	<p style="text-align: center;"><i>Latent Procedure</i></p> <p>Pitt County Sheriff's Office Forensics Services Unit <i>Issued by Technical Leader</i></p>	<p>Effective Date: 2018/04/01</p>	<p>Ver: 2</p>
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Technical Procedure for the use of the Cyanovac

1.0 Purpose – This procedure outlines the use of cyanoacrylate in the available Cyanovacs for development of friction ridge detail on non-porous and in some cases porous/semi-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 The Cyanovac polymerizes the latent impression using cyanoacrylate in a vacuum environment. The vacuum will eliminate background moisture and allow the cyanoacrylate to attach to the components of the latent impression thereby eliminating the over-fuming that may occur with manual cyanoacrylate techniques. Numerous materials, including plastic bags, weapons, metals, and various other substrates, may be processed using the Cyanovac. Cyanoacrylate is used as a preliminary process when utilizing subsequent fluorescent dye staining, in conjunction with ALS examinations. Developed Cyanoacrylate latent prints may be visible without further process and if so shall be documented according to procedure.

3.0 Definitions

- **Alternate light source:** Any of the multiple forensic light sources readily available in the Digital/Latent Evidence Section including, but not limited to, the Crime Scope, Mini-Crime Blue Maxx, and Blue Ultra-Lite ALS.
- **Ambient light:** Light that is readily available in the office environment (i.e., natural light or light that emanates from an office lighting source).
- **Vac II/200:** Any of the Cyanovacs located in the Latent Evidence Section that are upright in nature and designated for use with shorter items of evidence.
- **Vac I/100:** Any of the Cyanovacs located in the Latent Evidence Section that are horizontal in nature and designed for use with longer items of evidence.
- **CE:** Cyanoacrylate ester, also known as super glue.

4.0 Equipment, Materials and Reagents


4.1 Equipment and Materials

- Cyanovac (II/200 or I/100 tube)
- Trays
- Black Backer Cards

4.2 Reagents

- Cyanoacrylate ester (Bottle/Vial/Finder packets)

5.0 Procedure

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- 5.1 Technician/Examiner 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 Items to be processed in the Cyanovac must first be examined in accordance with Procedure for Visual and Inherent Luminescence.
- 5.3 Remove the end cap from the Cyanovac chamber by releasing the Rubber straps.
- 5.4 Insert item(s) of evidence into chamber by hand.

Note: Items may touch each other and the sides of the vessel without significant effect on processing. Large flexible items such as garbage bags must be unfolded to the degree possible, but need not be fully spread. Sealed items, such as zip top plastic bags or sealed plastic or metal containers must be opened in order to prevent rupture due to vacuum environment.

- 5.5 Place five (5) to ten (10) drops of cyanoacrylate (super glue) in a foil dish and place into chamber or place one or more Finder Cyano Packets into Chamber.
- 5.6 Verify that the o-ring is present in the end cap. Ensure that it is not broken or dry-rotted.
- 5.7 Replace end cap on the chamber and fasten using Rubber straps.
- 5.8 Verify that the chamber bleed valve is closed.
- 5.9 Turn the vacuum pump to ON using the switch.
- 5.10 Observe the vacuum gauge to ensure that the air in the chamber is being evacuated. Pump will automatically stop at the appropriate pressure set by the manufacturer.


Note: Pump will automatically restart if the vacuum pressure varies from optimum.

- 5.11 Allow the item(s) to remain under vacuum for approx. thirty (30) minutes.

Note: Some items may require a longer processing time; however, this period of time will not compromise the test value.

- 5.12 Turn vacuum pump to OFF using the switch.
- 5.13 Open the chamber bleed valve to equalize pressure.
- 5.14 Remove chamber end cap and remove cyanoacrylate source.
- 5.15 Leave item(s) in the chamber for approximately ten (10) minutes.
- 5.16 Remove item(s) and allow to set for up to twenty-four (24) hours.

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Note: Individual items of evidence may require twenty-four (24) hour rest for full setting of cyanoacrylate.

5.17 Examine item(s) for developed latent prints using subsequent processing techniques.

5.18 Any developed latent prints must then be preserved using the method described in accordance with the procedures for Image processing and Recording of All Analytical Date.

5.19 Standards and Controls – N/A

5.20 Calibration – See Cyanovac operating manual for further information on controls and specifications.

5.21 Sampling – N/A

5.22 Calculations – N/A

5.23 Uncertainty of Measurement - N/A

6.0 Limitations – Cyanovac is for use in the processing of non-porous and in some case porous/semi-porous items of evidence in lab setting.

6.1 May require subsequent treatment with fluorescent dyes, laser and/or alternate light source examinations.

7.0 Safety – Proper purging of the system is necessary as the fumes may cause irritation when in contact with the eyes or skin and may be harmful if inhaled or ingested. Protective goggles, gloves, and apron/lab coat shall be worn during processing. Additionally, cyanoacrylate ester is an adhesive/glue. Care shall be taken to avoid application to unintended surfaces.

8.0 References

Besonen, J.A. “Heat Acceleration of the Superglue Fuming Method for Development of Latent Fingerprints.” *Identification News*. (1983): 3 – 4.

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