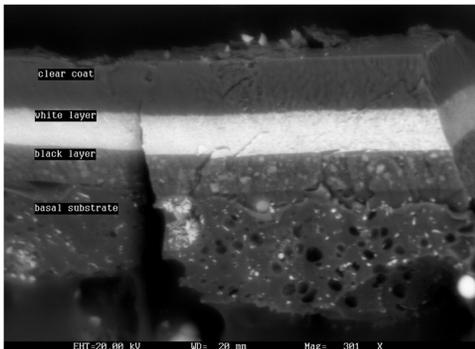


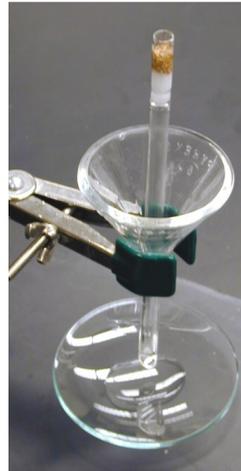


Trace evidence exams are based upon the concept of Locard's Exchange Principle, which states that whenever two objects come into contact, a transfer of material will occur. The Materials Analyst keeps in mind both the big picture as well as to focus on the small details. The Materials Analyst is an expert at pattern recognition and hones those skills to find that needle in the haystack (or, more appropriately, the one paint particle in a cup of debris collected off a blanket or at an accident scene). The scientist understands the manufacturing process of materials, the mechanisms of transference of trace materials, and how common a given material is to a specific environment.



Trace evidence usually is not involved in the relating of evidence to a specific person, but rather offers investigative information on evidence items (what is it or what does it mean) or comparison information between a question item and a reference sample (could these two items have been in contact?).

The *CLD Forensic Services Guide* ([www.wsp.wa.gov/forensics/docs/bureau/forensic\\_services\\_guide.pdf](http://www.wsp.wa.gov/forensics/docs/bureau/forensic_services_guide.pdf)) offers a good description of the evidence types encountered in the Materials Analysis Section. The FSG also has instructions on collecting reference samples and identifying potential evidence.



Remember to provide all information on the RFLE (Lab Request). This will help us to route and prioritize evidence to the appropriate sections and scientists and gives us contact information for questions.

*Remember your contact phone number and email address on the RFLE!*



#### Washington State Patrol Crime Laboratory Division

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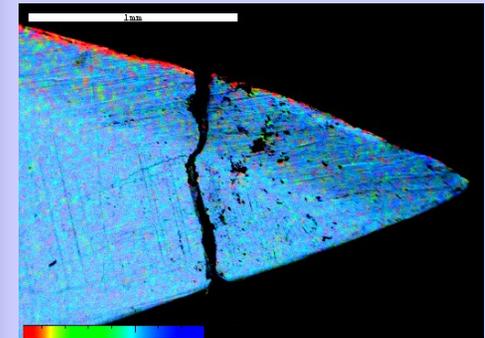
Phone: 206-262-6002  
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August 2016



## Washington State Patrol Crime Laboratory Division

### Materials Analysis Unit



#### Materials Analysis Supervisors

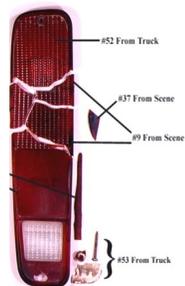
Seattle-Jeff Jagmin 206-262-6109  
Seattle-Dr. Ed Suzuki 206-262-6080  
Marysville- Dr. Dave Northrop 360-654-1178  
Tacoma- Jane Boysen 253-538-3246  
Vancouver- Bruce Siggins 360-993-3803  
Spokane- Jayne Aunan 509 625-5402  
Kennewick- 509 734-7022



# Materials Analysis Unit



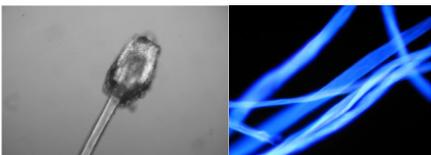
The WSP Crime Laboratory Division provides forensic science analysis and training services to criminal justice agencies throughout the state of Washington in a variety of forensic disciplines. Two forensic sections within the Washington State Patrol Crime Lab Division have recently undergone a restructuring. The Chemistry and Microanalysis (Trace) functional areas have merged to become the Materials Analysis section.



## Materials Analysis Evidence

Scientists in Materials Analysis examine a wide variety of often microscopic evidence. The following is a summary of many common materials examined:

- ▶ Controlled substances
- ▶ Pharmaceuticals
- ▶ Materials from suspected clandestine drug laboratories
- ▶ Ignitable liquids in fire debris
- ▶ Explosives and post-blast explosive residues
- ▶ Selected poisons and chemical unknowns
- ▶ Hairs, fibers, fabric and cordage
- ▶ Clothing damage assessment
- ▶ Paint, surface coatings, polymers
- ▶ Impression evidence (shoe, tire, etc...)
- ▶ Physical matches of broken/torn materials
- ▶ Soils and botanical materials
- ▶ Gastric contents
- ▶ Vehicle lamps
- ▶ Glass (identification, but comparisons not currently available)
- ▶ Other miscellaneous materials



## Did You Know?

Data from national crime statistics suggests that trace evidence is underutilized. Peterson, Sommers, Baskin, and Johnson\* (2010) found that, of 400 homicide cases in their study:

- ▶ approximately 32% had trace evidence collected
- ▶ 19% was submitted for analysis
- ▶ only 13% was examined

The study also showed that only about 2% of burglary cases had trace evidence collected, with 0.2% examined. Roughly 3% of assault cases had any trace evidence collected, with only 0.5% of these cases having the trace evidence submitted for examination.

Parent and Koch\*\* (2009) found that reduction in demand for trace evidence examinations was a result of insufficient resources being dedicated to training crime scene officers and detectives and that some police may not fully understand the value of trace evidence in developing new investigative leads.

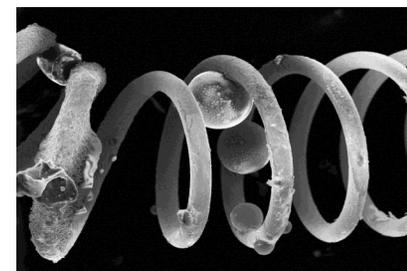


Training our user agencies on the benefits and use of forensic trace evidence, including protocols for sending cases to the lab, is a high priority. We are developing training for our customers to highlight the significance of this evidence.

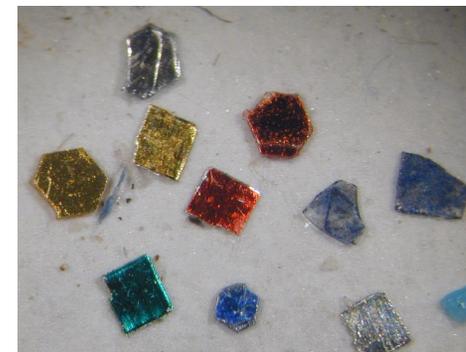


Training will include investigative lead development, how materials analysis can assist in crime scene reconstruction and recognition, collection, storage and submission to our labs.

The work of the Materials Analysis unit encompasses the widest range of evidence types among the sub-disciplines in the CLD. Results of these examinations may help to substantiate or refute a victim's story, a suspect's alibi, or a theory of how events may have transpired.



The analysis may offer investigative leads such as the type of automobile in a hit-and-run, the objects a bullet passed through in a shooting scene, or geographic location where an object may have previously been.



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