

Trace Evidence Overview: Fiber/Polymer

Instructor: Vincent Desiderio and Scott Kovar

Length of Course: 1 day

Sessions Offered: 1

Maximum Attendees: 12

Abstract

- Brief Polymer Chemistry for the Trace Evidence Examiner -

Be they natural or synthetic, polymers play an important role in our everyday lives. One does not need to look very far to see how prevalent polymeric substances are in our environment. With applications in inks, textiles, coatings, adhesives, and plastics to name just a few, it should come as no surprise that polymers represent a major category of trace evidence. The purpose of this course is to familiarize attendees with common terminology, routine synthetic pathways, various manufacturing processes, and the analysis and characterization of polymers in the forensic context. Since this portion of the trace evidence course will be integrated with the fiber topic, special emphasis will be placed on the polymers that are commonly employed for the manufacture of fibers. Additionally, several points related to the chemical basis for some specific fiber properties will be discussed. Various exercises will be utilized to help demonstrate several points.

Abstract

- The Forensic Analysis and Comparison of Fibers -

Due to their diverse physical and chemical nature, fibers play an important role in the forensic sciences. Often shed and transferred without notice, fibers find great utility for connecting various actors from criminal events together. Some such applications include connecting suspects to victims, suspects to scenes, and victims to scenes. In addition to their obvious utility to make such connections, the forensic analysis of fibers can also be used to develop investigative leads. By physically and chemically characterizing fibers that are found, their intended use can often be determined.

As a function of their diverse physical and chemical properties, the analysis and comparison of fibers is no trivial task. As such, fiber examinations often involve a large majority of techniques available in the forensic laboratory including but not limited to stereomicroscopy, polarized light microscopy, cross sectioning, thin layer chromatography, and various forms of spectroscopy.

The purpose of this course is to introduce attendees to the complex nature of fiber evidence and provide a sound analytical foundation for their analysis and comparison. To achieve this goal the topics to be discussed will include the chemical nature of fibers, physical aspects of fiber examinations, microscopic examination of fibers with an emphasis on polarized light microscopy, and instrumental analysis of fibers. To help illustrate some of the points discussed, various exercises will be performed.

***This course is open to all experience levels.**

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Instructor Bio

Mr. Desiderio is a forensic scientist with the New Jersey State Police Office of Forensic Sciences where he currently works in the criminalistics-trace evidence unit at the central regional laboratory in Hamilton, New Jersey. He has been in forensic sciences for the past ten years, working with trace evidence for approximately 9 years. He holds a B.S. in Human Biology from the State University of New York at Albany, an M.S. in Forensic Science from John Jay College of Criminal Justice, and is currently enrolled at Rutgers, The State University of New Jersey, at the Newark campus where he is working towards obtaining a Ph.D. in Chemistry. He is involved with numerous professional organizations and is currently a member of the paint sub-group of SWGMAT and the standards and protocols committee of TWGFEX.

Instructor Bio

Detective Scott Kovar has been with the Nassau County Police Department for approximately 27 years. He is assigned to the Criminalistics Section of the Forensic Evidence Bureau. He has testified approximately 100 times as a Forensic Expert, in all the courts of Nassau County, N.Y., in Kings County, N.Y., and in the Eastern District of Federal Court. He is a Diplomate and Dual Fellow of the American Board of Criminalistics, and past President and Fellow of the New York Microscopical Society. He is currently Director of the Forensic Science Program and an Adjunct Assistant Professor at Hofstra University in N.Y., and has previously taught both Forensic Microscopy and Criminalistics classes at Pace University in New York City for years.