FACTSHEET FOR ANSI/ASB STANDARD 017, 2nd Ed., 2025

Standard for Metrological Traceability in Forensic Toxicology

WHAT IS AN AAFS STANDARD FACTSHEET?

The AAFS produces clear, concise, and easy-to-understand factsheets to summarize the contents of technical and professional forensic science standards on the OSAC Registry. They are not intended to provide an interpretation for any portion of a published standard.

WHAT IS THE PURPOSE OF THIS STANDARD?

This standard defines the minimum requirements for establishing metrological traceability in forensic toxicology.

A measurement is the process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity.

Examples of measurements in forensic toxicology include reported quantitative test results, a qualitative test result that is based on a quantitative decision point, or a reported calibration result.

WHY IS THIS STANDARD IMPORTANT? WHAT ARE ITS BENEFITS?

Measurements made in accordance with this standard will follow the essential elements of metrological traceability as defined by the National Institute of Standards and Technology (NIST). Establishing metrological traceability increases confidence in measurement results and allows measurement results on the same item from different forensic science service providers (FSSPs) to be compared.

This standard has broad application in forensic toxicology. It applies to testing performed in postmortem toxicology, human performance toxicology, non-regulated employment drug testing, court-ordered toxicology, and general forensic toxicology as well as to the calibration of breath alcohol measuring instruments.

HOW IS THIS STANDARD USED, AND WHAT ARE THE KEY ELEMENTS?

This standard provides requirements for establishing the traceability of measurements in forensic toxicology. Metrological traceability is established by making measurements with calibrated equipment or through the use of calibrators in the test or calibration method. Options are provided for the selection of providers to calibrate equipment and for suppliers of reference materials.

This standard requires the establishment of metrological traceability for:

- Qualitative methods with a decision point calibrator
- Quantitative methods utilizing a calibration curve
- Breath alcohol instrument calibration methods

FSSPs are required to establish an equipment calibration program that identifies all equipment requiring calibration, establishes the range of use to be calibrated, specifies the interval for calibration, evaluates the need for intermediate checks of the calibration status and requires new equipment to be calibrated prior to use.

Maximum intervals are established for the calibration of equipment used to make measurements in forensic toxicology.

Documentation used to establish and maintain metrological traceability is required to be retained.

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