



# INDIANA STATE POLICE FORENSIC SERVICES DIVISION

## PHYSICAL EVIDENCE BULLETIN

### FIBER EVIDENCE

#### I. INTRODUCTION

- A. Most crimes involve some type of physical contact. Whether the contact is between two individuals, an individual and an object (e.g., a carpeted floor, upholstered couch, etc.), or two objects (e.g., a gun and a carpeted floor, etc.) inadvertent transfer of microscopic evidence, such as fibers, can occur. These types of microscopic evidence transfers may often be overlooked by investigating officers because they are not easily observed by the naked eye but can be recovered during microscopic examination of items in a laboratory.
- B. Fiber evidence is typically associative (or class) evidence unless a fracture match of fabric is found. For a comparative examination of fiber evidence, both a questioned item and a standard from a known source is required.
- C. Cases in which fibers are being used as associative evidence are typically valuable in investigations in which the individuals and/or objects are not known to have been in contact with each other.

#### II. TYPES OF CASES

##### **A. Crimes Against Persons**

- 1. These types of crimes often involve personal contact between individuals. Therefore, fibers may cross transfer between the individuals.
- 2. Possible sources for fiber evidence from these types of crimes include, but are not limited to: clothing, bedding, carpet, upholstery, vehicle floor mats, shoes, fingernail scrapings, bindings (e.g., tape, rope, twine, etc.), and weapons.
- 3. It is important to collect questioned items as well as known comparison samples.

## **B. Breaking and Entering**

1. Clothing fibers may be found at the point where the individual entered through a window or other opening or climbed over a fence.
2. Carpet fibers from the location may be found on the suspect's shoes.
3. It is important to collect questioned items as well as known comparison samples.

## **C. Pedestrian Hit and Run**

1. Due to the forceful contact between victim and automobile, clothing fibers may be found adhering to the vehicle (e.g., fenders, grill, side mirrors, or undercarriage).
2. Fabric impression patterns may also be observed on surfaces with which the fabric came into contact.
3. It is important to collect questioned items as well as known comparison samples.

## **III. COLLECTION AND PACKAGING OF FIBER EVIDENCE**

- A.** To collect fibers that are visible and firmly attached to an inanimate object that may be submitted to the Forensic Services Division (FSD):
1. Leave fibers intact.
  2. Document exact location and approximate number of fibers adhering to each object. Photograph evidence if possible.
  3. Carefully package the item in an appropriately sized pill box, paper bag, or cardboard box so that fibers cannot become dislodged in transit.
- B.** To collect fibers that are visible and not firmly attached, or if the fibers are firmly attached and the object is too large to submit to the FSD:
1. Document exact location and approximate number of fibers adhering to each object. Photograph evidence if possible.
  2. Carefully remove with clean tweezers and package in a small pill box, glass vial, or other tightly sealed container.
  3. Fibers may also be placed in small, folded paper bindles before placing in outer packaging.
- C.** To collect evidence items (e.g., clothing, bedding, shoes, floormats, etc.) that may be submitted to the FSD and searched for microscopic fiber evidence or that may be used as a known standard comparison sample:
1. Document exact location of item to be collected. Photograph evidence if possible.

2. Wear disposable gloves to handle the item. Gloves should be changed before handling another item.
3. Avoid disturbing soil, dust, blood or other body fluids, or other foreign materials adhering to clothing.

#### **D. General Collection and Packaging Reminders**

1. A known fiber standard should be collected at a scene or from an individual to try and place a victim or suspect at a location. If someone can already be placed at a specific location, the fiber analysis has limited value.
2. When fibers have been collected by the investigating team it is imperative that appropriate and adequate known standard samples also be submitted. For example, if fibers are found on the soles of the robbery suspect's shoes, known standard samples of the carpet or carpets at the crime scene should also be submitted.
3. Known standard samples with a minimum size of a quarter should be submitted. The known standard samples should be a representative sampling and include variations due to color, style, type, fading, staining, or wear.
4. It will not always be known to the investigating officer whether there are fibers present in the evidence. For this reason, care must be exercised when handling any item that could shed fibers and thereby lose evidence or cause cross contamination between items from suspects and victims.
5. Typical packaging for fiber evidence includes, but is not limited to, pill boxes, paper bags, and cardboard boxes. An appropriately sized container shall be used for the item of evidence being packaged.
6. Keep all items separated before packaging to prevent cross-contamination. Whenever possible, collect and package the questioned item before the known standards. Handle items as little as possible to prevent loss of evidence.
7. Do not process items on a surface without first thoroughly cleaning that surface. Avoiding cross contamination between all evidence and known standards is imperative.
8. Wet or bloodstained evidence shall be dried before permanently packaging it to prevent molding and biological degradation.
  - a. If an item is wet or bloodstained and needs to be dried, temporarily package the wet item at the scene and then dry it at a secure location as soon as possible. It is recommended to keep the original dry temporary packaging to preserve any trace evidence that might be present.
  - b. Once dried, evidence should be packaged into an appropriately sized pill box, paper bag or cardboard box.
9. All seams of the packaging shall be completely sealed to prevent the loss and/or contamination of trace evidence.

10. Package and label all evidence per the requirements in FSD's Physical Evidence Bulletin #20 *Evidence Packaging and Submissions Guidelines*.
11. Note on the Request for Laboratory Examination Form the source of each item submitted to the FSD for analysis.

#### **IV. EXPLANATION OF RESULTS FROM LABORATORY EXAMINATION OF FIBER EVIDENCE**

- A.** Fiber classification (i.e., animal, vegetable, mineral, or synthetic) and sub-classification (e.g., polyester, nylon, or acrylic).
- B.** Determination as to whether questioned fibers are the same type and similar color as the known standard.
- C.** Determination as to whether questioned and known standard fibers share similar microscopic characteristics.  
  
Note: Color and microscopic characteristics of fibers may vary within a garment, carpet, drape, rope, etc. due to many factors, such as wear or fading.
- D.** An opinion as to whether questioned fibers could have originated from the known standard.

#### **V. CONTACT INFORMATION**

For further information please contact the Indiana State Police Forensic Services Division Microanalysis (Trace) Unit at 1-866-855-2840 or 317-921-5300.