



B93 Latent Print Processing of Glassine Stamp Bags Containing Suspected Heroin: The Search for an Efficient and Safe Method

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Learning Overview: After attending this presentation, attendees will learn how a series of experiments permitted the Allegheny County Medical Office of the Medical Examiner (ACOME) to improve its standard operating procedure (SOP) for searching glassine drug bags for fingerprints and for reporting the weight of power therein.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by demonstrating how analysts are safer because they are less exposed to the unknown contents of drug bags, specifically fentanyl and its analogues, with the new procedure. The procedural change also permits ACOME to respond more quickly to law enforcement requests for fingerprints that might be found on the bags.

At the start of this study, ACOME's SOP required analysts to remove the contents of seized drug bags to a different, pristine bag before analysis for fingerprints could begin. This exposed those analysts to whatever drugs might be in the bags. With the increase of fentanyl and similar drug submissions, it became urgent to reduce that exposure. The reason for removing the drugs was that for legal proceedings, it was important to be able to report the weight of the drug seized. It was thought that fingerprint processing methods, particularly the humidity required to use ninhydrin as an enhancing agent, might cause heroin to convert to monoacetylmorphine (MAM). Hence, the first study reported here is a qualitative analysis to see if processing in the presence of fentanyl destroyed heroin. The results showed that heroin was still present.

The second study was an experiment designed to compare the efficacy of four methods of enhancing fingerprints: magnetic powder, ninhydrin with chamber, 1, 8-Diazalluron-9-One (DFO) with chamber and a sequential treatment of DFO and ninhydrin, both with chamber. Fingerprints on pristine bags were collected from five volunteers; the resulting prints were photographed and evaluated independently by four fingerprint analysts, using a four-point scale. The results suggested that magnetic powder was the most effective method. However, the prints were analyzed only a few days after deposition, which would favor magnetic powder over the other methods that rely, not on water secretion, but on amino acid secretions that are not water soluble. Consequently, this result is held in abeyance, pending the results of a further experiment in which fingerprinted bags are held for up to a year before processing.

The third study is a gravimetric analysis, comparing the weight of the bags before and after analysis. It showed that the average weight increased less than the uncertainty of measurement, and hence is trivial.

The upshot of these studies is that the ACOME SOP is now to use ninhydrin to search for fingerprints on drug bags without emptying them first. Then, if weight of drugs become a legal issue, the weight can be estimated later using standard methods.

Fingerprints, Heroin Bags, Fentanyl