

Technical Procedure for Merbromin

1.0 Purpose - This procedure describes how to apply the Merbromin solution to items of evidence.

2.0 Scope - Merbromin may be used in conjunction with a laser and/or alternate light source to develop latent impressions in blood. This technique may be used on porous or non-porous surfaces. Merbromin will react with Heme groups in the blood causing the blood to fluoresce yellow.

3.0 Definitions – N/A

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Laboratory coat and rubber gloves
- Fume hood
- Camera
- Laser and/or alternate light source with orange filter and goggles
- Dust or mist respirator (for application outside of fume hood)

4.2 Reagents

- Merbromin solutions parts A and B

5.0 Procedure – Prior to spraying the item of evidence with any of the solutions, the bloody impression shall be dried or cured to prevent the print from dissolving when the solution is applied.

5.1 Processing Procedures

5.1.1 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.) Real or synthetic blood may be used for the self-made test print.

5.1.2 Carefully spray item of evidence with Working Solution A (Merbromin Solution). Allow the area to dry completely. Spray item a second time with Working Solution A and again allow the area to dry completely prior to proceeding.

5.1.3 After the second application of Working Solution A has completely dried, carefully spray item with Working Solution B (hydrogen peroxide Solution). Spray item a second time with Working Solution B and allow the area to dry completely prior to proceeding. A fine mist shall be used when spraying the item of evidence with the hydrogen peroxide solution.

5.1.4 View the item under the laser or alternate light source with orange goggles and/or filters.

5.2 Preservation of Developed Impressions – Preserve the developed impressions through photography (See photographic equipment procedures) and/or by electronic recording (See Section Technical Procedure for Image Processing).

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

- 6.1** The latent impressions developed with Merbromin shall be photographed immediately as exposure to air will slowly cause the development of a fluorescent background which will mask the latent impression.
- 6.2** Merbromin will cause the blood on an item to fluoresce yellow and is not recommended on items which fluoresce the same color.

7.0 Safety

- 7.1** Merbromin is toxic and shall be handled with caution. Inhalation, ingestion and skin contact shall be avoided.
- 7.2** The process shall be performed in a fume hood and protective goggles, gloves and aprons shall be worn during processing.

8.0 References

Lee, H.C. "Methods of Latent Print Development." *Proceedings of the International Forensic Symposium on Latent Prints*. (July 1987): 15 – 24.

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Kent, T., ed. *Manual of Fingerprint Development Techniques: A Guide to the Selection and Use of Processing for the Development of Latent Fingerprints*. Police Scientific Development Branch, London (July 1992).

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Trozzi, T.A., R.L. Schwartz and M.L. Hollars. *Processing Guide for Developing Latent Prints*. (2000): 1-64.

US Department of Justice. *Chemical Formulas and Processing Guide for Developing Latent Prints*. FBI Laboratory Division, Latent Fingerprint Section (1994).

9.0 Records – N/A

10.0 Attachment – N/A

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