

TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Violent Crime Response Team Standard Operating Procedures Collecting Gun Shot Residue



10.12 Collecting Gunshot Residue (GSR)

10.12.1 Purpose

Gunshot residue (GSR) is the test for determining if a person could have fired, handled, or been near a firearm when it was discharged. The test involves detecting residue from the primer of a cartridge that may be deposited on the surface of a person's hands, face, clothing, or an item that was in the vicinity of a firearm at the time it was fired. This procedure provides general guidelines in the collection of gunshot residue.

10.12.2 Equipment and Reagents

GSR SEM Evidence Collection Kit
GSR sticky tabs
Stub storage boxes or single mount storage tubes

10.12.3 Procedure

10.12.3.1 VCRT members shall use sticky tabs to collect gunshot residue. The sticky tabs are metal stubs equipped with a carbon adhesive tab used for lifting residue.

10.12.3.2 VCRT members performing the sampling shall remove any firearms from their person, when it can be done in a safe manner, and wash their hands thoroughly and wear clean gloves prior to collection of any gunshot residue or preparation of any gunshot residue sampling items.

10.12.3.3 Care should be made to avoid collection in heavily soiled or bloody areas as much as possible.

10.12.3.4 Individuals

10.12.3.4.1 VCRT members shall use a GSR SEM Evidence Collection Kit to collect gunshot residue on individuals. The collection kit contains plastic vials with a tightly fitting caps and metal stubs inside the cap that are equipped with a carbon adhesive tab used for lifting residue.

10.12.3.4.2 GSR shall not be collected from individuals with apparent gunshot wounds. Authorization is allowed on a case-by-case basis but must be approved by the Assistant Director of Forensic Services (or designee). This approval shall be recorded in the notes.

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10.12.3.4.3 Ammunition, fired or unfired, shall not be included in the GSR SEM Evidence Collection Kit.

10.12.3.4.4 Hands

1. Carefully remove the cap from the vial labeled right hand. There is not a protective covering on the stub at this point, so it is ready for sampling.
2. Grasp the subject's arm above the wrist while making sure not to touch the subject's hands.
3. While holding the vial cap securely, press the collecting surface of the stub onto the back of the subject's hand and then onto the palm until the whole hand has been covered.
NOTE: Sufficient pressure should be applied when sampling to cause a slight indentation into the surface of the skin.
4. After sampling, return the cap to the right hand labeled vial and place it into the kit envelope.
5. Repeat steps 1-4 using the left-hand vial to sample the left hand.

10.12.3.4.5 Face/Hair

1. Carefully remove the cap from the vial labeled with face/hair.
2. While holding the vial cap securely, press the collecting surface of the stub onto the subject's face or hair until their face and the top of the hair has been covered.
3. After sampling, return the cap to the appropriately labeled vial and place it into the kit envelope.
4. Properly package, seal, and label the GSR SEM Evidence Collection Kit.

10.12.3.5 Clothing

Clothing should be collected from subjects that are suspected to have fired, handled, or been near a firearm when it was discharged.

10.12.3.6 Vehicles or Other Items of Evidence

10.12.3.6.1 VCRT members shall use sticky tabs to collect gunshot residue on vehicles or other items of evidence. The sticky tabs are metal stubs equipped with a carbon adhesive tab used for lifting residue. If this type of collection kit cannot be found, it is acceptable to use a GSR SEM Evidence Collection Kit and rename collection areas as applicable.

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10.12.3.6.2 When vehicles are submitted to the Jackson and Knoxville laboratories and an area of the vehicle is shared for both gunshot residue and Forensic Biology testing, gunshot residue shall be collected first.

10.12.3.6.3 Preparing gunshot residue sampling stub(s):

1. VCRT members shall remove their firearm, wash their hands thoroughly, wear clean gloves, and wear a clean lab coat when constructing the gunshot residue sampling stubs.
2. Using clean tweezers, place the carbon adhesive tab onto the aluminum stub. Do NOT remove the white protective covering from the tab until it is to be used for sampling.
NOTE: The aluminum stub shall be handled by the post during this process.
3. Place prepared gunshot residue sampling stub in stub storage box, single mount storage tube, or other clean storage container.

10.12.3.6.4 Collecting gunshot residue with prepared gunshot residue sampling stubs:

1. Using clean tweezers, remove the protective covering from the metal stubs.
2. Touch the adhesive tab to the questioned areas until the area of interest has been covered or the tab is no longer sticky.
3. Place the stub into a stub holder box or single mount storage tube and label appropriately as to where the sample was taken.
NOTE: If stubs are stored in a stub holder box, they must be secured with tape on the underside of the box insert.
4. Properly package, seal, and label the evidence.
NOTE: Samples taken from one source, such as a vehicle, can all be placed in one box.