Technical Procedure for Coomassie Blue

1.0 Purpose - This procedure outlines how to make Coomassie Blue solution and apply it to items of evidence.

2.0 Scope – This procedure applies to porous and non-porous items of evidence that may contain bloody impressions that require developing/enhancing. This procedure may also be used in processing adhesive sides of tapes.

3.0 Definitions – N/A

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Protective gloves and apron/coat
- Face shield visor and/or safety goggles
- Magnetic stirrer, magnetic follower and magnetic retriever
- Two (2) glass beakers
- Application equipment: two (2) spray bottles and two (2) glass trays
- Camera/scanner
- Fume hood

4.2 Reagents (Alternatively Pre-mixed solutions may be purchased from a commercial Forensic Supplier)

- Coomassie Brilliant Blue (0.44 gram)
- Glacial acetic acid (40 mL)
- Methanol (200 mL)
- Distilled water (200 mL)

5.0 Procedure

5.1 Mixing Procedure

5.1.1 Staining Solution (Developer)

5.1.1.1 Place 0.44 g of Coomassie Brilliant Blue and two-hundred (200) mL of methanol in a large glass beaker with magnetic stirrer and stir.

5.1.1.2 Add forty (40) ml of glacial acetic acid and two-hundred (200) mL of distilled water to the solution with continuous stirring to ensure the solution is thoroughly mixed.

5.1.1.3 Place the solution in a clearly marked spray bottle for immediate use or a dark container for long term use as needed.

5.1.2 Destaining Solution (Rinse Solution)

5.1.2.1 Place forty (40) mL of glacial acetic acid and two-hundred (200) mL of methanol in a large beaker with a magnetic stirrer and stir.

5.1.2.2 Add two-hundred (200) mL of distilled water to the solution with continuous stirring to ensure the solution is thoroughly mixed.

5.1.2.3 Place the solution in a clearly marked spray bottle for immediate use or a dark jug for long term use as needed.

5.1.2.4 Larger amounts of Coomassie Blue may be mixed for large items or for use at crime scenes.

5.2 Application Procedure Forensic Scientists shall produce a self-made test print to be processed concurrently with items of evidence. (See Section Technical Procedure for Ensuring Quality Control.)

5.2.1 Spray Method

5.2.1.1 Completely cover the area of interest with the staining solution.

5.2.1.2 Spray the item with the destaining solution to clear the background. The destaining solution shall be used generously to remove the excess staining solution.

5.2.1.3 Allow the item to dry completely prior to proceeding.

5.2.2 Immersion Method

5.2.2.1 Completely immerse the item in a tray of staining solution. Immerse the item for approximately thirty (30) to ninety (90) seconds.

5.2.2.2 Remove the item from the staining solution and place in a separate tray of destaining solution for approximately one minute and agitate to clear the background. This procedure may be repeated with a fresh destaining solution if the background is not completely clear.

5.2.2.3 Remove the item from the solution and allow the item to dry completely prior to proceeding.

5.2.2.4 Preserve the developed impressions through photography, according to the techniques in Photographic Equipment/Procedures and/or by electronically recording the impressions (See Image Processing). The impression may be lifted directly from the item only after the item is completely dry.

5.3 Standards and Controls – N/A

5.4 Calibration - N/A

5.5 Sampling –N/A

5.6 Calculations – N/A

5.7 Uncertainty of Measurement – N/A

6.0 Limitations - This process shall be conducted in a well ventilated area or in a fume hood.

7.0 Safety – Glacial acetic acid and methanol can be harmful if inhaled or ingested and shall be used in a fume hood when mixing and/or processing evidence. Protective gloves, eye goggles and aprons shall be worn as the staining solution will stain clothing and skin. This technique may be used at crime scenes with a prepared solution in a well vented area.

8.0 References

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9.0 Records – N/A

10.0 Attachment – N/A