Background on MDI Toxicological Testing Issues: Forensic Toxicology

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A Tale of Two Laboratories

LAB A: SERVES ~1.2 MILLION

Cases/Year: ~7,500

Annual budget: $350,000

Staffing: 9 FT / 1 PT

Key Instrumentation:

- GC/FID (1), GC/NPD (2), GC/MS (3)

Accreditation: CAP

LAB B: SERVES ~900,000

Cases/Year: ~5,500

Annual budget: $985,000

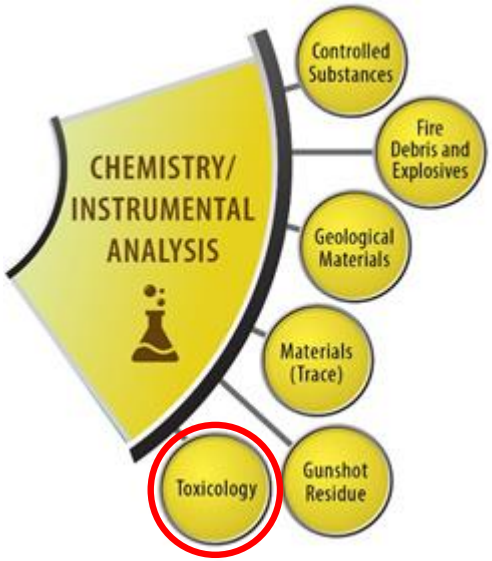
Staffing: 5 FT / 2 PT

Key Instrumentation:

- GC/FID (2), GC/MS(5), LC/MS/MS

Accreditation: ABFT

Office of Scientific Area Committees (OSAC)



The OSAC Subcommittee on Toxicology will focus on standards and guidelines related to the analysis of biological samples for alcohol, drugs, or poisons, and the interpretation of these results.

OSAC Review/Approval of Standards of Practice

Summary of OSAC Toxicology Work Products

Standard Practices for Measurement Traceability in Forensic Toxicology

Standard for Estimating Measurement Uncertainty in Forensic Toxicology

Standard for Mass Spectrometry Data Evaluation in Forensic Toxicology

Standard Practices for Method Validation in Forensic Toxicology

Standard Practices for Quality Control in Forensic Toxicology

Standard for Minimum Testing Requirements in Forensic Toxicology

Standard for Identification Criteria for Forensic Toxicology

Standard for Content of Forensic Toxicology Standard Operating Procedures

Guideline for Specimen Collection and Storage in Forensic Toxicology

Standard for Proficiency Testing in Forensic Toxicology

Standard for Report Content in Forensic Toxicology

Guidelines for Opinions and Testimony in Forensic Toxicology

Guidelines for Education and Training in Forensic Toxicology Laboratories

Guidelines for Accrediting Bodies of Forensic Toxicology Laboratories

Standard Practices for Method Validation in Forensic Toxicology – Breath Alcohol Measuring Instrument Calibration

Standard for Quality Control Practices for Breath Alcohol Testing

Method Validation

Document Title: **Standard Practices for Method Validation in Forensic Toxicology Laboratories**

Scope: Minimum standards of practice for validating analytical methods in forensic toxicology.

Objective/rationale: Provide objective evidence that a method is capable of successfully performing at the level of its intended use and identify limitations under normal operating conditions.

Method Validation

Key Components of Standard:

Delineates when to validate and revalidate analytical methods

Requires formation of validation plan

Defines required validation parameters based on method's scope

Provides specific requirements for conducting validation experiments

Explains documentation requirements of validation records

Appendices provide examples, as well as recommendations on how to streamline method validation experiments

Method Validation

Measurement Traceability

Document Title: **Standard Practices for Measurement Traceability in Forensic Toxicology**

Scope: Minimum standards of practice for establishing measurement traceability in forensic toxicology testing and calibration methods.

Objective/rationale: Provide objective evidence that measurement traceability has been established in forensic toxicology methods.

Measurement Traceability

Key Components of Standard:

Explains what may be considered a measurement

Provides NIST's essential elements of measurement traceability

Demonstrates how measurement traceability may be established through the calibration of equipment and use of certified reference materials

Describes measurement traceability requirements based on method scope

Defines laboratory equipment that must be calibrated to establish measurement traceability

Measurement Traceability

Minimum Testing Requirements

Document Title: **Standard for Minimum Testing Requirements in Forensic Toxicology**

Scope: Define minimum expectations for testing in different subdisciplines of forensic toxicology.

Objective/rationale: Establish consistency in the drugs and metabolites that are tested for between laboratories practicing in same subdisciplines.

Minimum Testing Requirements

Key Components of Standard:

Postmortem Toxicology

Human Performance – Drivers

Human Performance – DFSA

OSAC Review/Approval of Standards of Practice

Challenges

- BUDGETS, staffing, instrumentation, and automation
- Consistency in what is tested for and level of testing
- Waiting on results of screens before confirming
- Unnecessary testing requests
- Resources required to introduce new methods
- Implementation of new requirements
- TURNAROUND TIMES