Procedure for Luminol Test

- **1.0 Purpose -** This procedure specifies the method for performing the Luminol test in forensic casework.
- **2.0 Scope -** This procedure applies to those Forensic Scientists who have been released to do Luminol and Kastle-Meyer testing in forensic casework.
- **3.0 Definitions -** N/A

4.0 Equipment, Materials and Reagents

- 500 mL of deionized or distilled water
- 25 g of sodium carbonate anhydrous
- 0.5 g of luminol
- 3.5 g of sodium perborate tetrahydrate
- Spray bottle with adjustable nozzle
- Penny

5.0 Procedure

- **5.1** Reagents for the luminol test shall be premeasured and stored in the following manner: Place 0.5 gram of luminol and 25 grams of sodium carbonate in a bag labeled with the chemical names, date of expiration and lot numbers. Place 3.5 grams of sodium perborate in a separate bag labeled with the chemical name, date of expiration and lot number. Place 500 mL of deionized or distilled water into a container and label the container with the contents. The container and bags shall be stored at room temperature.
- **5.2** Immediately prior to use, pour the contents of both bags into the deionized or distilled water and shake to dissolve. Not all the reagents will dissolve completely. Transfer the solution into a spray bottle dedicated to Luminol testing.
- **5.3** Darken the area to be examined by extinguishing all light sources and covering any other sources of light (e.g., doors and windows).
- **5.4** Test the sprayer to ensure that only a fine mist of chemicals is being released. Process the area starting in region furthest from the exit and move toward the exit or process the area moving away from the most concentrated suspected blood source. Spray in front of you and walk backwards while spraying. Keep others behind you. Avoid walking over an area that has been sprayed. Look for areas where a brightly lit chemiluminescent reaction occurs. This reaction may remain for 5 to 20 seconds.
- **5.5** All areas that give chemiluminescent reactions shall also be tested with the Kastle-Meyer Test (see Forensic Biology Section Procedure for Kastle-Meyer Test). Only areas that give a positive reaction for both the luminol and Kastle Meyer Test shall be documented. When sketching the results, document visible suspected blood stains that have tested positive with the Kastle-Meyer Test in red and document stains that are not visible but react positively to both the luminol and the Kastle-Meyer tests in blue.
- **5.6** Following analysis, prepared reagent shall be disposed of properly by pouring down the sink. Flush drain with copious amounts of water. The sprayer and water container shall be rinsed for future use.

5.7 Reporting Guidelines

5.7.1 This phrase shall be used if no areas tested positive with luminol.

Examination of ______ failed to reveal a positive reaction to the application of luminol.

5.7.2 This phrase shall be used if areas of interest are noted. This should be followed with the results from the KM testing.

Examination of _____ revealed a positive reaction to the application of luminol in the following areas:

These areas also gave chemical indications for the presence of blood using the Kastle-Meyer Test.

- **5.8** Controls A penny is used as a positive control. Prior to the luminol analysis, the penny is sprayed with the luminol reagents to look for a chemiluminescent glow. This reaction ensures that the chemicals are working properly. The background chemiluminescent glow, if present, should not be so bright that it interferes with the chemiluminescent glow of the penny. The results of the controls will be documented as positive or negative in the notes.
- **6.0 Limitations -** The luminol test is a presumptive test for the presence of blood and will cross-react with some metals and oxidants. This test shall be performed in the dark. If examination of the area exceeds 4 hours, new reagent shall be prepared. Caution shall be taken to avoid over spraying a sample as this can lead to diluting a sample to the point that further testing may be jeopardized.
- 7.0 Safety Sodium carbonate anhydrous, luminol and sodium perborate tetrahydrate are irritants.

8.0 References

Forensic Biology Section Body Fluid training documents

Forensic Biology Section Procedure for Calibration and Maintenance

Forensic Biology Section Procedure for Aseptic Technique and Contamination Control

Forensic Biology Section Procedure for Kastle-Meyer Test

9.0 Records - N/A

10.0 Attachments - N/A

Revision History		
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