	<p style="text-align: center;"><b><i>Latent Procedure</i></b></p> <p><b>Pitt County Sheriff's Office Forensics Services Unit</b>  <i>Issued by Technical Leader</i></p>	<p>Effective Date: 2018/04/01</p>	<p>Ver: <b>2</b></p>
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### **Technical Procedure for Gun Blue/Blue Etching**

- 1.0 Purpose** – This procedure outlines how to apply Gun Blue/Blue Etching to items of evidence.
- 2.0 Scope** – This procedure applies to Shell Casings, Fired and non-Fired, that need processing for Latent Prints.
- 3.0 Definitions – Gun Blue-** A number of gun bluing products sold under various trade names can be used in a diluted solution to reveal friction ridge detail on cartridge surfaces The reagent etches the cartridge's metal surface not protected by sebaceous-containing latent print residue, and deposits a dark-colored Cu-Se coating to reveal friction ridge detail.
- 4.0 Equipment, Materials and Reagents** (Alternatively Pre-mixed solutions may be purchased from a commercial Forensic Supplier)


#### **4.1 Equipment and Materials**

- Protective gloves and apron/coat
- Face shield visor and/or safety goggles
- Dark, shatter-proof container
- Small Beaker
- Non-Metallic Forceps

#### **4.2 Reagents**

- Gun Blue
- Instant Gun Blue
- Distilled Water
- Cyanoacrylate (CE)
- Distilled water

#### **5.0 Procedure**

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## 5.1 Preparation

- 5.1.1 Combine one 1 part Formula 44/40 (Instant Gun Blue) to 80 parts distilled water into a clean one hundred (100) mL glass beaker.
- 5.1.2 Outer's Gun Blue or other comparable brand combine one 1 part Gun blue to forty (40) part Distilled Water in a forty (40) ml glass beaker.

## 5.2 Application

- 5.2.1 Examiners/Technician shall produce a self-made test print to be processed concurrently with items of evidence. (See Section Technical Procedure for Ensuring Quality Control.)
- 5.2.2 Light fuming with Cyanoacrylate Ester may be applied prior to following steps.
- 5.2.3 Immerse cartridge casing in the reagent. Gently stir and toll the cartridge in the solution.
- 5.2.4 Monitor closely for development.
- 5.2.5 Halt development by immersing in distilled water for 2 minutes. Air Dry.
- 5.2.6 Photograph/capture developed detail by use of procedures for photographic equipment, Image Processing and Recording of All Analytical Data.

**Note:** Lacquered steel cartridges or those cartridges with a polymer jacket will resist the oxidation/reduction resulting in little to no development.

## 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 – Cartridges must be made of nickel or brass.

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**6.1** Cartridges should be fumed lightly with cyanoacrylate prior to Immersion in Gun Blueing.

**7.0 Safety** –Fume Hood use is required.

## **8.0 References**

Evaluation of Gun Blueing Solutions and their Ability to Develop Latent Fingerprints on Cartridge Cases", The Chesapeake Examiner, Vol. 8, No. 10, October 1996.

"Visualization of Sebaceous Fingerprints on Fired Cartridge Cases: A Laboratory Study", Migron, Y.,Hocherman, G., Springer, E., Almog, J., and Mandler, D., J. Forensic Sciences, Vol. 43, No. 3, May 1998, pp. 543-548.

**9.0 Records** – N/A

**10.0 Attachments** – N/A



## ***Latent Procedure***

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### **REVISION HISTORY**

<b>CURRENT VERSION</b>	<b>EFFECTIVE DATE</b>	<b>SUMMARY OF CHANGES</b>
1	2016/07/01	Original Version
2	2018/04/01	Change issue date to effective date, add cyanoacrylate as separate method

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