



## B31 Mexican Methamphetamine Manufacturing Investigations

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**Learning Overview:** This presentation will inform attendees on the analytical tools and techniques used to investigate multi-step, large-scale synthesis of methamphetamine in Mexico. Attendees will be able to identify these tools/techniques used to investigate complex synthetic schemes associated with methamphetamine synthesis and how these forensic investigations can enhance clandestine laboratory investigations, both domestically and internationally.

**Impact on the Forensic Science Community:** This presentation will impact the forensic drug chemistry community by presenting an example of multiple disciplines of chemistry, deployable instrumentation, and communications to enhance international clandestine laboratory investigations. Considering that the United States has previously seen fluctuations in the occurrence of clandestine laboratories, it is essential that this generation of forensic drug chemists establish context so as to be prepared for the next set of synthetic drug laboratories in their respective areas of responsibility.

A significant portion of forensic drug chemistry is focused on the analytical chemistry discipline. This is not a surprise considering that the charge that most forensic drug chemists have is related to the in-house analysis of controlled substances in their finished state. The investigation of clandestine laboratories was once a substantive portion of forensic drug chemistry that tended to draw on the organic chemistry discipline in addition to analytical chemistry. Per this study's observation, it appears that fewer and fewer forensic drug chemists are called upon to investigate clandestine laboratories. Some of this trend can be attributed to the growing portions of United States-seized methamphetamine being synthesized in Mexico and the commensurate drop in the number of domestic methamphetamine clandestine laboratories. Consequently, many forensic drug chemists may lack some of the essential skills in the investigation of clandestine laboratories.

Mexican methamphetamine-manufacturing drug trafficking organizations use a vast array of precursors leading to a very complicated synthetic scheme. There are a vast number of known routes of synthesis just for methamphetamine, let alone other synthetic or semi-synthetic drugs, that require constant attention. Furthermore, these schemes challenge chemists not only in their scope but also in the field-detection/presumptive indications. Techniques that provide excellent discrimination and presumptive indications include Raman and infrared spectrophotometry. These techniques are portable and ruggedized for use on-scene

Finally, communicating a very complicated situation to investigators and prosecutors is absolutely essential despite chemistry's esoteric language and any number of naming conventions employed to identify commonly traded chemicals used for illicit purposes. This communication demands that the forensic drug chemist stay abreast of newly encountered precursor materials as well as how they impact known production/synthesis methods and yields. Consequently, this ever-evolving information must then be conveyed to investigators and prosecutors in plain language.

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### Clandestine Laboratory, Drug, Deployable Instrumentation