



B197 Taking the Forensic Science Out of Drug Identification

*Walter F. Rowe, PhD**, Department of Forensic Sciences, The George Washington University, Washington, DC 20052

After attending this presentation, attendees will learn the basic principles of ion mobility spectrometry (IMS) and the limitations of this analytical methodology for the identification of drugs. The attendee will also be familiar with SWGDRUG and ASTM Committee E30 guidelines for the forensic analysis of seized drug samples.

This presentation will impact the forensic community and/or humanity by alerting the forensic community to the existence of seized drug analysis programs in which non-forensic scientists conduct forensic drug analyses. The analytical method used (ion mobility spectrometry) does not yield a confirmed identification of any drug.

Ion mobility spectrometry (IMS) has found widespread use as a screening tool for the detection of explosives and drugs. In four drug cases (two originating on Maryland's Eastern Shore) prosecutors proffered an IMS scan as the sole method for the identification of cocaine. In three of the four cases, the analyses of the suspected drugs were conducted by U.S. Army National Guard units, rather than trained forensic scientists. The manufacturers of ion mobility spectrometers make the claim in their promotional literature that their instruments can 'detect and identify' drugs. However, the forensic science research literature does not support a claim that IMS is sufficient by itself to identify any drug. Furthermore, the guidelines for forensic drug identification promulgated by SWGDRUG and ASTM Committee E30 require a minimum of two uncorrelated methods of analysis. The SWGDRUG and the ASTM Committee E30 guidelines require that IMS be used with at least two other methods of analysis. Examination of plasmagrams from IMS instruments shows that IMS is equivalent to a chromatographic separation with 7,000 to 8,000 theoretical plates. IMS separates analytes better than packed column gas liquid chromatography but not as well as capillary column gas liquid chromatography. Having drug exhibits analyzed by technicians who are not trained forensic scientists leads to further problems. In one case, seven currency exhibits seized at different locations in the suspect's home were aggregated and analyzed by a single IMS scan.

Seized Drugs, SWGDRUG, Ion Mobility Spectrometry