

Cyanoacrylate Fuming

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Cyanoacrylate Fuming

1 INTRODUCTION/SCOPE

Cyanoacrylate fuming is used by FBI Laboratory Friction Ridge Discipline personnel to develop latent prints on non-porous and semi-porous items.

2 STANDARDS AND CONTROLS

See *Processing Overview* (FRD-300).

3 LIMITATIONS

The cyanoacrylate and aluminum weighing dish used in a specific chamber must be compatible to the dimensions or settings of that chamber.

4 EQUIPMENT

- Cyanoacrylate
- CYANO-SHOT™
- Lumicyano™
- Aluminum weighing dish or similar container
- Automated Cyanoacrylate Fuming Chamber(s) (Misonix®/Mystaire® and CApture™ BT)
- Heat source (e.g., hot plate)
- Cyanoacrylate fuming wand, cartridge(s), and butane
- Improvised cyanoacrylate fuming chamber(s)
- Foster + Freeman SUPERfume® system

5 PROCEDURE

5.1 Misonix®/Mystaire® Cyanoacrylate Fuming Chambers

Personnel will complete the following steps in order:

- A. Place item(s) into chamber, ensuring adequate spacing surrounding item(s) for exposure.
- B. Prior to beginning the humidity cycle, ensure the humidifier water tank has sufficient water for the cycle.
- C. Press the start button to begin the humidity cycle, which transitions to the fuming cycle once the set humidity value is reached (optimal 70% relative humidity).
- D. At the start of the fuming cycle, weigh an appropriate amount of cyanoacrylate into an aluminum dish or similar container, considering the limitations stated in Section 3.
- E. When the designated time is reached, place cyanoacrylate container on the hot plate and press enter to resume the fuming cycle.
- F. Upon completion of the fuming cycle, the chamber will purge fumes for a preset time.

- G. When the purge cycle is complete, remove the item(s) and check chamber to ensure no item(s) has been left behind.
- H. Examine the item(s) visually and/or under a forensic light source for latent prints. (Refer to *Forensic Light Sources* document (FRD-305)).
- I. Preserve appropriate friction ridge detail as applicable (e.g., digitally).
- J. The FBI Laboratory File will reflect the specific chamber used for each cycle.

5.2 Labconco CAPture™ BT Fuming Chambers

Personnel will complete the following steps in order:

- A. Place item(s) into chamber, ensuring adequate spacing surrounding item for exposure.
- B. Prior to beginning the cycle, ensure the appropriate program is selected and the humidifier contains a sufficient amount of water.
- C. Weigh an appropriate amount of cyanoacrylate into an aluminum weighing dish, ensuring any tabs on the aluminum dish are not folded down, considering the limitations stated in Section 3.
- D. Open the hot plate door, pull the handle, and place the aluminum dish on the white circle.
- E. Press start button to begin the process.
- F. Upon completion of the full process, remove the item(s) and check chamber to ensure no item(s) has been left behind.
- G. Examine the item(s) visually and/or under a forensic light source for latent prints. (Refer to *Forensic Light Sources* document).
- H. Preserve appropriate friction ridge detail as applicable (e.g., digitally).
- I. The FBI Laboratory File will reflect the specific chamber used for each cycle.

5.3 Additional Cyanoacrylate Fuming Methods (Non-automated)

To include the use of, but not limited to:

- Cyanoacrylate fuming wand(s).
- CYANO-SHOT™ (with or without Lumicyano™).
- Foster + Freeman SUPERfume® system.
- Improvised cyanoacrylate fuming chamber(s) (e.g., tents, non-automated cyanoacrylate fuming cabinets, and other non-manufactured chambers).

5.3.1 Control Sample

- A. For handheld devices, such as a cyanoacrylate fuming wand, the control sample will be fumed prior to the fuming of any item(s).
- B. For improvised cyanoacrylate fuming chambers, the control sample will be included with the item(s).
 - 1. If the control sample is negative, the item(s) will be processed again (see *Processing Overview* document).
- C. Results of the control sample for each cycle must be recorded in the FBI Laboratory File.

5.3.2 Processing

- A. Personnel will process the item(s), following the manufacturer's recommendations, if applicable, until sufficient development occurs.
- B. The method of processing must be recorded in the FBI Laboratory File.
- C. Preserve appropriate friction ridge detail as applicable (e.g., digitally).

6 SAFETY

See FBI Laboratory Safety Manual for appropriate information.

7 REVISION HISTORY

Revision	Issued	Changes
04	07/15/2022	Reformatted
05	08/01/2024	Removed Cyanoacrylate Blowing Chamber throughout. Section 4 – added heat source. Section 5.1 and Section 5.2 – directive to preserve prints added. Section 5.3.1 – “test strip” changed to “control sample”.