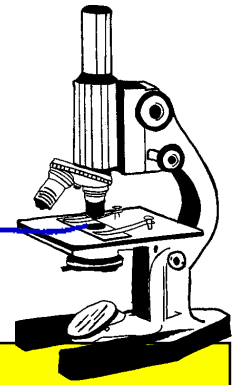


**A CURRENT  
EDUCATIONAL  
BULLETIN FOR  
SUBMITTING LAW  
ENFORCEMENT  
AGENCIES**

*A Closer Examination From The Benchtop...*

# UNDER the SCOPE



**MISSOURI STATE HIGHWAY PATROL • CRIME LABORATORY DIVISION**

PHONE: 573-526-6134  
FAX: 573-751-9922



IF YOUR AGENCY IS ADDING ITEMS TO A CASE, PLEASE LET THE CLERICAL STAFF KNOW WHEN YOU SUBMIT THE ITEMS AT THE LABORATORY FRONT COUNTER.

FRESHLY CUT OR PULLED MARIHUANA PLANTS SHOULD BE DRIED PRIOR TO LAB SUBMISSION. PLACE THE DRIED PLANTS IN A PAPER BAG (NOT PLASTIC) TO PREVENT THE PLANT MATERIAL FROM MOLDING AND DECAYING.

THE LAB, WITH FUNDING THROUGH DPS, CURRENTLY DESIGNS AND DISTRIBUTES THE STATE SEXUAL ASSAULT KITS. THE LAB HAS KITS FREE OF CHARGE AVAILABLE TO HOSPITALS, CARE GIVERS, AND LAW ENFORCEMENT AGENCIES. IF YOU ARE CONTACTED ABOUT KITS AND YOUR MSHP TROOP HQ IS OUT, PLEASE CONTACT THE LAB'S DNA SECTION FOR ASSISTANCE IN OBTAINING THEM.



APRIL, 2002  
VOLUME 2 • ISSUE 2

## Trace Evidence Collection Hints

The Missouri State Highway Patrol Crime Laboratory is able to provide your agency with high quality forensic science services in several disciplines, and the Trace evidence section is no exception. The section is responsible for analyzing evidence where only small (or trace) amounts of items remain at a crime scene, such as hairs, fibers, paint, accelerants, and gunshot residue. Recently, the criminalists in this section assembled information required for quality paint exams. Additionally, they have adopted a more specific test for gunshot residue.

### **PAINT SUBMISSION**

Paint analysis is divided into two categories: the comparison of an unknown paint transfer to a known standard AND the analysis of an unknown paint to determine a vehicle make, model, and plant of origin.

The laboratory requires certain criteria to be met for a successful examination. Initially, when requesting a comparison of an unknown paint transfer to known standards, please submit standard paint samples from both the victim and the suspect vehicles. Collect chips down to the metal (or plastic) to ensure the inclusion of the paint layer structure. Be sure to collect these samples near the point of impact, but not at a position marred from the collision. Secondly, collect any paint transfer substances found on both vehicles.

The next step is to label the samples properly. The criminalist must know what sample is a transfer and what sample constitutes the standard. One important note is that different areas of the vehicle may be painted with different paints, depending on the type of surface to which they are applied. If both metal and plastic areas are damaged, submit standard samples from both areas.

The analysis of an unknown paint to determine a vehicle make, model, and plant of origin requires an intact paint chip that includes ALL layers. Generally, a transfer smear will not yield sufficient data to identify the paint. Using a database called Paint Data Query (PDQ), the criminalists may be able to develop a "hit list" of possible vehicles from which the paint could have come.

If a vehicle strikes a person, submit the victim's clothing. The lab can employ microscopic examination to search for suitable paint transfer to possibly identify the vehicle by make, model, and origin.

The lab also has the capacity to analyze structural paints from buildings, as well as compare implement paint from tools. These cases may be encountered if perhaps an automotive tire iron is used to break into a building. Remember: be sure to collect the appropriate standards in these instances, as well.

### **GUNSHOT RESIDUE KIT**

Over the past five years, the lab has made a transition to a new and improved method for gunshot residue analysis by using a Scanning Electron Microscope with X-ray Detector (SEM-EDX). This test is more specific for gunshot residue than the old method of Atomic Absorption (AA). Moreover, the sampling of the suspect's hands is also easier for the investigating officer.

The SEM-EDX kit contains two round stubs with black adhesive, one for each hand. The stub is applied to the skin by "dabbing". One stub is used for both the back and palm of the same hand.

If your agency still has the Atomic Absorption kits, please dispose of them. This lab will no longer be able to analyze gunshot residue kits by atomic absorption. However, the lab will continue this analysis by SEM-EDX. The new SEM-EDX kits are available at the general headquarters lab, as well as each of the satellite labs.