum alloy. These certified mounts do not contain elements which might interfere with the collected GSR evidence.



16253 Certified Aluminum Alloy Mounts for Forensic Use, 12.7 x 11mm; 1/2" x 0.43" . .pkg/500



16343 Certified Aluminum Alloy Mounts for Forensic Use, 15 x 15mm; 0.59" x 0.59" . .pkg/500

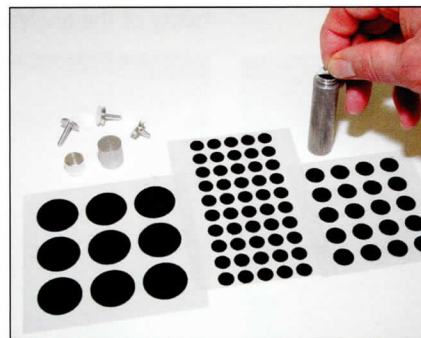
Single Mount Storage



The pin mount, 1/8" (3.2mm) pin diameter, is protected and held securely in the base (cap) of the tube (Pin Mount 16253 is sold separately). 24mm OD x 52mm high; 0.94" OD x 2" high.

16630 Single Mount Storagepkg/10

Carbon Conductive Tabs



PELCO Tabs™ allow you to make your own forensic sampler. 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.

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. **M**

This product may also be used for gunshot residue analysis.

16084-3 PELCO Tabs™, Carbon Conductive Tabs, 9mm; 0.35" ODpkg/98

16084-1 PELCO Tabs™, Carbon Conductive Tabs, 12mm; 0.47" ODpkg/100

16084-2 PELCO Tabs™, Carbon Conductive Tabs, 25mm; 0.98" ODpkg/50

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 analysis shows a higher purity for those applications that require critical composition study. **M**

The graph is linked on our web site:

www.tedpella.com/SEMAdhes.htm

16084-4 Spectro Tabs™, higher purity conductive carbon tabs, 12mm; 0.47" ODpkg/120

inch x 25.4= mm
mm x .03937= inch
1mm= 1,000µm
µm ÷ 25.4= mils
1 mil= 0.001"

M = MSDS on web page

■ Secure-Lock Tamper Resistant Labels



An inexpensive way to safeguard lab shipments, sealed documents or small containers.

Once applied these economical, peel-and-stick labels cannot be removed in one piece! Instead, they are formulated to break apart when stressed, giving clear evidence that tampering has occurred.

Transparent labels display the words "TAMPER RESISTANT" in bold red ink. Ideal for use on boxes, bottles, shipping containers, parts envelopes, even file drawers. Comes in a handy dispenser box. Size $\frac{5}{8}$ " x 2- $\frac{1}{2}$ " (16 x 63.5mm).

16250-1 Secure-Lock Tamper Resistant Labels, $\frac{5}{8}$ " x 2- $\frac{1}{2}$ "; 16 x 63.5mmpkg/250



■ Clear Plastic Ziplock Storage Bags

4 mil thickness (0.1mm), plain

139-101 Plastic Ziplock Bag, 2- $\frac{1}{2}$ " x 3"pkg/100

139-102 Plastic Ziplock Bag, 3 x 4"pkg/100

139-107 Plastic Ziplock Bag, 5 x 8";pkg/100

2 mil thickness (0.05mm), with write-on area

139-301 Plastic Ziplock Bag, 2- $\frac{1}{2}$ " x 3"pkg/100

139-302 Plastic Ziplock Bag, 3 x 4"pkg/100

139-307 Plastic Ziplock Bag, 5 x 8"pkg/100

■ Barrier Foil Ziplock Bag



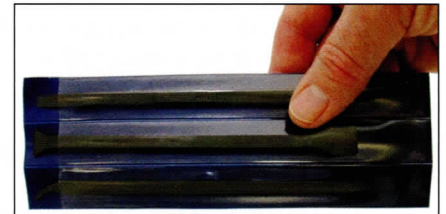
Shown with our Specimen Storage Box and DRICAP® Capsule Dehydrators (p. 00), this barrier bag is ideal for storage of materials sensitive to moisture and/or oxygen. The inside dimension measures 6 x 5.5" with a ziplock and a tear notch above the ziplock. The material is a metal foil-covered 4mil polyethylene with a MVTR (moisture vapor transmission rate) that is 1,000 times lower than a typical poly bag. It is heat sealable and ziplock re-sealable.

139-310 Barrier Foil Ziplock Bags, 6 x 5.5"pkg/100

■ PELCO Carbo-Probe™, Carbon Fiber Probes



The PELCO® Carbo-Probe™ carbon probe tools are made of PVDF, reinforced with conducting carbon fibers. They are wear resistant and the soft tips do not scratch delicate surfaces. Ideal for



Set of three Carbo-Probes™ in plastic pouch.

positioning small specimens/parts/components. Also suited for forensic and microscopy applications. Three different types or a complete set. Available with a straight or curved point being flat on the opposite end or as a double spatula.

13555 PELCO Carbo-Probe™, Set of 3 (Straight, Curved, Spatula) in plastic poucheach

13555-1 PELCO Carbo-Probe™ MPT-1, Straight Point, 150mm L (5.9")each

13555-2 PELCO Carbo-Probe™ MPT-2, Curved Point, 148mm L (5.8")each

13555-3 PELCO Carbo-Probe™ MPT-3, Double Spatula, 140mm L (5.5")each

■ Digital, Carbon Fiber Caliper, Certified



Switch from inches to millimeters at the touch of a button. Made of strong composite carbon fiber. Great for use in measuring scratch or damage sensitive materials. Will not corrode when used on tissue or other wet materials. This caliper will measure up to 6" (152mm).

The graduated scale on the caliper body is for approximate reference only. The exact measurement (accurate to ± 0.1 mm/ 0.01 ") is shown on the LCD display. Zero button instantly sets unit to zero when jaws are at any position.

Traceable to NIST for accuracy.

54491 Digital Carbon Fiber Calipers with certificateeach

FORENSIC SUPPLIES

Carbon Fiber Tweezers; Magnifiers; Uni-Core

■ Carbon Fiber Reinforced Tweezers

These high performance precision, conductive, ESD safe, SV Carbon Fiber plastic tweezers are ideal for forensic, electronic and sample preparation applications where handling of scratch sensitive material or samples is required. The soft touch surface avoids cutting or damaging hairs, fibers, paper, bullets and rounds. Compatible for clean room applications and suitable for chemical processing.

- Smooth surface, high mechanical strength and toughness
- Anti-static, ESD safe material
- Heat stabilized, continuous use with temperatures ranging from -40° to 150°C (-40 to 302°F)
- High purity / clean room compatible
- High abrasion resistance
- Excellent chemical resistance to most acids, solvents and halones
- Resists HF (40% - 90°C / 194°F); HNO₃ (50% - 90°C / 194°F); HCL (36% - 90°C / 194°F)
- Resistant to UV and X-ray radiation

Typical applications:

- Fire arms / GSR
- Handling of scratch-sensitive samples
- Cleaning and etching processes
- Handling of static and/or static-sensitive components
- Handling of soft specimens
- Handling of magnetic specimens

Sharp Tips



Points: 0.25 width x 0.12mm thickness

5412 Carbon Fiber Tweezers, sharp 707, 114mm L, carbon reinforced PVDFeach



Points: 0.25 width x 0.12mm thickness

5415 Carbon Fiber Tweezers, sharp 708, 111mm L, carbon reinforced PVDFeach



Points: 0.25 width x 0.12mm thickness

5411 Carbon Fiber Tweezers, sharp 705, 116mm L, carbon reinforced PVDFeach

Flat Tips



Points: 3.50 width x 0.12mm thickness

5413 Carbon Fiber Tweezers, flat 709, 116mm L, carbon reinforced PVDFeach



Points: 8.0 width x 0.12mm thickness

5414 Carbon Fiber Tweezers, flat 710, 116mm L, carbon reinforced PVDFeach



Points: 2.0 width x 0.12mm thickness

5410 Carbon Fiber Tweezers, flat 702A, 116mm L, carbon reinforced PVDFeach

■ Round Magnifiers

A selection of quality magnifying glasses with a favorable price.



The round magnifiers offer 2x, 2.25x and 3.5x magnification. They are of solid construction with a glass lens, a metal rim and a plastic handle. They

produce sharp images with minimal distortion.

7401 Round Magnifier, 100mm glass lens, 2xeach

7402 Round Magnifier, 75mm glass lens, 2.25xeach

7403 Round Magnifier, 50mm glass lens, 3.5xeach

■ 3x and 6x, Dual Plastic Magnifier

The dual plastic magnifier offers 3x and 6x magnification and is ideal to carry in a tool kit for field use.



Overall size is 50.8 x 115.8mm (2" x 4-9/16").

7404 Dual Magnifier, 45 and 19mm plastic lens, 3x and 6xeach

■ Harris Uni-Core



Consists of a razor sharp stainless steel cutting tip, which can cut, retrieve, and store cored samples from source materials such as tissue, gels, paper, cloth, leaves, paint chips, films or other thin, soft substrates. 0.35 - 8.0mm diameter core size. Pouched and sterilized. A small, inert, self-healing cutting mat may also be purchased. See a full description in our Neuroscience section, p. 442.

■ 2x Rectangular Magnifier



The rectangular magnifier with the glass lens has a 2x magnification and a plastic handle.

Lens size is 47.6 x 95.2mm (1-7/8" x 3-3/4").

7407 Rectangular Magnifier,
50 x 100mm glass lens, 2x .each

■ 2x Rectangular Folding Magnifier with 4x Inset



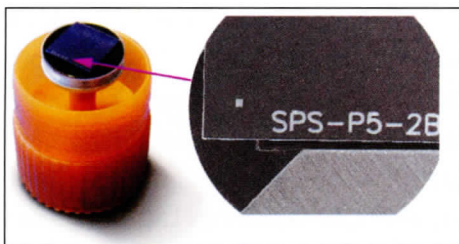
The rectangular magnifier with an inset of 4x magnification has a plastic lens, a folding handle and comes with a vinyl case. This magnifier is the most popular for forensics and field use.

Lens size is 47.6 x 98.4mm (1-7/8" x 3-7/8").

7408 Rectangular Dual Magnifier,
50 x 100mm plastic lens, 2x and 4xeach

■ Forensic Test Specimen: Synthetic Particle Specimen for Gunshot Residue (GSR) SEM/EDX Calibration

This Gunshot Residue Standard is also suitable for use as a calibration and validation sample in the field of analytical Scanning Electron Microscopy (SEM/EDX) investigations.



The SPS-5P-2 is specially designed for the adjustment, calibration and validation of analytical SEM/EDX systems when used for automated analysis of GSR particles. It is

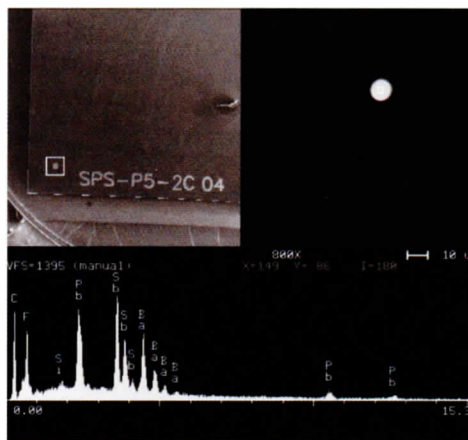
specially suitable for quick system validation checks and quality assurance procedures.

Using a special process, Pb/Sb/Ba particles are precipitated onto the surface of an 8mm x 8mm silicon chip which is previously applied with a 10µm polyimide layer. The particles are randomly distributed but at known locations. There are four distinct particle sizes of approximately 0.5µm, 0.8µm, 1.2µm and 2.4µm in diameter. In addition the samples are provided with three 10µm particles in order to facilitate a simple data cross-checking of performed automated particle analysis. The GSR Standard is carbon coated to avoid or minimize charging effects.

It is recommended that the BSE signal is used for imaging the particles as this gives a high contrast differential between the Pb/Sb/Ba particles and the silicon substrate. Beam current should not exceed 2 nA.

Note on the performance and evaluation of the automated particle analysis

The automated particle analysis has to be performed on the 7mm x 7mm center area on the silicon chip. In general, a magnification



of 200 to 300x will suffice. There is a 100µm x 100µm Pb/Sb/Ba control pad on the chip that can be used to adjust the BSE signal to the required level for analysis. It is recommended to introduce the specimen into the system in such a way that the Pb/Sb/Ba pad is

displayed in the lower left corner of the BSE image. (see figure, left)

To perform an automated run on the detection of Pb/Sb/Ba particles, it is necessary to create a particle class containing the elements Pb, Sb and Ba. Because of the production process, the elements carbon and oxygen (from the protective layer) and silicon and fluorine (from the substrate and the production process, resp.) may also appear.

For the evaluation of the automated search, it is recommended that the data obtained from the detected Pb/Sb/Ba particles (in particular their X/Y coordinates and their diameter) is displayed as an X/Y plot (e.g. with EXCEL). When using an appropriate display area, a direct comparison can be made of the size and position of the detected particles with the true values by overlaying the achieved results and the attached particle map (e.g. using an overhead film copy).

Because of the special production process it may happen that some of the deposited Pb/Sb/Ba particles are not present and therefore less than the regular 100 particles are detected. In addition there may also occur some irregularly shaped Pb/Sb/Ba particles (remaining from etch process), but these particles will appear on different locations than the regular Pb/Sb/Ba particles.

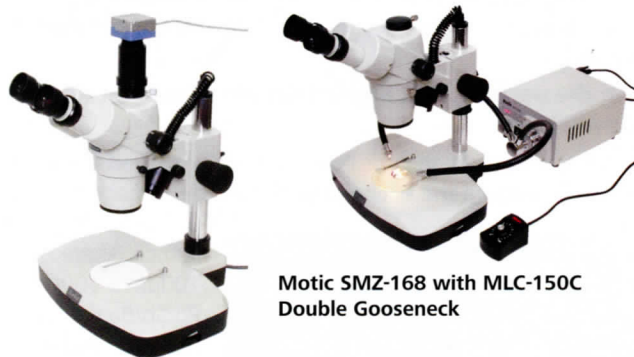
See web page for Gunshot Residue (GSR) Control Standard for Validation and Quality-Assurance Purposes (pdf):

www.tedpella.com/calibrat_html/gunshot.htm

60806-4 SPS-5P-2 GSR Standard on 12.7mm stub (type A mount); 0.5, 0.8, 1.2 and 2.4µm, certifiedeach

The special manufacturing process allows the production of any quantity of identical samples as demanded for the performance of qualified proficiency tests (e.g., according to ISO 5725 and EUROCHEM). Comparable samples where used as test items in the recently performed "International Proficiency Test on Identification of GSR by SEM/EDX - GSR2003", organized and carried out by the European Network of Forensic Science Institutes.

■ Forensic Stereo Microscope



**Motic SMZ-168 with MLC-150C
Double Gooseneck**

**Motic SMZ-168 BL Binocular Stereo Zoom Microscope with MotiCam
2300 Digital Color Camera**

The SMZ-168 provides clear real 3-D imaging with a convenient zoom magnification range from 7.5 to 50x provided by the combination of the Greenough optical system and the standard 10x super widefield eyepieces. The large working distance of 113mm coupled to the large field of view for the standard configuration makes this an ideal system for setting up a work station for preparation, dissecting, micro-assembly, forensics or quality assurance. Features top light for incident illumination and a bottom light for transmitted illumination. The optional trinocular port accepts an optional video C-mount and SLR camera adapters. The SMZ-168 Series Stereo Microscope is available with a large variety of stands and many options to configure this versatile system to your exact requirements. Shown above with the optional MotiCam 2300, 3.0 Megapixel Digital Color Camera.

Illumination with Streamline base post stand

Top light is 12V/10W halogen for incident illumination with adjustable beam and variable control, includes blue filter.

Bottom light is 12V/10W halogen light which provides bright light for transmitted illumination. Cool fluorescent 12V/5W bottom illumination available as an option on FBGF large post stand.

4 position light control: top only/bottom only, top & bottom on/off.

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|-----------------|--|
| 2282-10 | SMZ-168BP Binocular Stereo Zoom Microscope with plane base stand, 35° head, WF 10x (FN23) eyepieceseach |
| 2282-11 | SMZ-168BL Binocular Stereo Zoom Microscope with streamline base, incl. dual illumination, 35° head, WF 10x (FN23) eyepieceseach |
| 2282-12 | SMZ-168TP Trinocular Stereo Zoom Microscope with plane base stand, 35° head, WF 10x (FN23) eyepieceseach |
| 2282-14 | SMZ-168TL Trinocular Stereo Zoom Microscope with streamline base, incl. dual illumination, 35° head, WF 10x (FN23) eyepieceseach |
| 2290-120 | MotiCam 2300, 3.0 Megapixel Digital Color Cameraeach |
| 22415S | MLC-150C Cold Light Source Power Supply with Single Gooseneckeach |
| 22415D | MLC-150C Cold Light Source Power Supply with Double Gooseneckeach |

■ ProScope HR™ USB Handheld, High Resolution, Digital Microscope



a new, revolutionary method of microscopy

The ProScope HR™ is an affordable USB handheld digital microscope designed for both PC and Mac platforms. With a high-quality 1.3 Megapixel CCD, a built-in illumination and a universal lens mount, the ProScope HR™ is a powerful imaging tool for education, lab, forensics, dermatology and inspection. The ProScope HR™ connects to the USB port of computers and laptops, which allows this digital microscopy tool to be taken from the lab to anywhere in the field for instant imaging. A full range of accessories including lenses (from 1x - 400x), CCD adapter and microscope tube adapter creates a versatile microscopy imaging system which can be deployed practically anywhere for virtually unlimited applications. The ProScope HR™ is surprisingly easy to use: One-button image capture for digital still images, time lapse recording or video's, all stored on your computer or laptop.

Optical System - The ProScope HR™ utilizes a high resolution CCD chip with 1280x1024 pixels. This ensures fast live imaging at a high frame rate. Several lenses with a quick release mount are available: 10x; 30x; 50x; 100x; 200x; 400x.

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|------------------|---|
| 22670-100 | ProScope HR™ Base unit w/o lenseach |
| 22670-120 | ProScope HR™ with 50x lenseach |
| 22670-10 | ProScope HR™ CSI - Science Level 1 Kit . .each |
| 22670-11 | ProScope HR™ CSI - Science Level 2 Kit . .each |
| 22670-12 | ProScope HR™ CSI - Lab Kiteach |
| 22670-4 | ProScope HR™ CSI - Advanced Lab Kit . .each |
| 22670-301 | 1-10x Lens (no illumination)each |
| 22670-303 | 30x Lens with non reflective optioneach |
| 22670-305 | 50x Lens with integrated illumination . . .each |
| 22670-310 | 100x Lens with integrated illumination . .each |
| 22670-320 | 200x Lens with integrated illumination . .each |
| 22670-340 | 400x Lens with integrated illumination . .each |
| 22670-350 | C-mount Adaptereach |
| 22670-360 | Microscope Tube Adaptereach |
| 22670-200 | ProScope HR™ Precision Standeach |
| 22670-441 | ProScope HR™ CSI - Lab Kit Caseeach |