



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Toxicology Quality Assurance and Procedures Manual

6.6 Alternative Matrices

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The following section applies to the qualitative and/or quantitative analysis of matrices not specifically stated in the approved sample list for a given procedure.

6.6.1 Matrix Match

6.6.1.1 The analysis of any alternative matrix unknown sample should be accompanied with a matrix-matched positive control containing analyte(s) that are commonly identified in the related procedure and a matrix matched negative control.

6.6.1.2 These positive and negative controls shall be extracted/prepared and analyzed concurrently with the unknown sample.

6.6.1.3 Typical examples of matrix-matched controls may be prepared from, but are not limited to, similar foodstuffs or beverages, previously analyzed negative tissues or homogenates, or in the case of residues, the reconstituting solvent.

6.6.1.4 Evaluation of these matrix standards may serve as a determination of the matrix suitability of analysis.

6.6.2 Standard Addition

If a similar matrix cannot be obtained, the use of "standard addition" may be necessary. In this instance, known amounts of analyte(s) are added to specimen aliquots. The analysis shall be evaluated qualitatively by the presence of the analyte(s) and/or quantitatively by comparing the proportional response of the fortified aliquots with that of the unknown specimen.

6.6.3 References

American Board of Forensic Toxicology Inc. *Forensic Toxicology Laboratory Accreditation Manual*. V.020223.

Commission on Laboratory Accreditation, Laboratory Accreditation Program, College of American Pathologists. *Chemistry and Toxicology Checklist*. Revised 03/30/05.