



Physical Evidence Bulletin

Low Explosives Evidence

Purpose

The Physical Evidence Bulletin is a guideline intended for law enforcement agencies for the collection and submission of evidence to BFS Laboratories. Physical Evidence Bulletins are not intended to be used in lieu of training in the collection of evidence.

Analysis and results that may be obtained

The Bureau of Forensic Services (BFS) provides analytical support to law enforcement agencies and fire departments through the examination of low explosives.

Examination of evidence resulting from the explosion and/or recovery of an explosive device is based on the premise that components and accessories used to construct the device, although disfigured, survive the explosion. Examination can identify components, such as switches, batteries, detonators, tape, wire, clock/timer components, fuzing systems, and explosive charges used to make the device. Analysis of residues can determine whether substances are high explosives, low explosives, or incendiary mixtures, and whether the recovered substances are consistent with a known explosives product.

A laboratory examination can also recover trace evidence such as hairs, fibers/fabric, glass, plastic and paint. Toolmarks on the evidence can be compared to recovered tools. It is essential that evidence be recognized, collected and packaged properly if the laboratory examination is to provide meaningful information to the investigator.

At the Scene

A preliminary search of the scene will reveal the extent and direction of the blast. The scene perimeter should be established at least 1½ times the distance from the blast seat to the farthest discovered fragment and if necessary, the perimeter can be extended. The search starts at the perimeter and continues toward the blast seat. The use of aerial photos or photos taken from the aerial platform of a fire truck is encouraged and the photos should be provided to the laboratory.

Depending upon the case circumstances, other evidence may be present. An investigator may need to consider latent prints, toolmarks, broken glass, shoe/tire prints, blood stains, saliva, and other trace evidence. See the Physical Evidence Bulletins for collection and preservation of other types of physical evidence.

**Collection,
marking, and
packaging**

When a low explosive is initiated, unconsumed and partially burned powder is spread to the surrounding area. The recovery of these particles is critical. A thorough collection of evidence includes all the debris including sweepings from the blast seat and the immediate surrounding area. If more than one blast has occurred, a new brush should be used for each site.

Some explosive residues are water soluble and must be protected from moisture. Other residues evaporate quickly and must be collected as soon as possible in airtight containers such as clean unused metal cans, glass jars or sealable nylon or Kapak bags. Keep in mind that evidence like the jagged remains of a pipe bomb can tear bags. Ziplock bags are not suitable for storing explosive residues. Do not fill the containers to the top. Package the containers to prevent breakage. Never fill the evidence containers with packing materials such as shredded paper or vermiculite. Large items should be stabilized by using wire or zip ties to fasten the item in a box. The collection of all the device's components is essential. Since bombs are often concealed in various containers, the fragments of any possible containers should also be collected. Dry sifting the blast area for small bits of evidence is an option.

Swabbing is to be used only for large immobile items such as buildings. Wet the swabs using methanol, isopropyl alcohol, acetone or distilled water. Substrate control samples from surfaces away from the blast site should also be collected. Swabs should be dried and stored in sealable clean glass or plastic containers.

**Submission of
evidence to the
laboratory**

Label the container with the agency case number, item number, and brief description as appropriate. Tape seal the container; date and initial the seal. Submit evidence to the laboratory along with a completed Physical Evidence Submission Form (BFS-1) and, if available, a case report or case summary.

**The lab does
not accept or
process**

High explosives of any kind or explosive devices that have not been rendered safe.

**For further
information
and additional
resources**

Please contact your regional BFS laboratory with any further questions that you may have.

Contacting the United States Department of Justice Bureau of Alcohol, Tobacco, Firearms and Explosives is recommended.

For a list of regional laboratories please go to:

http://ag.ca.gov/bfs/pdf/bfs_brochure.pdf or <http://ag.ca.gov/bfs/>

To locate the most current Physical Evidence Bulletins please go to:

<http://ag.ca.gov/cci/reference/reference.php#peb>
