

Evidence Integrity

In any criminal investigation, the validity of information derived from examination of the physical evidence depends entirely upon the care with which the evidence has been protected from contamination. In other words, if the evidence has been improperly collected, handled, or stored, its value may be destroyed and no amount of laboratory work will be of assistance. Therefore, it is important that items of evidence be collected, handled, and stored in a way that will ensure their integrity. In doing so, the likelihood is increased that useful information can be extracted by examination and that the item will be considered admissible in court proceedings.

I. Preserving the Crime Scene

The first officer at the scene of a crime has several immediate responsibilities. Among these duties is preserving the integrity of the scene by preventing the destruction of potential evidence that may lead to the resolution of the crime. To accomplish this responsibility, the first officer at the scene should consider the following:

- A.** As you near the scene, take note of persons and vehicles in the general area.
- B.** Attempt to obtain identification of any persons leaving the scene.
- C.** Limit access to the scene.
- D.** Note your route through a scene as you “clear” the scene.
- E.** Remove or isolate persons present at the scene - victims or witnesses - so that they do not purposely or inadvertently alter or destroy evidence. Instruct them not to discuss the events.
- F.** Every attempt should be made to exclude official “sightseers” by explaining the potential consequences of disturbing the scene.
- G.** Maintain a crime scene log in which the name, department, arrival and departure of each person at the scene is recorded. Note who has been inside the scene perimeter (EMS, fire department, etc.).

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- H. Use a camera to document the scene as it was initially found.
- I. Record any changes to the scene by your actions or those of emergency personnel.
- J. Make note of the following but do not move or pick up anything:
 1. Doors and windows - opened, closed, locked?
 2. Lights, TV's or radios – on or off? Which ones?
 3. Odors (cleaning solutions, cigarette smoke, perfume, etc.) in the air?
 4. Items out of place?
 5. Condition of body?
- K. Attempt to “freeze” the scene as closely as possible to the condition in which it was found to minimize the destruction of evidence.
 1. Protect the perpetrator’s suspected routes of entry and exit. If possible use another entrance to the scene to avoid destroying possible latent footwear and fingerprint impressions.
 2. Protect evidence (such as footwear and tire impressions, biological and trace evidence) from inclement weather.
 3. Wear gloves and, if necessary, shoe covers when entering the scene. (Shoe covers should be worn at scenes where biological and trace evidence and latent footwear impressions may be important.)
- L. Collect victim/suspect clothing including footwear. If the victim’s clothing is removed at the scene by emergency personnel, advise them not to cut through holes in the clothing.
- M. Record any observations of the suspect(s). Any injuries? Any bloodstains on hands or clothing? Condition?

II. Processing the Crime Scene

Processing of a crime scene should begin with an initial assessment. This assessment will help to formulate a systematic plan for the recognition, collection and preservation of physical evidence at the scene. Conduct a walkthrough of the scene with an officer well-informed of any actions that have occurred at the scene. As you conduct this assessment note the following:

- A. Potential evidence along the perpetrator's suspected routes of entry and exit.
- B. Is there evidence of forced entry? Toolmark impressions?
- C. What items have been disturbed or are out of place? Is there evidence of a struggle? Ransacking?
- D. Any potential bloodstains on walls, floors, or items.
- E. Possible weapon. Firearm? Knife? Blunt object?
- F. Footwear or fingerprint impressions in dust on hard surfaces. Use a flashlight with oblique lighting to reveal this evidence.
- G. What areas should be processed first to limit loss due to inclement weather or chance of contamination?
- H. What will need to be photographed? Sketched? Videotaped?
- I. How the search should be conducted.
- J. What evidence collection kits are needed? What additional resources?

After the initial assessment, processing of the crime scene can begin. This processing includes note taking, photography and videotaping (see Chapter 2), crime scene diagrams (see Chapter 4) and evidence collection. This handbook includes collection methods of various items of evidence that may be encountered at the scene. Appendix B in this handbook lists evidence collection kits that a law enforcement agency might want to consider creating for crime scene processing. **If an investigator is uncertain as to how to collect a certain piece of evidence, contact the Crime Laboratory for specific instructions.**

Make sure while processing the scene, appropriate personal protective equipment is worn (See Appendix A - Bloodborne Pathogens). Practice universal precautions (assume all biological samples are contagious). Change gloves often especially between items collected for DNA evidence. Wear booties at scenes to protect your footwear from biological materials and to prevent contaminating the scene.

If the crime scene involves a death investigation, do not remove the victim(s) until the route of removal and the area around the body have been processed to avoid contamination and destruc-

tion of evidence. Bag the victim's hands to preserve any evidence that may be trapped under the fingernails. The body must be wrapped in a new sheet and placed in a sealed body bag. An autopsy of a suspicious death should be conducted by a qualified forensic pathologist.

When submitting evidence to the Laboratory, determine the most probative pieces of evidence to prioritize analysis. Evidence Submission Guidelines are available to submitters (See Appendix C) for assistance in prioritizing evidence for analysis. Laboratory staff are available if further assistance is required.

III. Collection of Evidence

It is important to properly collect, seal and identify items of evidence and maintain a proper chain of custody for two reasons. First, you must be able to prove that the item introduced in court is the same item that was collected at the scene. Second, you must ensure that the item is not altered or contaminated between the time it was collected and the time it was examined forensically or entered as evidence. These objectives are best achieved by proper packaging and sealing of evidence and maintaining a proper chain of custody.

Packaging

Packaging materials should protect the item from contamination, tampering, or alteration. Packaging materials should not cause deterioration. For instance, articles of clothing should not be packaged in material that traps moisture. Items that might contain residual moisture should be packaged using a material that allows moisture to pass through - paper or cardboard. (**Note:** items for DNA examination should **always** be packaged in paper or cardboard, even if they appear dry.)

Unless an item of evidence is a liquid sample, items that are wet should be allowed to dry before being packaged and then packaged in paper or cardboard. There are occasions when a vapor-tight barrier is required. One example is when flammable liquid vapors are sought in fire debris. Such an item must be

packaged in a vapor-tight container.

Another way that packaging could contribute to deterioration is through abrading the surface of the item, thereby removing surface deposits. For instance, fingerprints can be obliterated by friction between the container and the item. Also, markings on lead bullets can be altered if packaged improperly.

Only new, unused materials should be used to package evidence. If the packaging has been previously used, trace evidence can be imparted to the item, negating the value of some examinations. Common packaging materials include paper, cardboard, plastic, metal cans and glass.

Paper. Paper goods are appropriate packaging for many different types of items. Paper is porous—it allows water vapor to escape. As a result, it is the packaging of choice for items which may contain residual moisture (unless it is important that the vapors be trapped). Clothing and other cloth items which are to be examined for DNA evidence should always be packaged in paper; moisture can lead to the destruction of DNA samples. Plant materials, such as marijuana or mushrooms which are confiscated fresh, should be thoroughly dried before submission to the Laboratory. When stored in plastic, plant material will mold, or, with enough time elapsed, may decompose into a moldy ooze (see Chapter 32, Controlled Substances).

Paper is also more appropriate than plastic for very small samples such as hairs, paint chips, and other small items. Surface treatments and static electricity may cause trace evidence to cling to plastic. This is not as great a problem with paper. The primary concern when using paper with trace samples is that the paper is securely folded and sealed so that the sample cannot escape through an opening.

Bags. Paper bags come in many sizes. Bags are a good choice for bulky items. Choose a bag that is sized to the item – don't use a full-size grocery bag to collect a wrist watch or a paint chip. Bags may leak at the seams and corners, and may not be suitable for powdery evidence unless all possible openings are taped.

Envelopes. Envelopes also come in a variety of sizes. Manila “coin envelopes” are good for small samples. Letter-size envelopes work well for many items. Large manila envelopes can be useful for larger moderately heavy items. Some manila envelopes designed to hold evidence are constructed with a clear acetate window which allows the contents to be viewed while retaining the breathability of paper. Like paper bags, envelopes may leak at the seams and may not be suitable for powdery evidence unless the seams are taped.



Fig. 1-1 Choose the best size and type of packaging for your item given the wide variety of packaging and sizes available.

Cardboard Boxes. Large cardboard boxes work well for heavy or bulky items. Unless they have a waxy finish, cardboard shares paper’s porous nature and is a good choice for items that might contain residual moisture and for DNA samples. Cardboard boxes should not be used for trace evidence or when the item is to be examined for trace evidence. Small “slide boxes” are useful for samples such as bullets and bullet fragments. Various companies carry cardboard boxes for packaging weapons including knives and hand and long guns.



Fig. 1-2 Examples of various cardboard boxes available including slide boxes, swab boxes and a box for securing a handgun or knife. Cardboard boxes

Glass vials and jars. Glass vials and jars are useful for liquid samples: blood, alcohol, flammable liquids, water and so forth. Blood samples should be collected by following instructions contained in Handbook chapters on Toxicology, DNA samples and Autopsy. The vial or jar must have a tight-fitting top and must be protected from breakage once collected.



Fig. 1-3 Glass vials are available from hospital and scientific supply outlets. Smaller glass vials can be packaged within Nalgene bottles for protection. Use a clean, new pipette to transfer liquids to glass vials. In the case of glass pipettes, use a rubber bulb or other device designed for the purpose of providing suction. **Never** use your mouth—the practice is dangerous and may contaminate the sample.

Plastic. Plastic has several obvious advantages: it has great strength for its weight and transparent plastic allows inspection of the contents. There are several disadvantages which must be recognized, however. First, water vapor does not freely pass through plastic. Most evidence is adversely affected by prolonged exposure to water: steel will rust, cardboard or paper may decompose, biological materials (blood and semen stains) are destroyed, natural clothing materials (leather, wool, cotton) can mold and degrade. Some gaseous materials and vapors, depending on the plastic's moisture vapor transport rate (MVTR), can pass through semipermeable plastic and therefore may allow sought-after samples to escape. See the section, "Metal cans," for further details. Plastic is acceptable for items that you are certain are dry, especially plastics, paper, drug powders and tablets, etc.

Plastic sharps containers are available in a variety of sizes. Hypodermic needles must be packaged in a sharps container before submission to the Laboratory. Knives must be packaged in a sharps container or secured within a cardboard box. Consideration should be taken when deciding what packaging to use. If DNA testing is requested, secure the knife in a cardboard box and not a plastic sharps container.



Fig. 1-4 Examples of plastic sharps containers. Do not package knives in plastic containers if DNA testing is requested.

Metal cans. New, clean, unlined paint cans are ideal for storing non-biological samples that could evaporate. The most common examples are flammable liquid accelerants found in fire debris (e.g., gasoline, charcoal lighter fluid, etc.). A previously used can is not acceptable; paints contain solvents that are similar to an arsonist's accelerants. For the same reason, you should never reuse any evidence packaging materials, including cans. As indicated above, plastic allows hydrocarbon vapors to escape. Plastic may also be attacked and destroyed by high concentrations of vapors. **For these reasons, volatile samples should only be stored in metal and never in plastic.**

This general discussion is intended to give guidance in situations where specific instructions are not provided elsewhere in the Handbook. Consult chapters dealing with specific types of cases or evidence and if provided, follow instructions.

Sealing

Evidence received by the Laboratory must be properly sealed. A proper seal provides proof that an item has not been accessed and therefore could not have been altered or contaminated during storage or transport. Nothing can be added or removed from a properly sealed package. The primary requisite of a good seal is that if it is tampered with, the tampering can be detected. There are many recognized sealing methods and a number are discussed below. All are used by the Laboratory. Methods of

sealing evidence include heat sealing in plastic, tapes, tamper-proof tapes, tamper-proof adhesive strips, or a combination of these methods.

Tape. Cellophane or cloth tape can provide a tamper-evident seal on some surfaces. However, tape on plastic does not provide an acceptable seal because it can be easily removed and replaced. The security of this method is improved by use of tapes with organizational names printed on them (thereby limiting the number of persons who could reseal the item). Use an indelible pen to **write your initials across the junction of the tape and the container.** If disturbed, it will be nearly impossible to reposition the tape so that it precisely matches.



Fig. 1-5 Close the opening of the container by folding over the opening more than once. Use an indelible pen to write the sealer's initials across the junction of the tape with the container.

Tamper-evident tapes. Tamper-evident tapes are destroyed by efforts to remove them. Traditionally, the security feature was created by a combination of a tenacious adhesive and a low tensile strength backing. Some new tapes change color or have words develop when disturbed. The tapes come both in long rolls and in short, individual strips.

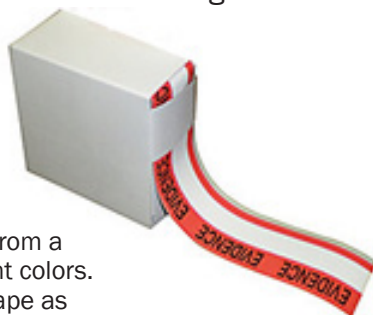


Fig. 1-6 Tamper-evident tape is available from a number of suppliers and in several different colors. Your agency's name can be added to the tape as an additional identifier.

These tapes are advertised as providing tamper-evident seals on all surfaces. In reality, some brands of tape can be removed from plastic bags without evidence of tampering. Always check for permanence on an identical test object before using a particular tape. If the brand of tape or packaging is changed, retest.

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One advantage of tamper-proof tapes is that they are designed to shred or tear when pulled or stressed. This advantage is a potential disadvantage, however, if a mechanically strong joint is required. Unless somehow reinforced, the tape may spontaneously shred if stressed. When the tape joint may be strained, use another method to secure the joint and then use tamper-evident tape across the joint. Some tamper-evident tapes will not adhere under cold conditions.

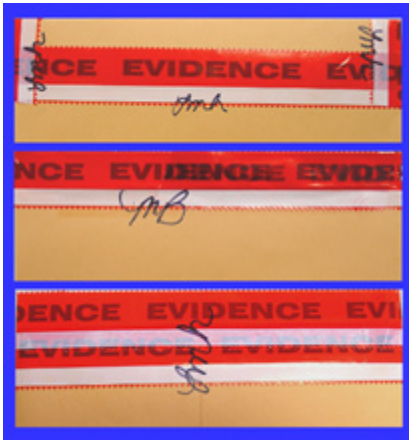


Fig. 1-7 Use an indelible pen to write the sealer's initials across the tape. Make sure the sides as well as the bottom of the flap of the envelope are covered with tape to prevent anything from being added to or escaping from the envelope. The examples illustrate the flap folded inside or outside the envelope and taped with one or multiple strips of evidence tape. Always check the manufacturer's seal on the packaging to ensure that it is adequate.

Tamper-evident adhesive strip. Tamper-evident adhesive strips attached to plastic bags are a quick and easy method of sealing plastic bags. Remove the plastic protective cover from the adhesive and either squeeze the sides of the plastic bag together or on some bags fold the plastic flap over the adhesive strip and squeeze together. **Write your initials on the plastic bag directly over the adhesive seal.** Any attempt to disturb the seal results in distortion of the plastic bag and/or the initials.

Staples. Stapling, by itself, is not an acceptable method to seal evidence nor is it a preferred method to seal evidence. However, it can be used in conjunction with other sealing materials. Be aware, exposed staples can present a sharps hazard. **If staples are used they must be covered by tape.**

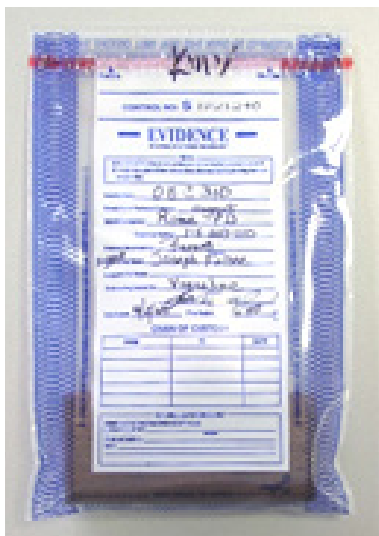


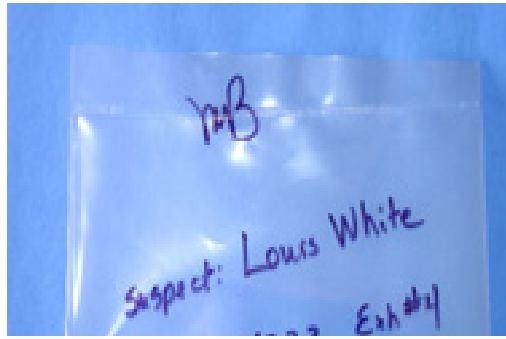
Fig. 1-8 Use an indelible pen to write the sealer's initials on the plastic bag over the adhesive seal.

Heat sealing. The heat sealing method partially melts the plastic packaging and fuses it together. Some sealers emboss an identifiable mark into the seal. Use an indelible marker to **write your initials across the seal**. These markings provide evidence that the package was not opened and then resealed.



Fig. 1-9 Several different types of plastics can be used with heat sealers, but each requires a different time/temperature combination. Make sure that you sufficiently heat the plastic to ensure the halves are fused together. Also pictured are commercial heat sealers. The heat sealer pictured embosses an identifiable mark into the seal.

Fig. 1-10 Use an indelible pen to write your initials across the heat seal to authenticate it.



Chain of Custody

The chain of custody is a record that documents every person that had custody and control of an item from the time it was collected until its introduction into court. It allows the courts to question all persons who possessed an item regarding their handling procedures and the actions they took.

The importance of a properly documented chain of custody cannot be overemphasized. The chain is often closely scrutinized. Evidence is challenged and sometimes rejected because of improper handling or documentation. Thus it is extremely important that proper methods be used in collecting, preserving, and documenting physical evidence.

The chain should be no longer than necessary. Ideally, it should include only:

- A. The investigator who recovers the evidence.
- B. The departmental evidence custodian (in cases when the item is not immediately transported to the Laboratory by the recovering investigator).
- C. The person who transports it to the Laboratory (if possible, one of the two preceding individuals).
- D. The person (normally the forensic program technician) who receives the evidence at the Laboratory.
- E. The Laboratory scientist who examines the evidence.
- F. The person that retrieves it from the Laboratory (if possible, one of the first two individuals).

Transmittal of Criminal Evidence form

When submitting a new case or additional items for a case already submitted, a Transmittal of Criminal Evidence form must accompany the evidence (Fig. 1-11). This form supplies important details that are needed for Crime Laboratory record management. It also ensures that reports of analysis will be associated with the correct offense. If your agency does not have these forms or if you have any questions about proper completion, contact the Laboratory in your service area. An electronic version of the Transmittal of Criminal Evidence form is available upon request from the Laboratory in your service area and can be found on the Wisconsin law enforcement website www.wilenet.org.

Each offense should be submitted as a separate case. For instance, if fingerprints were found at three businesses burglarized on the same night in the same strip mall, each burglary could result in a separate criminal count. Therefore, each incident should be submitted on a separate form. In a drug case, if more than one buy/deal occurs involving the same suspect on the same day, the Laboratory considers **each** buy/deal a **separate** case which must be submitted on a **separate** transmittal form.

Make sure all entries are legibly recorded. Hand printing or type-writing is preferred. If there are special instructions, note them on the Transmittal form or include them in a letter in the same envelope.

Information to be supplied includes:

1. **Submitting Agency.** Name of agency submitting case (Police Department, Sheriff's Office, MEG Unit, etc.)
2. **Submitting Agency Case Number.** Identical agency case number as shown on the evidence.
3. **City of Agency.** Municipality where agency is located.
4. **County of Agency.** County where agency is located.
5. **Date Transmitted.** Date case is mailed or transported to Lab.

6. **Offense Committed in City/Town/Village.** If known.
7. **County of Offense.** List only one county.
8. **Offense Date.** Only one incident per transmittal form. Must be one specific date, not a general time frame.
9. **Criminal Offense.** List all charge(s). Be specific. In drug cases, this is typically possession, possession with intent, delivery, manufacturing, etc. In cases such as arson, burglary, or theft, be sure to indicate the type of property burned, burglarized, or stolen.
10. **Trial Date.** Date of jury trial, if known.
11. **Victim(s).** Victim(s) of the crime. In drug cases, there are usually no victims. In the case of multiple burglaries, each burglary is a separate case even though the same suspect(s) may be involved. Each victim must be listed on a separate transmittal form. If a business is involved, include name of business, owner and any employees involved; list the cashier in armed robbery, etc.
12. **Suspect(s).** All suspect(s) in the crime, whether or not charged.
13. **Sex/Race.** Sex and race of victim(s) and suspect(s). This information is necessary in sexual assault cases for both victim and suspect.
14. **Age/Date of Birth.** Age and date of birth of victim(s) and suspect(s).
15. **Agency Exhibit Number.** If submitting agency has an exhibit number, item number or inventory number for the piece of evidence, it may be listed here and must match the exhibit number shown on the evidence.
16. **Number of Items.** Number of pieces of evidence being submitted under your item number or inventory number.
17. **Item Description and Source.** Brief description of evidence and the analysis requested.
18. **Full Name & Title of Submitting Officer.** Full, printed name of officer submitting case. (No initials or nick names —

Packaging Checklist

Before shipping evidence ask yourself:

Has evidence been properly collected, preserved, and sealed for submission to the Laboratory (heat seals marked with the sealer's initials, all tape seals marked with the sealer's initials across the junction of the tape ends?)

Has evidence, to include fingerprint cards, been properly sealed?

Has evidence been properly packaged for shipping to the Laboratory?

Has Transmittal of Criminal Evidence form been properly completed?

Has Transmittal of Criminal Evidence form been put in an envelope attached to the **outside** of the package?

When using registered mail, the edges of the envelope must be completely covered with brown paper tape.