

Technical Procedure for the Preparation of Spot Test Solutions

1.0 Purpose – This technical procedure shall be followed for the preparation of the spot test solutions within the Trace Evidence Section.

2.0 Scope – This procedure applies to all preparations of diphenylamine, silver nitrate, barium chloride, and Crophen spot test solutions prepared within the Trace Evidence Section.

3.0 Definitions – N/A

4.0 Equipment, Materials, and Reagents

- Diphenylamine – Certified ACS
- Silver nitrate
- Barium chloride
- Zinc sulfate
- Potassium nitrate
- Deionized water
- Sulfuric acid – Certified ACS
- Graduated cylinder
- Beaker
- Brown bottle
- Top loading balance

5.0 Procedure

5.1 Diphenylamine solution

5.1.1 Preparation

5.1.1.1 Weigh 1 gram of diphenylamine.

5.1.1.2 Measure 40 mL of deionized water.

5.1.1.3 Measure 200 mL of sulfuric acid.

5.1.1.4 Combine diphenylamine, deionized water and sulfuric acid.

5.1.2 Storage Conditions – The prepared reagent shall be stored in a brown bottle at room temperature after preparation.

5.1.3 Expiration – The solution expires one year after preparation.

5.1.4 Sampling and Sample Selection – N/A

5.1.5 Calculations – N/A

5.1.6 Uncertainty of Measurement – N/A

5.2 Silver nitrate solution

5.2.1 Preparation

5.2.1.1 Weigh 5 grams of silver nitrate.

5.2.1.2 Measure 100 mL of deionized water.

5.2.1.3 Combine silver nitrate and deionized water.

5.2.2 **Storage Conditions** – The prepared reagent shall be stored in a brown bottle at room temperature after preparation.

5.2.3 **Expiration** – N/A

5.2.4 **Sampling and Sample Selection** – N/A

5.2.5 **Calculations** – N/A

5.2.6 **Uncertainty of Measurement** – N/A

5.3 Barium chloride solution

5.3.1 Preparation

5.3.1.1 Weigh 5 grams of barium chloride.

5.3.1.2 Measure 100 mL of deionized water.

5.3.1.3 Combine barium chloride and deionized water.

5.3.2 **Storage Conditions** – The prepared reagent shall be stored in a brown bottle at room temperature after preparation.

5.3.3 **Expiration** – N/A

5.3.4 **Sampling and Sample Selection** – N/A

5.3.5 **Calculations** – N/A

5.3.6 **Uncertainty of Measurement** – N/A

5.4 Crophen reagent

5.4.1 Preparation

5.4.1.1 Weigh 5 grams of zinc sulfate.

5.4.1.2 Weigh 4 grams of potassium nitrate.

5.4.1.3 Measure 40 mL of deionized water.

5.4.1.4 Combine zinc sulfate, potassium nitrate, and deionized water. The solution will be super-saturated; therefore some of the zinc sulfate and potassium nitrate crystals may not dissolve.

5.4.2 Storage Conditions – The prepared reagent shall be stored in a brown bottle at room temperature after preparation.

5.4.3 Expiration – N/A

5.4.4 Sampling and Sample Selection – N/A

5.4.5 Calculations – N/A

5.5 Uncertainty of Measurement – N/A

6.0 Limitations – N/A

7.0 Safety – Sulfuric acid may cause severe skin burns. Avoid skin contact with sulfuric acid.

8.0 References

Jungries, E. *Spot Test Analysis - Clinical, Environmental, Forensic and Geochemical Applications*. New York: John Wiley and Sons, Inc. 1985.

Crippin, J.B. and T.J. Hopen. *The Copen Test: A Polarized Light Microscopy Method for the Identification and Differentiation of Chlorates and Perchlorates*.

9.0 Records – Forensic Advantage Resource Manager

10.0 Attachments – N/A

Revision History		
Effective Date	Version Number	Reason
09/17/2012	1	Original ISO Document