

CRIME SCENE DO NOT

**EVIDENCE
HANDLING
MANUAL**

**MONTANA STATE
CRIME LAB**

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Probe

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EVIDENCE HANDLING MANUAL

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Lab Contact Information

State of Montana Department of Justice
FORENSIC SCIENCE DIVISION

2679 Palmer Missoula, Montana 59808

Lab Contact Information

Phone (406) 728-4970

Fax – (406) 549-1067

Breath Alcohol

Statewide DUI Program Administrators, Maintenance/Repair of Intoxilyzers, Statewide Law Enforcement DUI Training

Chemistry

Drug Identification, GSR, Explosives, Paint Analysis, Fire Debris

DNA/Serology

Biological Material Analysis, Genetic Analysis, Combined DNA Index System (CODIS)

Evidence/Front Office

Shipping/Receiving Evidence, Ordering Forms and Collection Kits

Firearms/Toolmarks

Serial Number Restoration, Distance Determination, Operating Condition, Fracture Matches, Microscopic Comparisons, Crime Scene Reconstruction, National Integrated Ballistic Information Network (NIBIN)

Impression Evidence

Latent Prints, Tire track, Footwear Examinations, AFIS, IAFIS

Toxicology

Analysis of biological fluids for presence of drugs and other toxic substances submitted in cases involving medical examiner cases, DUI/DUID, Drug Endangered Children, sexual assault and Probation and Parole

Trace

Glass, Hairs, Fibers, Miscellaneous

Evidence submission

Security and Management

- Clear area of all people except those essential to the investigation.
- Limit the number of officers collecting evidence.
- Avoid using same entry/exit path the suspect used. (If it can be determined.)

Collection

- Wear non-shedding clothes to a crime scene.
- Wear non-powdered gloves and disposable lab coats to package evidence.
- Change gloves often, or if contaminated.
- Handle evidence as little as possible.
- Record location of evidentiary items prior to removal or movement.
- Tape lift bodies if contact with assailant is suspected.
- Obtain known standards such as fibers, glass or soil.
- Gather personal care items such as hairbrush or toothbrush for possible latent prints or DNA profiling. (In the case of missing persons.)

Packaging

- Air dry wet evidence.
- Wrap all exhibits on a clean surface such as butcher paper.
- Use clean or new containers.
- Package evidence in proper

evidence container.

- Seal with secure tape.
- Initial across tape.
- Do not use staples.
- **10** Label all evidence packages at the crime scene with the following information.
 - Name or initials, date and time.
 - Your agency case number and item number.
 - Description of item including condition.
 - Exact location of item relative to a fixed object.
- Do not mark on the actual item of evidence.
- Complete "From/To" transfer and purpose of transfer on chain of custody.
- Keep biological samples and items requiring refrigeration in refrigerator.
- Store evidence in vault or location with controlled and secured access.

Sealing

- Security tape.
- Heat or self-adhesive seals.
- **Initials or signature on all seals.**

Submission to Lab

- Submit proper forms with chain of custody.
- Submit any incident reports and known prints.
- Submit any scene or evidence photos that may be beneficial to analysis.

Controlled Substances

- All items of evidence must be individually packaged, sealed and initialed across the seal. Items can be sealed with tamper evident evidence tape or heat-sealed.

- When submitting marijuana or other plant material, the sample must be dry. Fresh or damp plant material will mold when placed inside plastic. Samples should include leaves, flowering tops and seeds, if available.

- When submitting entire plants from a grow operation, cut plants off at the soil line. Roots do not contribute to the sample weight by statute, and contaminate the sample with soil.

- Do not submit drug test kits with the evidence.

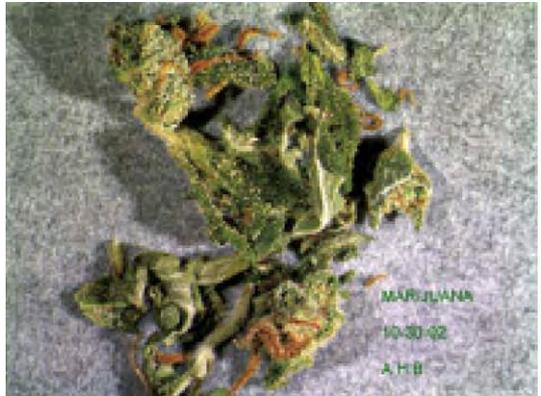
- Syringes must be submitted in a biohazard syringe safety canister.

- Refrain from submitting drug paraphernalia with no visible drug residue.

- Do not test residues with drug test kits.

- If you suspect a clandestine laboratory is in operation, contact the Montana Division of Criminal Investigation or local agency certified in clan labs. Do not handle the evidence in any way prior to contacting a certified responder unless it's to secure an area or lives are in danger. Montana Division of Criminal Investigation – (406) 444-3874

- **FINGERPRINTS:** If latent print examination is need on drug packaging, drugs must be removed if possible and repackaged. Submit the drugs and the packaging as separate exhibits.



Forensic Toxicology



- DUI Kit, Toxicology Kit, Urinalysis Kit, Drug Endangered Child Kit and Autopsy Kit.

• ⑩ Each kit includes:

- Cardboard sleeve or box with preprinted label.
- A submission request form.
- A Styrofoam container with collection instructions that contain:

1 or more Vacutainer test tubes 1 or more paper seals 2 strips of evidence tape 1 or more absorbent pads 1 sealed Povidoneiodine disinfectant pad and blood type request form. (DUI kit only)

⑩ DUI Kit Requirements

- Blood alcohol only: one gray top tube, 10ml whole blood.
- Blood alcohol and

Ordering information

drugs: 2 gray top tubes, 20ml whole blood.

Kits can be ordered by calling the Montana State Crime Lab at (406) 728-4970.

DUI Kit, Toxicology Kit, Urinalysis Kit, Drug Endangered Child Kit can be ordered at no charge.

⑩ Toxicology Kit Requirements

- Blood alcohol and drug screen: 2 gray top tubes, 20 ml whole blood.
- Urine drug screen: 2 gray top tubes, 20 ml urine.
- Blood typing: one purple top tube, 5 ml whole blood.
- Vitreous alcohol: one red top tube, 5ml vitreous fluid.

Forensic Toxicology

10 Urinalysis Kit Requirements

- 2 gray top tubes full of sample.
- Samples must be previously screened by EMIT Immunoassay or through some other approved procedure.

• 10 Autopsy Kit

- Designed for use by the chief medical examiner.
- Containers for collection of blood, bile, vitreous, urine, gastric, liver, kidney, lung, and brain specimens.
- Other autopsy specimens: fingernail clippings, nasal swabs, prescription vials, and hair.
- Refrigerate any kit as per kit instructions.

• 10 Drug Endangered Child Kit

- Collect cluster of hair approximately the size of a pencil in diameter from top apex (near the back of the head). The hair can be pulled or preferably cut close to the scalp using a clean pair of scissors
- Place hair in aluminum foil.
- Fold foil so that all hair will remain inside. Place one piece of evidence tape over the folded area.
- Place foil into manila envelope, seal envelope, and place evidence tape over closed end.
- Fill out information requested on back of envelope



DNA Evidence/ Serology



- ⑩ Moist Stains
 - Wear gloves.
 - Air dry all items before submission.
 - Keep out of direct heat or sunlight.
 - Package separately in paper.
 - Label and seal packages.
 - **Never use plastic.**
- ⑩ Collection of Liquid Blood
 - Absorb into sterile cotton swab.
 - Let air dry.
 - Seal and label.
- ⑩ Collection of Dried Stains
 - Wrap stained item in paper bag or box.
 - Seal and label.
 - Large objects: Moisten swab with distilled water, rub area with swab, and package swab.

Hair

Photograph item to document location of hair(s) prior to collection.

- Submit bulk items to the lab for collection of hair evidence.
- Dry wet/damp hair prior to packaging.
- Visually apparent crime scene hair may be 'lifted' with a sticky note or 'picked' with clean forceps or gloved hand.
- If hair evidence is dry, it can be packaged in a resealable plastic bag. Double packaging in paper is always appropriate; seal all seams.
- If a hair is attached to an object, cover the hair with paper and tape the edges. Submit the object with hair intact, if possible.
- If deformation of a windshield or car part exists in a hit-and-run case, submit those parts. Microscopic amounts of hair (fibers, blood, etc.) may be present.
- Package hairs recovered from different locations in separate containers.
- ¹⁰ Tape lift items to secure any hairs that were overlooked. (See tape lifting procedure under FIBERS.)
- Vacuuming as a back-up technique. Empty contents of vacuum bag onto a clean sheet of paper. Fold paper into a paperfold. Seal. Place paperfold in an envelope or resealable plastic bag. Seal seams.

KNOWN HAIR STANDARDS

- Collect known hair standards from all individuals involved as well as people you may want to exclude as contributors of questioned hairs.
- Ideally, a known hair sample should contain both pulled and brushed/combed hairs.
- Do not cut hairs, if possible. If cutting is necessary, cut or shave as close to the roots as possible.
- A known head hair sample consists of at least 50 head hairs from all over the scalp.
- A known public hair sample consists of at least 25 hairs from all over the pubic region.
- Hair can be a rich repository of transferred trace materials. Depending on the trace material, the subject's hair can be combed with a fine tooth comb over paper (glass/foreign hairs) or lightly tape lifted (fibers).

Tape lift of Hair

10



Fibers

Photograph item to document location of fibers prior to collection.

- Fiber evidence should be obtained as soon as possible after a crime to minimize loss/contamination.
- Be aware of possible contamination from your hands, clothes, tweezers, paper supply and mailing containers.
- ¹⁰A sticky note may be used to secure fiber evidence. Fold note and place in envelope. Seal and label.
- Because most fiber evidence is microscopic and invisible to the naked eye, tape lift critical areas such as car seats, ligature marks, or a homicide victim's body whether nude or clothed.
- Consider the value of 1:1 taping to show where fiber evidence was found before a redistribution of fiber evidence occurs. Completely cover an item with tape lifts, label the lifts numerically and photograph prior to removal of tapes for placement on a transparency.

TAPE LIFTING PROCEDURE:

- Use precut strips of tape with tab ends or other high quality 2" wide clear tape. If tape is on a dispenser, discard exposed tape before use. The ends of roll tape may be folded under for handles, if desired.
- Repeatedly apply tape to an area until the tackiness is reduced to a low, but discernible level.
- Affix tape to a clear transparency sheet or page protector.
- With permanent marker, label the transparency adjacent to each tape lift as to location lifted.
- Several tape lifts of the same object may be placed on the same transparency sheet.
- Place transparency sheets in a manila envelope, label and seal.

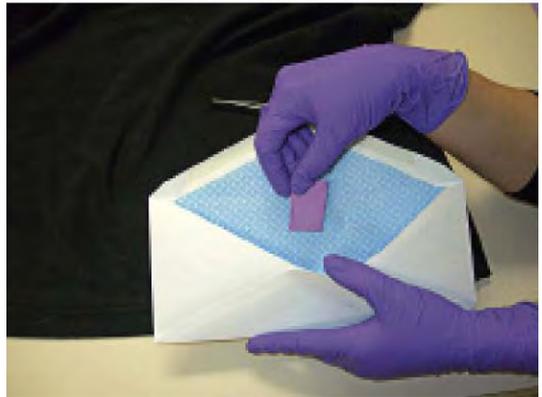
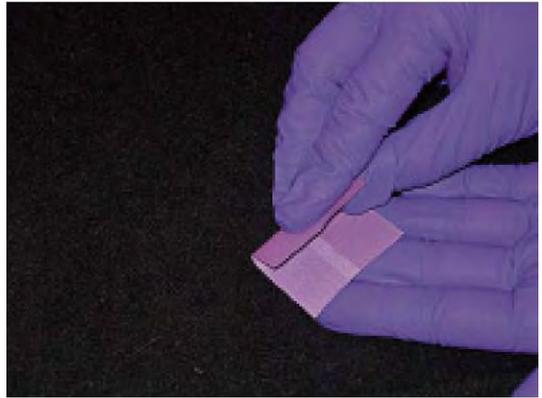
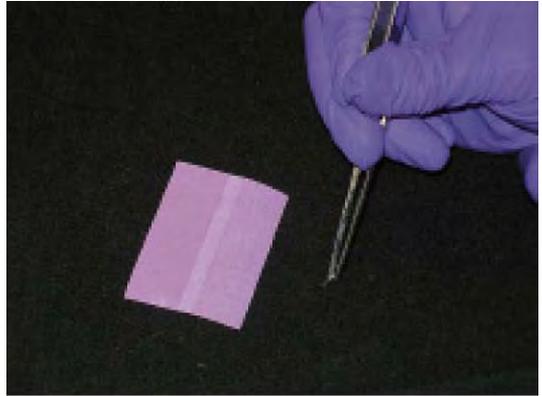
- Vacuuming is efficient but indiscriminate. Vacuumings are valuable in that they show the analyst the 'population' of trace debris that might have transferred, for example, from vehicle to victim.

- Be on the lookout for known textile sources at a crime scene that are sheddable and/or of unusual colors. Submit whole garments or other reference sources, if possible.

KNOWN FIBER/FABRIC STANDARDS TO COLLECT:

- Suspect's clothing
 - Wigs/hairpieces
 - Fake furs
 - Fuzzy blankets
 - Carpets/rugs
 - Upholstery
 - Cordage
 - Tape
- Take dime-sized standards of bulky items such as carpeting or upholstery from areas most likely to have come in contact with the subject.

Fibers –
securing
questioned
fibers on a
sticky note
using forceps.

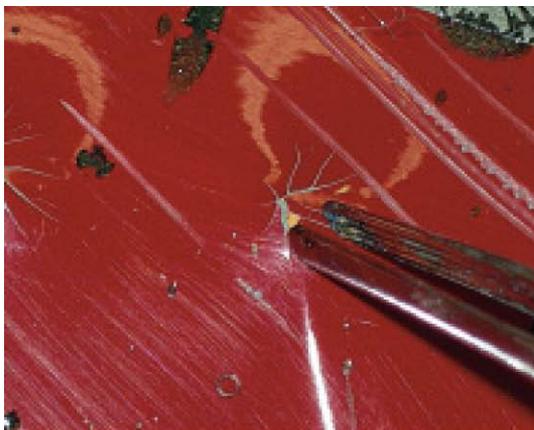


Cordage

- Handle cordage carefully to prevent contamination and loss of trace materials.
- Collect without untying knots.
- If you must cut, cut away from the knots and reattach ends with twist ties or plastic cable ties.
- Specify which ends were cut during evidence recovery.
- Submit the entire rope or cord.
- Package cordage in re-sealable plastic or paper bag.
- Seal and Label.



Paint



Automotive paints

- Examine victim vehicle and suspect vehicle/object for paint transfer.
- Remove any loose chips with tweezers.
- Collect any paint transfers by chipping/scraping with a clean razor blade.
- Collect known paint from same area (e.g. fender), away from the area of damage.
- Place each sample in separate paperfold and individually seal in an envelope.
- Ensure all paint layers are collected.

Burglary

- Submit any tools.
- Submit known paint sample collected adjacent to toolmarks.

Tape

- Wear non-powdered gloves.
- Submit pieces of tape intact on items to which they were stuck. Cover with sturdy plastic material such as transparency sheet(s) or resealable bags. Seal edges.
- Submit a roll of tape in a resealable plastic bag to prevent contamination.
- Attach and submit a loose piece of tape to a sturdy, clean, nonporous material (transparency sheet, Plexiglas) and seal.
- NOTE: Tape is a good source for transferred trace materials. Make sure no contamination from your supplies or clothing occurs.



Glass



- Package small pieces of glass in leak-proof containers such as pill vials or film canisters.
- Wrap large pieces of glass in paper, then double-box to prevent further breakage.
- Package and ship glass from different locations separately.
- Package implements such as crowbars in crisp paper to preserve latent prints and glass.
- “Sandwich wrap” articles of clothing. Package separately.
- Vacuum, don’t tape lift.
- Collect all known glass remaining in a headlight.
- Physical matching may be possible if questioned glass pieces are large and few in number. Collect ALL glass. Small windows: Reinforce broken glass with tape and remove as a unit. Label frame **INSIDE, OUTSIDE, UP and DOWN**. Large windows: Prior to removing broken glass from window, label each major piece **INSIDE, OUTSIDE, UP, and DOWN**. Photograph.
- Collect all questioned glass at a hit-and-run scene as more than one window may have been broken. (Loose glass may have been carried some distance.) Likewise, collect known glass from each broken vehicle window.
- If questioned glass particles are very small or large in number, then exploring a physical match is unrealistic. Collect known glass standard from each

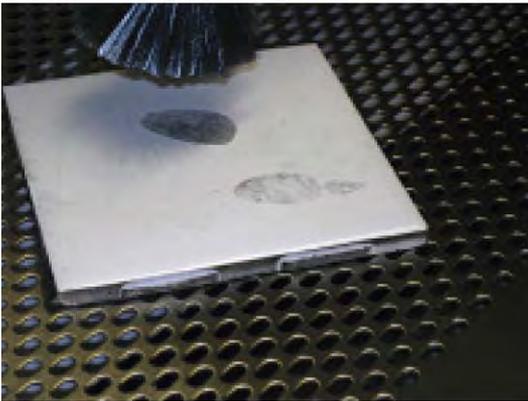
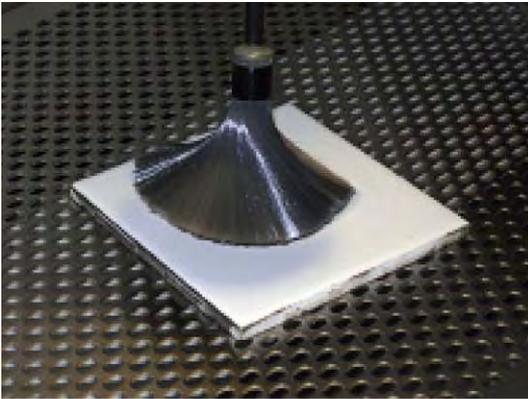
broken window at point of impact, as well as several samples away from point of impact.

- Collect questioned glass particles in hair, wounds and skin.
 - Summit entire windshield in hit-and-run cases if deformation exists.
- Laminated glass standards should be labeled **INSIDE, OUTSIDE, UP, DOWN**.

Latent Prints

NONPOROUS ITEMS

- Examine object visually with a light source. (laser, alternate light source (ALS), or flashlight)
- Photograph any visible prints onetone, with ruler in image for reference
- OPTIONAL:
Supergluefume using the appropriate containment and ventilation procedures. Photograph prints.
- Dust with contrasting powder until print develops.
- Allow wet prints to dry before dusting.
- Do not apply powders to greasy, bloody, dusty or putty evidence.
- Lift latent prints with lifting tape.

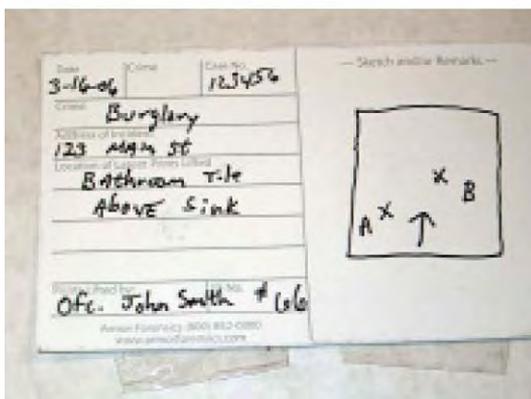
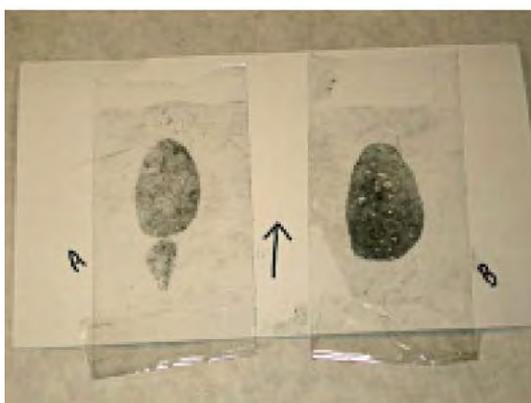
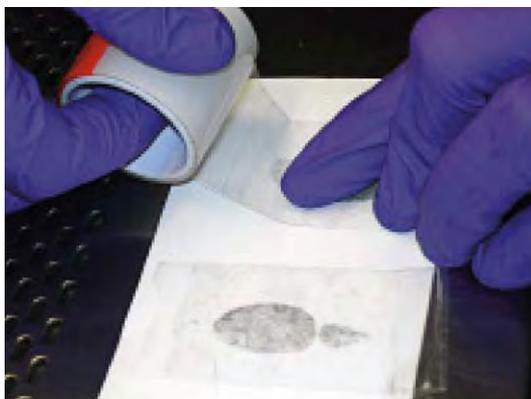


Latent Prints

- Place lift on transparent sheet or lift card.
- Label the lifted print with your initials, date, case number, location lifted, and orientation of the latent print.
- Submit all photos, negatives and lifts for comparison.

POROUS ITEMS

- ⑩ Porous items should be sent to the lab for proper chemical processing, such as ninhydrin, DFO, and photography



Footwear and Tire Impressions



- ⑩ Photograph:
 - Side Lighting should be used to enhance details, from each side of impression
 - Do not remove debris from impression.
 - A scale should be included in the photo.
 - Overall crime scene view and closeups should be taken.
- ⑩ Casting: A casting kit should be available for use at the crime scene, which contains the following materials:
 - One 2 lb. Ziplock bag of Dental Stone.
 - 1012 ounces of water.
 - Spray or Snow Print wax.
- ⑩ Preparation for casting:
 - Clean out the new loose material without disturbing impression.
 - Snow wax to fix sandy or snowy soil prior to plaster.
 - Gently pour dental stone mixture outside impression and allow to flow in.

Footwear and Tire Impressions

- Dry 30 minutes to several hours.
- Clean cast with water.
- Use a pencil or Sharpie to label the back of the cast with case #, date, initials, and direction
- Allow to dry 24 hours, then package in paper and cardboard.



Firearms



- Photograph in original position, using a measuring device in all photos.
- Take both overall and closeup photos, particularly of the receiver/frame, safeties, bolt, etc., if practical.
- Wear gloves while handling all evidence.
- Unload weapon and render safe before transporting. Unload with proper unloading technique and procedure according to type of weapon. Package evidence separately.
- If chamber position is deemed important, then properly mark the cylinder by placing an "X" on both sides of the chamber located under the hammer.
- Cartridges and cartridge cases should also be wrapped individually, and packaging marked as to position.
- Package Firearms individually in an appropriate container. (In circumstances in which the firearms must be personally transported for further examination at a proper facility, use cardboard box).
- **Never place any hard object in barrel or action of firearm.**

need to be collected from the weapon, wrap it in clean paper then package in a box for transport.

- Indicate the brand name, model designation, serial numbers, and caliber.

- If biologicals and trace

Firearms

Clothing Submitted for Distance Determination

- Must be airdried in a secure location.
- Handle as little as possible.
- Lay each item flat and sandwich wrap between pieces of paper. Carefully fold the wrapped clothing and place in a paper bag. Seal.
- Do not package articles of clothing together.
- Label inner and outer containers with biohazard stickers, if they contain clothing with blood.



Gunshot Residue Kits



Ordering information

GSR Kits can be ordered by calling the Montana State Crime Lab at (406) 7284970.

Note: There is a nominal charge for GSR kits

- Collect GSR from subjects as soon as possible, preferably at the scene.
- Carefully read and follow instructions provided with each kit.
- Open individual vials by gripping brown plastic top in one hand and vial body in other. Pull sections

gently apart.

- Do not handle the tacky ends of the metal stubs.
- Dab the tacky surface up and down on the areas of interest.
- Continue to dab until all the areas have been covered, even if the

collection surface is no longer tacky.

- If possible avoid wet, bloody or heavily soiled areas.
- After collection, place brown plastic cover securely back onto the vial body.
- If collecting from surfaces other than those described in the instructions, please contact the Lab.

Operating Condition of Lights

- At the scene, recover all parts of a broken lamp.
- Check to see if light switch is on or off.
- When packaging lights, do not allow packing material to touch filaments.
- Enclose filaments that are separated from their posts in a small cardboard box.
- Cover filaments still attached to light with paper or cup and secure with tape.
- Double box to prevent internal movement.
- Seal and label.
- If possible, hand deliver the evidence.

Glass bead adhering to filament.



Toolmarks

- Examine the crime scene. If a broken tool part is found, it may be physically matched to a tool in the suspect's possession.
- To avoid contamination and or loss of evidence, never attempt to determine if a suspect tool physically fits in a toolmark.
- Photograph tools and toolmarks, taking both overall and closeup photos with measuring devices.
- Submit the tool. Do not attempt any "fieldtesting" with suspected tools
- Submit all suspected toolmarks on an object.



Toolmarks

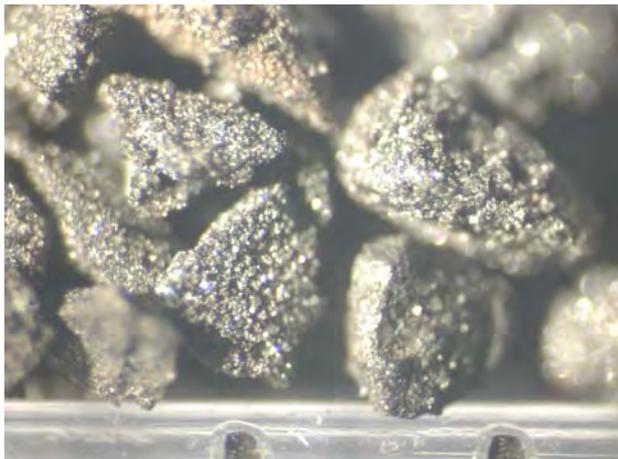
- If it is not possible to submit the evidence bearing the toolmark, submit a cast of the toolmark. This should be done only as a last resort and only with a good casting medium such as Forensic Sil, Mikrosil or silicone casting material.
- Tools should be wrapped and sealed in paper. They must also be stabilized for shipping. This can be done with bubble wrap and double boxed in additional packing material.
- Package all evidence separately.
- You may write directly on toolmark evidence, such as a door jamb, for identification purposes including “up/down/inside/outside” as appropriate, as long as the writing is placed in an area free of toolmarks.



Low Order Explosives

- Improved Explosive Devices (IED) must be rendered safe.
- Submit remaining physical evidence including any unburned powder.
- If submitting materials used to make IEDs, such as smokeless powder, obtain as much information as possible e.g. manufacturer and lot numbers.
- Burned and unburned powder residue may be submitted in small ziploc bags, paperfolds (bindles) or other small containers. Envelopes should be avoided since powder particles are lost in the creases.
- If possible, hand deliver the evidence.

Unburned black powder



Fire Debris/Ignitable Liquids

- Evidence must be packaged in an airtight container, preferably new unused paint cans. Plastic bags are NOT suitable.
- Fill cans approximately $\frac{1}{2}$ full, leaving plenty of air space.
- Collect samples from the edge of pour patterns.
- Collect and submit negative comparison samples of each type of sample substrate.
- Samples of ignitable liquids should be shipped separately from questioned samples collected at the scene.
- Be aware of other types of evidence present at the scene.



The Sandwich Wrap



1 Place evidence on a clean sheet of paper.

2 Place layers of clean paper between layers of clothing.

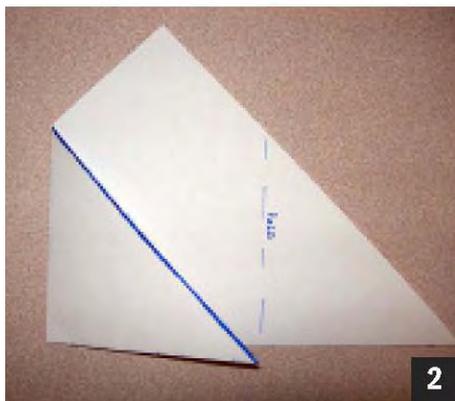
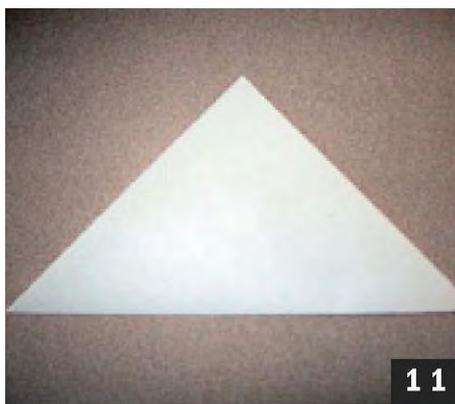
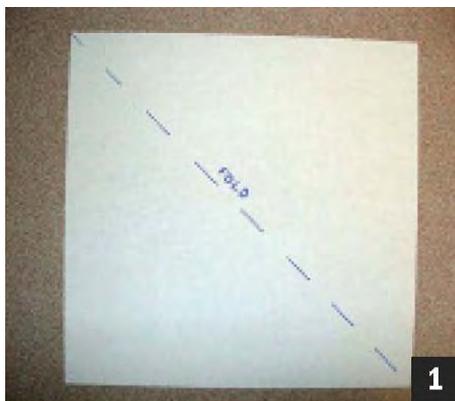
3 Carefully fold article in on itself, making sure all edges are sealed.

4 Place folded article in new paper bag.

5 Seal and label package.

The Paper Fold

- 1 Fold square sheet of paper diagonally to create a triangle.
- 2 Fold ends created by the crease toward the center (approximately 1/3 the width) to create an envelope
- 3 Open the top of the envelope and place evidence inside.
- 4 Close top of envelope and fold over twice.
- 5 Seal with tamper evident tape.
- 6 Label with case #, initials, and date.



The Paper Fold

