

Technical Procedure for the use of the Cyvac II

1.0 Purpose – This procedure is a non-porous development procedure.

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 Cyvac II polymerizes the latent impression using cyanoacrylate in a heated, vacuum environment. The vacuum will eliminate background moisture and allow the cyanoacrylate to attach to the components of the latent impression thus eliminating the over-fuming of an item of evidence which may occur with manual cyanoacrylate techniques. Numerous materials, including plastic bags, weapons, metals, and various other substrates, may be processed using the Cyvac II. Cyanoacrylate shall be used as a preliminary process when utilizing subsequent processing techniques. Fluorescent dye staining, in conjunction with laser examinations, is dependent on the proper use of cyanoacrylate fuming techniques.

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 CrimeScope, Mini-CrimeScope, TracER Laser, and 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).
- **CE:** Cyanoacrylate ester, also known as super glue.
- **Cyvac II:** The Cyvac II unit that assists in the processing of nonporous items of evidence with cyanoacrylate ester in a heated, vacuum environment.

4.0 Equipment, Materials and Reagents

4.1 Equipment and Materials

- Cyvac II

4.2 Reagents

- Cyanoacrylate ester (Bottle/Vial)

5.0 Procedure

- 5.1** Forensic Scientist shall produce a self-made test print to be processed concurrently with items of evidence. (See Technical Procedure for Ensuring Quality Control.)
- 5.2** The Forensic Scientist using this piece of equipment shall adhere to all operating procedures outlined in the Cyvac II instruction manual.
- 5.3** Store fuming bar outside the chamber. Temperature of the fuming bar shall be ambient (20 °C to 30 °C) at the start of the processing run.
- 5.4** Replace end cap on the chamber and fasten using elastic T-straps.
- 5.5** Verify that the chamber bleed valve is closed.

5.6 Conditioning of Evidence - This lengthy procedure is required only when evidence is extremely dry. In this case, evidence must be conditioned pursuant to the operating procedures outlined in the Cyvac II instruction manual.

5.7 Standards and Controls – N/A

5.8 Calibration – See Cyvac II operating manual for further information on controls and specifications.

5.9 Sampling – N/A

5.10 Calculations – N/A

5.11 Uncertainty of Measurement - N/A

6.0 Limitations – Cyvac II is for use in the processing of non-porous evidence.

6.1 The cyanoacrylate fuming process is vital to subsequent treatment with fluorescent dyes and laser and/or alternate light source examinations (see Fluorescent Dyes and Laser/Alternate Light Sources).

6.2 Refer to the Cyvac II operating manual for further information on maintenance, controls and specifications.

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.

7.1 The exhaust hose shall always be routed through a fume hood or an acceptable ventilation system.

8.0 References

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9.0 Records – N/A

10.0 Attachments – N/A

Revision History		
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