Forensic Chemistry Section

Fire Debris Liquid Sample Handling Method

1. Scope

This document provides the procedure for analyzing liquid samples submitted for fire debris analysis.

2. Safety

2.1 Fire debris will be processed in the laboratory fume hood. The sash will be lowered as low as practicable when handling the evidence.

2.2 The examiner will not sniff or smell the evidence.

2.3 Disposable laboratory coats and 6 mil or thicker nitrile gloves will be worn when processing the evidence.

2.4 When performing flammability testing, the examiner will take precautions to ensure that the flame is contained to only the sample in question.

3. Method

3.1 Examination

3.1.1 Note the condition of the container, including markings and seal.

3.1.2 Note the number of liquid layers and a description of each layer.

3.1.3 Conduct miscibility testing of each layer.

3.1.3.1 Place an aliquot of the sample liquid in clear vial or test tube.

3.1.3.2 Add water.

3.1.3.3 Agitate the vial or tube, then allow liquid to settle.

3.1.3.4 Note if the liquid is miscible. A single layer indicates the liquid is miscible in water. Two layers indicate the liquid is not miscible in water.

3.1.4 Conduct flammability testing of each layer.

3.1.4.1 Place a small amount of liquid on end of cotton swab.

3.1.4.2 Apply flame to sample.

3.1.4.3 Note whether the sample is flammable (e.g. ignites readily, minimal char, large flame) or non-flammable (e.g. does not ignite, does ignite but will not sustain flame, significant char).

3.1.5 If the liquid is not ignitable, the examiner may choose to prepare the sample for simple headspace extraction and / or passive diffusion headspace extraction.

3.1.6 If the liquid is ignitable and suspected of being a light product or an alcohol, a simple headspace extraction will be performed.

3.1.7 If the liquid is ignitable and not suspected of being a light product or alcohol, the sample will be diluted to 20 uL/ml of an appropriate solvent. The solvent will be noted in the case notes.

3.1.7.1 Examiner will save a neat sample, the dilute sample, and the processed sample. A carbon strip will be placed in the dilute sample for long-term storage.