B92 SWGDRUG, ASTM, and SDSO: How the San Diego Sheriff's Lab Uses Microcrystalline Tests in Drug Analysis

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Attendees will learn that there is still a place for 19th century chemistry using microcrystal tests in a 21st century laboratory.

This presentation will impact the forensic community and/or humanity by showing that the use of microcrystal tests still has a place in a modern crime laboratory.

Microcrystalline tests are old; they're anachronistic; they are good for screening only; they offer no structural elucidation; they produce no reviewable data. All of these arguments have been used to preclude the use of microcrystalline tests in drug analysis. However, 19th century chemistry still works and has a place in a 21st century lab.

The Scientific Working Group for the analysis of Seized Drugs (SWGDRUG) formally adopted a set of recommendations on Education and Training, Quality Assurance, and Methods of Analysis of seized drugs in May, 2000. In the forward, SWGDRUG "strongly urges the adoption of this recommendation by any laboratory involved in the analysis of seized drugs." The original recommendations excluded any use of microcrystalline tests as part of the Minimum Standards for Forensic Drug Identification. Several letters and discussions later, microcrystalline tests were included in Category C, the least discriminatory of the categories along with color tests, melting point, and UV spectrophotometry. More letters and discussion moved them to Category B where they currently reside.

The SWGDRUG recommendations were initially submitted to ASTM prior to the 2002 ASTM meeting in Atlanta for adoption as standard methods. They were defeated and returned to committee for revision. At the February 2004 meeting in Dallas, after a few modifications, ASTM officially adopted the SWGDRUG recommendations as the standard for drug analysis.

In the SWGDRUG identification scheme, if a Category A method is not used, two uncorrelated methods from Category B must be used. The San Diego Sheriff's Lab uses a combination of color screening tests, microcrystalline tests, and thin layer chromatography for the majority of the powder identifications. Each analyst receives training in basic microscopy and a core training module in the use of microcrystalline techniques as part of the training program. The examiner is ultimately given 25-30 qualifying samples in which only color spot tests, TLC, microcrystalline tests, and FTIR can be used. GCMS training is a separate module commencing only after the drug chemist has mastered the above four techniques. A second set of qualifying samples is then given in which GCMS may be used.

Microcrystal Tests, SWGDRUG, ASTM

 ** Presenting Author*