Idaho State Police
Forensic Services

Approval for Quality System Controlled Documents

Discipline/Name of Document: Toxicology
3.3.3-Extraction of Acidic and Neutral Drug Compounds

Revision Number: 0

Issue Date: 11/21/2006

APPROVED BY: _____ 11/21/06
Quality Manager Date Signed

Idaho State Police
Forensic Services
Toxicology Discipline

Section Three
Blood Toxicology

3.3 Screening of Blood for Commonly Encountered Drugs
3.3.3 Extraction of Acidic and Neutral Drug Compounds

3.3.3.1 BACKGROUND

This analytical method outlines a non-selective screen of whole blood specimens for commonly encountered acidic and neutral drugs. These include a wide variety of pharmaceuticals. The extract can be analyzed with a gas chromatograph equipped with a nitrogen-phosphorus detector (GC-NPD) or a mass selective detector (GC-MSD). The GC-MSD provides a presumptive identification of drug compounds in blood based on retention time and mass spectral data. The resulting data is utilized to base the selection of the confirmatory analysis method.

3.3.3.2 SCOPE

Drug compounds are extracted from blood by a liquid-liquid extraction process. Blood pH is first adjusted with saturated ammonium chloride followed by extraction with ethyl acetate. After evaporation and a hexane wash, the final extract is subjected to analysis by GC-MSD. Two internal standards are used to monitor extraction efficiency and chromatographic performance.

3.3.3.3 EQUIPMENT AND SUPPLIES

3.3.3.3.1 Tube rocker
3.3.3.3.2 Vortex mixer
3.3.3.3.3 Evaporative concentrator equipped with nitrogen tank.
3.3.3.3.4 Laboratory centrifuge capable of 3200rpm.
3.3.3.3.5 Fixed and adjustable volume single channel air displacement pipetters, and appropriate tips, capable of accurate and precise dispensing of volumes indicated.
3.3.3.3.6 16 x 100mm screw-top centrifuge tubes
3.3.3.3.7 Screw Cap for 16mm O.D. tubes
3.3.3.3.8 GC/MS Automated Liquid Sample (ALS) vials
3.3.3.3.9 GC/MS Vial Microinsert
3.3.3.3.10 Gas Chromatograph equipped with a Mass Selective Detector
3.3.3.3.11 100%-Dimethylsiloxane or a 5%-Diphenyl-95%-Dimethyl-siloxane copolymer, 12.5 to 30M.