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|  | <p style="text-align: center;"><b><i>Latent Procedure</i></b></p> <p><b>Pitt County Sheriff's Office Forensics Services Unit</b><br/> <i>Issued by Technical Leader</i></p> | <p>Effective Date:<br/>2018/04/01</p> | <p>Ver:<br/><b>2</b></p>         |
| <p>Procedure for Rhodamine 6G</p>                                               |                                                                                                                                                                             |                                       | <p>Page #:<br/><b>1 of 5</b></p> |

## Technical Procedure for Rhodamine 6G

**1.0 Purpose** – This procedure outlines how to make and apply Rhodamine 6G to non-porous items of evidence.

**2.0 Scope** – This procedure is a step in the processing of non-porous evidence that may contain impressions that require developing/enhancing.

**2.1** One of the most effective ways to recover latent prints from items of evidence is to use a fluorescent dye followed by a laser or alternate light source examination. Rhodamine 6G is one the most effective laser dyes in recovering latent prints on various non-porous/semi-porous surfaces. This dye is normally used on non-porous surfaces, but may, under certain conditions, be used on porous or semi-porous surfaces. Rhodamine 6G is extremely efficient as it is highly fluorescent and can be used with various alternate light sources.

### 3.0 Definitions

- **(ALS)Alternate light source:** Any equipment used to produce light at various wavelengths to enhance or visualize potential items of evidence. ALS equipment readily available in the latent evidence section includes, but is not limited to, the CrimeScope, Mini Blue Maxx, Short and Long Wave lamps and Handscope Xenon (spex) ALS.
- **CE** - Cyanoacrylate ester (also known as super glue)
- **R6G** - Rhodamine 6G

### 4.0 Equipment, Materials and Reagents

#### 4.1 Equipment and Materials

- Orange filter (goggles and/or camera lens filter)
- Alternate light source
- Fume hood
- Gloves
- Face shield and/or safety goggles
- Plastic applicator bottles or tray for submersion
- Cameras –photographic equipment
- Image processing system

#### 4.2 Reagents

- Rhodamine 6G (powder)
- Methanol

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| <p>Procedure for Rhodamine 6G</p>                                               |                                                                                                                                                                             |                                       | <p>Page #:<br/><b>2 of 5</b></p> |

## 5.0 Procedure

### 5.1 Mixing Procedure

- 5.1.1 Place 0.005 gram of Rhodamine 6G (powder) in 500 mL of methanol. (Dampen the tip of an unfolded paperclip with methanol and insert it into the chemical bottle. The powder that adheres to the paperclip can then be transferred into the methanol.)
- 5.1.2 Thoroughly dissolve the R6G powder in the methanol. Solution is ready for use.

### 5.2 Application Procedure

- 5.2.1 Examiner/technicians shall produce a self-made test print to be processed concurrently with items of evidence (see section technical procedures for Ensuring Quality Control).
- 5.2.2 First apply cyanoacrylate ester to the item of evidence in accordance with procedure for Cyanoacrylate Ester fingerprint development. R6G adheres to the chlorosis that occurs after processing with CE.
- 5.2.3 Non-porous items: Using the fume hood and gloves, spray or completely submerge the item of evidence in the methanol/R6G solution. Allow to dry.
- 5.2.4 When completely dry, view the item using any available ALS in the latent evidence section. Use goggles to view any fluorescence. Latent prints will fluoresce bright yellow.  
  

**Note:** R6G will preferentially adhere to super glued prints, but a certain amount may adhere to the item surface. If too much dye is used, the entire surface will fluoresce and mask the latent print. In this case, rinsing the item with methanol will cause the excess dye to wash away and, in most cases, the dye adhering to the latent print will remain.
- 5.2.5 Porous/semi-porous items: Follow the above directions for R6G preparation as in 5.1, substituting distilled water for the methanol.
- 5.2.6 Once the item has been sprayed or submerged, it should be rinsed with clear water immediately and scanned with an ALS or laser.
- 5.2.7 Any latent prints shall be preserved using procedure for Photography, Image Processing and Recording of All Analytic Data. Camera shall be equipped with an orange filter for print visualization.

### 5.3 Standards and Controls – N/A

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**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 cyanoacrylate fuming process is vital to the success of Rhodamine 6G processing.

**6.2** Rhodamine 6G prepared has a shelf life of six (6) months.

**6.3** All prepared solution shall be stored in dark, shatter-proof bottles.

**7.0 Safety** – The safety concerns regarding Rhodamine 6G have not been thoroughly investigated and there are varied opinions on the associated health effects of this chemical. The chemical solution shall be applied and treated with extreme care. It may cause irritation when in contact with the eyes or skin and may be harmful if inhaled or ingested. The methanol used in this solution is flammable and shall be handled with extreme care.

## **8.0 References**

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| <p>Procedure for Rhodamine 6G</p>                                                |                                                                                                                                                                             |                                               | <p><b>Page #:</b><br/> <b>4 of 5</b></p> |

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**9.0 Records – N/A**

**10.0 Attachments – N/A**