

Standard Operating Procedures for Latent Print Processing with RAM

1 Scope

RAM (combination of fluorescent dyes **R**hodamine 6G, **A**rdrox P133D, and **M**BD) is a fluorescent dye used by latent print personnel to make cyanoacrylate-developed latent prints more visible on all colors of non-porous and semi-porous surfaces.

2 Equipment/Materials/Reagents

Beakers

Graduated cylinders

Balance

Spatula

Squirt bottles, sprayers, brushes, or glass trays

Dark glass bottles

Magnetic stirrer and stir bar(s)

4-(4-methoxybenzylamino)-7-nitrobenzofurazan (MBD)

Rhodamine 6G (dye content $\geq 99\%$)

Ardrox P133D

Acetone

Methanol

Isopropanol

Petroleum Ether

Acetonitrile

Forensic Light Source(s)

Fume hood

3 Standards and Controls

Not applicable.

4 Sampling or Sample Selection

Not applicable.

5 Procedures

5.1 Solution Preparation

a) Rhodamine 6G stock solution

Combine:

- Rhodamine 6G - 1 g
- Methanol - 1000 ml

Stir until Rhodamine 6G dissolves.

b) MBD stock solution

Combine:

- MBD - 1 g
- Acetone - 1000 ml

Stir until MBD dissolves.

c) RAM working solution

Combine in the order listed:

- Rhodamine 6G stock solution - 3 ml
- Ardrex P133D - 2 ml
- MBD stock solution - 7 ml
- Methanol - 20 ml
- Isopropanol - 10 ml
- Acetonitrile - 8 ml
- Petroleum Ether - 950 ml

Caution: DO NOT place on a magnetic stirrer.

5.2 Application

- a) Apply solution to specimen by spraying, dipping, squirting, or painting.
- b) Allow specimen to dry completely.
- c) View using forensic light source at wavelengths in the 365 nm to 540 nm range. (Refer to FBI Latent Print Units Processing Manual, Standard Operating Procedures for Latent Print Processing with Forensic Light Sources.)
- d) For digital capture and photography, see FBI Latent Print Units Processing Manual Preamble.

5.3 Storage

- a) Rhodamine 6G stock, MBD stock and RAM working solutions must be stored in dark glass bottles. RAM working solution can also be stored in a metal can.
- b) Ardrex P133D is stored in its original container or dark glass bottle.

5.4 Shelf Life

- a) Rhodamine 6G stock, MBD stock and Ardrex P133D stock solutions each have an indefinite shelf life.
- b) RAM working solution has an indefinite shelf life provided the reagent checks are satisfactory. If the working solution is separated, shake vigorously. If the solution does not return to suspension, discard the solution.

5.5 Reagent Checks

See FBI Latent Print Units Processing Manual, Preamble.

6 Calculations

Not applicable.

7 Measurement Uncertainty

Not applicable.

8 Limitations

Fluorescent compounds will suffer from loss of fluorescent intensity over time; as such,

fluorescent prints will be captured as soon as is practicable.

9 Safety

See FBI Laboratory Safety Manual for appropriate information.

10 References

Cummings, H., Hollars, M. L., and Trozzi, T. A. "Getting the Most from Cyanoacrylate Dyes". JFI.43(1):37.

FBI Laboratory Safety Manual, Federal Bureau of Investigation, Laboratory Division. Latest Revision.

FBI Latent Print Units Processing Manual, Preamble, Federal Bureau of Investigation, Laboratory Division. Latest Revision.

Trozzi, T. A., Schwartz, R. L., and Hollars, M. L. *Processing Guide for Developing Latent Prints*, FBI Laboratory, Washington DC, 2001.

<u>Rev. #</u>	<u>Issue Date</u>	<u>History</u>
0	01/13/14	Original document issued. Derived from Discontinued Latent Print Operations Manual, Standard Operating Procedures for Processes Used to Develop Latent Prints. The original LPU Processing Manual consisted of a single document with a preamble and procedures for all processes. The current document separates each into its own separate document.
1	10/02/17	Specific section numbers referenced in Preamble removed throughout document. Section 1, latent print personnel added. Section 4 removed and remaining renumbered. Titles for Section 4 and Section 7 modified. Section 5.4, Waste Stream removed. Section 9, generalized. Updated for Biometrics Analysis Unit. References Updated.

Approval

Redacted - Signatures on File