

# FIRE DEBRIS

Arson evidence consists of three types of samples collected during the investigation of a fire of suspicious origin. These sample types are important to the investigator and the laboratory in the analysis, interpretation, and adjudication of a case.

## A. Question Sample

1. A question sample includes materials suspected of containing a liquid accelerant. Typical examples include, but may not be limited to, burned substrate regions at a fire scene containing unusual or suspected char patterns, a suspect's clothing and shoes, and liquids located at the fire scene that are suspected of being an accelerant.

## B. Comparison Sample

1. A comparison standard consists of a pure sample of the liquid accelerant believed to have been used to ignite or accelerate a fire. The standard sample comes from a known, documented source. Typical examples of a standard sample include: 1) an unopened container of the accelerant product purchased through a supply or retail store, or 2) samples obtained at the service station where the product is suspected of originating from.

## C. Comparison Control Sample

1. A comparison control consists of a sample of the site substrate that does not contain the liquid accelerant. Collecting these samples allows the arson analyst to observe the characteristics of the substrate and make a more informative conclusion based on this data. Ideally, the control sample would be burned to the same extent as any question sample. If a burned comparison control is not available, collect a non-burned portion of the typical material. If needed, the laboratory will burn the sample as part of its workup.

**D. Collection and packaging of samples:** Collect samples using uncontaminated utensils. Care must be exercised to prevent cross-contaminating samples. Collection tools (shovels, knives, gloves, pipets, etc.) should be cleaned or disposed of between samples. Packaging supplies may be obtained from packaging, evidence, or laboratory supply companies.

1. Packaging of debris samples and a suspect's clothing or shoes
  - a. Samples must be collected in friction lid cans. Ensure that cans are unused and lined. Laboratory analysis trapping techniques require an air space in any sample container, so do not fill cans more than  $\frac{3}{4}$  full. Size of the can should be proportional to the size of the sample. Affix an evidence label to the can. Place evidence tape over the top of the lid, following the contour of the lid and initial.
  - b. Polyester/nylon arson bags are to be used **only** for objects which will not fit into a friction lid can. Seal the bag with a heat sealer immediately following collection, and place evidence tape and initials on the heat seal. Place an arson evidence label on the bag.
  - c. Friction lid cans and polyester/nylon arson bags are the only packaging containers approved by our laboratory.

2. Packaging for liquid samples:

- a. Liquid **question** samples that appear to be solely a petroleum product and liquid **comparison standard** samples should be placed in a 2ml screwtop vial using a disposable pipet. Fill the vial and tape the lid to prevent loosening. Place vial into a friction lid can filled with an absorbent material such as cat litter or vermiculite. Affix an evidence label to the can. Place evidence tape over the top of the lid, following the contours of the lid, and initial.

**Never ship the entire can or bottle of a petroleum product to the laboratory. Doing so violates DOT shipping requirements.**

- b. Liquid question samples that appear to contain only a trace of a petroleum product will require judgement as to how much sample should be collected. **Remember** that the sample container should be larger than any liquid collected to allow for expansion. Federal shipping regulations limit the amount of any petroleum product that can be transported without special handling procedures. For further information contact the Coeur d'Alene Laboratory

**E. Information to include when submitting cases:**

1. A cover letter.
2. Fire scene sketches.
3. Incident report.

**F. Submission of arson evidence:**

1. Submit arson evidence to the Coeur d'Alene Laboratory, as this is the only laboratory analyzing these cases at this time.
2. When shipping specify that a signature is required upon delivery.