



Criminalistics Section – 2004

B120 Analyzing Bar Soaps by Utilizing a Variety of Optical and Chemical Techniques

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After attending this presentation, attendees will understand methods to forensically examine and differentiate bar soap.

This presentation will present the forensic community with techniques to forensically identify and characterize bar soaps. This topic has not been discussed (or infrequently mentioned) in the forensic literature. As well, the authors will have a database of information which can be made available to other analysts.

As a result of the anthrax poisonings that took place in October, 2001, and highly publicized news releases pertaining to chemical and biological threats, law enforcement agencies have received numerous hoaxes involving unknown material. Materials of unknown origin are often submitted for forensic examination and can be analyzed using a variety of analytical techniques. Recent evidentiary submissions and forensic requests at the United States Secret Service have included unidentified substances suspected to be soap. The perpetrators of these crimes were obviously attempting to instill fear into the recipient by making the victim believe they had been exposed to a chemical or biological agent. Investigators have requested identifications of the unknown substances and comparisons with known material seized from the suspect(s). After reviewing the forensic literature, there was very little information specifically addressing the forensic examination of soap bars. Therefore, the authors examined a variety of commercially available soap bars to determine if the soaps could be characterized using some of the common analytical equipment found in forensic laboratories. Fifty bars of soap were obtained and analyzed using optical techniques, gas chromatography/mass spectrometry, thin layer chromatography, fourier transform infrared spectrophotometry, ultraviolet and fluorescence spectrophotometry, and scanning electron microscopy - energy dispersive spectroscopy. Numerous differences between the soap specimens were identified and classified into a flow chart/database so that other analysts can use the information in cases involving the forensic analysis of suspected soap.

Soap Analysis, Chemical and Biological Threats, Bar Soap