

**Section B - Subsection 2**

**Cyvac**

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**Name of Procedure:**

Cyvac

**Suggested Uses:**

The cyvac polymerizes the latent impression using cyanoacrylate in a vacuum environment. The vacuum will eliminate the 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 super glue techniques. Numerous materials may be processed utilizing the cyvac such as plastic bags, weapons, metals, and various other substrates. Super glue should be used as a preliminary process when utilizing a number of subsequent processing techniques. Fluorescent dye staining with laser examinations are dependent on the proper use of super glue fuming techniques.

**Equipment Needed to Perform Procedures:**

A - Cyvac Unit

B - Commercially prepared super glue for heating element fuming

**Chemical(s) Needed for Preparation of Chemical Solution(s):**

Not Applicable

**Formula/Directions for Preparation of Chemical Solution(s):**

Not Applicable

**Processing Procedures for Application to Item(s) of Evidence:**

1. Connect the Cyvac line cord to a 115 volt, 15 amp outlet. Connect the accessory line if required.
2. Turn the Chamber Heater switch to the ON position. At this time the temperature control will flash three (3) times and then display the current chamber temperature.

Note: For best results the Cyvac chamber should be heated to thirty-seven (37) degrees prior to the processing of evidence.

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3. Place the item of evidence to be processed in the Cyvac. Evidence should be placed approximately ½ inch apart or separated with one or two layers of light weave paper towel. Open and drain most containers. Vacuum desiccate containers having petroleum based volatiles prior to processing with cyanoacrylate.
4. Insert the small foil cups into the fuming bar and dispense three (3) to six (6) drops of cyanoacrylate (super gluing) into each cup.
5. Slide the vapor release/fuming bar into the channel located below the basket and push gently into place and close door (s).
6. Open the OUTLET valve and verify that the INLET and PURGE valves are in the closed position. Turn the main pump switch to the ON position. Verify that the door seals are operational and vacuum is starting. Operate the vapor release switch to the ON position at fifteen (15) inches of vacuum and leave on until purge cycle.

NOTE: Do not exceed a maximum temperature of 82 degrees Celsius.

7. Turn the re-circulating pump ON immediately after five (5) inches of vacuum has been established.

NOTE: Recirculating pump will not start above ten (10) inches of vacuum.

8. Run the main vacuum pump until the vacuum gauge reads between 22 and 24 inches of vacuum in the chamber, the time period will be approximately 8 to 12 minutes. The period will be longer with weapons having large wooden stocks. When 22 to 24 inches of vacuum has been established, close the OUTLET valve and immediately turn the main pump switch to the OFF position.
9. Leave the evidence in the Cyvac chamber under vacuum condition for 20 to 45 minutes.

NOTE: This period of time is sufficient for most items;; however, a longer period of time may be required for more difficult prints.

10. Open the INLET valve and wait until the pressure equalizes (Zero reading on the gauge), then open the PURGE valve. Run the pump for 4 to 6 minutes to evacuate any remaining cyanoacrylate fumes from the Cyvac chamber. The fuming bar may be removed when the purge cycle is complete.

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NOTE: The exhaust hose located at the rear panel of the CYVAC must be routed through a fume hood or suitable ventilation system.

11. Leave the evidence in an open air area for 30 to 60 minutes before processing further as this will allow the cyanoacrylate treated impressions to harden.

**Steps To Preserve Developed Impressions:**

The most appropriate methods to preserve developed impressions is through photography, using the proper techniques (See Photographic Equipment/Procedures) and/or electronically recording the impressions (See Image Processing) The item of evidence can be powder processed after super glue fuming and lifted with lift tape or photographed to preserve the impression (See Powder Processing).

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

**Safety Concerns:**

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

Proper purging of the system is necessary as the fumes may cause some irritation when in contact with the eyes or skin and may be harmful if inhaled or ingested. Protective goggles, gloves and aprons should be worn at all times during processing.

**Storage and Location of Chemicals and Solutions:**

Not Applicable

**Shelf Life:**

Not Applicable.

**Other Information:**

Refer to the Cyvac operating manual for further information on controls and specifications.