Case History

Maryland Serial Rapist

A serial rapist in Maryland had been pursued by police for several years with no leads. The only physical evidence recovered were two athletic jerseys shed by the rapist during two separate attacks. From the analysis of minute amounts of dust recovered from each of the relatively clean jerseys, we were able to present the police with the following description:

- both shirts were worn by the same person
- one of the rapes occurred in March or April
- the rapist was a drywall installer and finisher who worked on large scale commercial projects.

The police circulated a description of this individual and within several weeks, the suspect was apprehended. Upon being arrested, the suspect noted to police, “once I saw my description on TV, I knew it was only a matter of time...” He was convicted of the attacks.

Notable Cases

Over the years, Microtrace has been called in to work on many high profile cases including:

- The Green River Murders (Seattle, WA)
- Atlanta Child Murders (Atlanta, GA)
- Jon Benet Ramsey (Boulder, CO)
- Narita Airport Bombing (Tokyo, Japan)
- Unabomber (US)
- “Ivan the Terrible” (Jerusalem, Israel)
- Air India Bombing
- Hillside Strangler (Los Angeles)
- Helen Brach Disappearance (Internal Revenue Service)
- Martin Luther King Assassination (Reinvestigation by House Select Committee)

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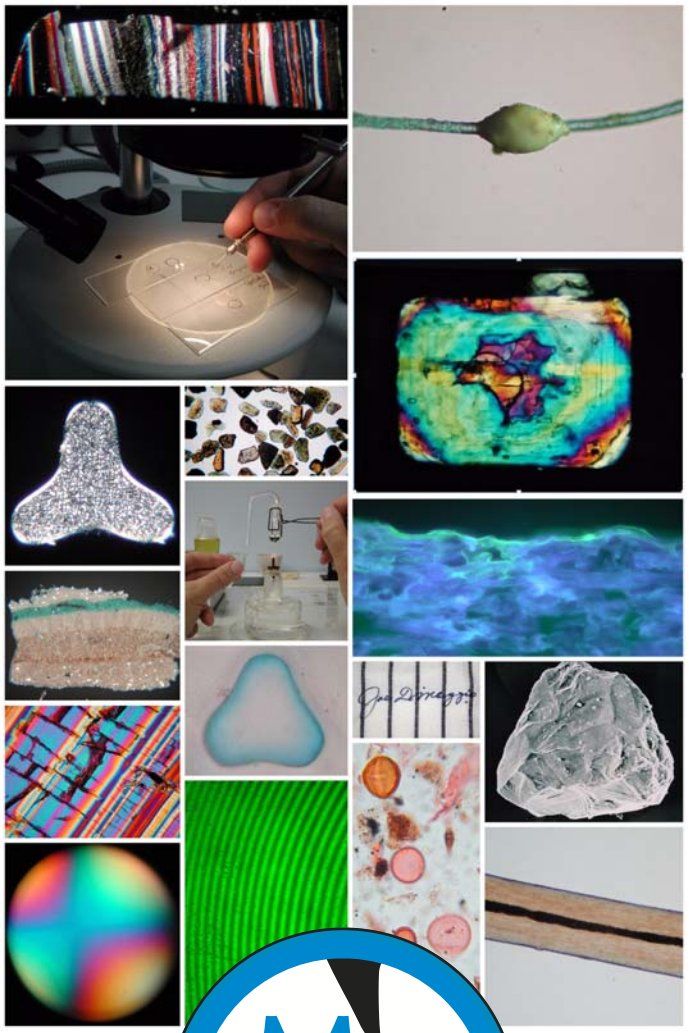
Microscopy · Microchemistry · Forensic Consulting



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About Microtrace

Microtrace is a private, independent laboratory, founded by Skip Palenik, specializing in the identification of minute amounts of unknown substances and single small particles by microscopy and microchemistry. Our analytical services are not limited to merely reporting analytical results. When requested, we are able to offer a detailed interpretation of the facts and data. For example, our scientists have conducted pioneering research in the development of investigative leads from soil and dust samples for the purpose of defining geographic locations or site activities associated with a sample.

Microtrace provides solutions to problems outside or beyond the scope of ordinary industrial and forensic laboratories. Our expertise in analytical microscopy and microchemistry has earned us an international reputation. Clients from industry, the law, and the US and foreign governments have put their trust in our skill and discretion to handle their most difficult and delicate problems.

Areas of Expertise

- Identification of complete unknowns
- Drugs (ethical and illicit) (DEA licensed)
- Food contaminants
- Fibers (natural and synthetic)
- Hair (human and animal)
- Glass and metals (identification and sourcing)
- Pollen, spores, and plant tissue
- Dust, sand, soil, and minerals
- Wood and paper
- Paint (architectural, automotive, coatings)
- Polymers and polymer failure analysis
- Corrosion products and patinas
- Pharmaceutical contaminants (DEA licensed)
- Nano-materials
- Pigments and dyes
- Soot, char, and carbon black
- Explosives and explosive residues
- Liquids, residues, and volatiles

For photo key, visit our website www.microtracescientific.com/photos

Clients

Industrial

Industrial clients, including pharmaceutical, food production and processing, as well as many other manufacturing industries utilize our particle analysis skills and clean room staff to isolate, identify and determine the source of contamination and conduct non-routine research, development, and characterization of new and evolving products.

Forensic

Microtrace is one of few laboratories in the world that is routinely consulted by both prosecution and defense in criminal cases, giving us a reputation for unbiased and thorough analyses. We provide the same non-partisan approach in the civil legal arena as well. Our industrial work gives us an edge in the analysis of current, up to date materials and our state of the art resources surpass those of most forensic laboratories in the world. Clients include:

- State, local and federal laboratories and prosecutors
- Private attorneys, public defenders and innocence projects
- Civil litigation (industrial, personal and patent)

Our forensic services include:

- Evidence collection
- Development of investigative leads
- Comparisons of questioned and known evidence
- Case reviews and re-analysis of evidence
- Expert testimony

Other Laboratories

Microtrace serves as a specialized analysis resource for laboratories whose questions extend beyond their in-house capabilities or expertise. In this capacity, we conduct analyses for and in conjunction with environmental, biological, engineering, medical, and other laboratories. In addition, dealers, museums, buyers, and auction houses in the fields of art and antiquities consult with us regarding issues of authenticity.

Capabilities

Our broad range and depth of analytical expertise is based on the scientific experience of our staff, unmatched analytical capabilities, and extensive reference collections.

Staff. Microtrace scientists have strong academic backgrounds in a variety scientific disciplines. Staff continually undergo additional training with world-renowned experts in various areas of expertise and are qualified experts in state, federal and foreign courts.

Analytical Capabilities. With one of the best equipped micro-analytical laboratories in the world, we take pride in using the proper analytical methods to provide answers to clients in an efficient and rigorous manner. Results are provided in self-contained, narrative, illustrated reports. Our analytical tools include:

Light Microscopy
- Stereo Microscopy
- Classical Microchemical Analysis
- Polarized Light Microscopy (PLM)
- Comparison Microscopy
- Fluorescence Microscopy
- Hot Stage Microscopy
- Interference Microscopy
- Reflected Light Microscopy
- Phase Contrast Microscopy

Electron Microscopy
- Scanning Electron Microscopy (SEM/EDS)
- Transmission Electron Microscopy (TEM/SAED/EDS)
- Cathodoluminescence Microscopy (CL)

Spectroscopy and Diffraction
- Gas Chromatography-Mass Spectrometry (GC-MS)
- Pyrolysis and Thermal Desorption (Py-GC-MS)
- Energy Dispersive X-Ray Spectroscopy (EDS)
- Infrared Microspectroscopy (micro-FTIR)
- UV/Visible Microspectrophotometry (MSP)
- X-Ray Fluorescence (micro-XRF)
- Raman Microspectroscopy (RMP)
- X-Ray Diffraction (XRD)

Sample Preparation
- Clean room with particle manipulation
- Microtomy

Reference Collections. Our unparalleled collections include over 20,000 cataloged physical samples used to make or confirm identifications. Specimens include sands, soils, fibers, pollen, polymers, industrial dusts, dyes, pigments, synthetic and vegetable drugs to list but a few examples.