Section B Manual Super Glue (Cyanoacrylate Ester) Subsection 1

Name of Procedure:

Manual Super Glue (Cyanoacrylate Ester) Processing

Suggested Uses:

To develop latent impressions on any non-porous type of surface. Super Glue should be used as a preliminary process when utilizing a number of subsequent processing techniques. Fluorescent dyes staining with laser examinations are dependent on super glue fuming to be effective.

Equipment Needed to Perform Procedures:

A - Rubber gloves and apron

B - Fume hood

C - Sealable chamber of non-porous material

D - Dust or mist respirator (For use outside of laboratory or in conjunction with fume hood)

E - Small container which will be filled with warm water

Fuming with Heating Element:

1. - Heating element (small coffee warmer, low wattage light bulb, etc.)

2. - Small foil dish or metal tin

Fuming with Sodium Hydroxide Treated Pads:

1 - Amber bottle

2 - Dipping pan

3 - Storage container for treated pads
4 - Wire brackets to hold fuming pads

5 - Cotton Pads (100 % cotton)

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

A - Commercially prepared super glue for heating element fuming

B - Thirty (30) grams of Sodium Hydroxide (NaOH) for treated pads

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

Sodium Hydroxide Treated Pads:

1. Place thirty (30) grams of Sodium Hydroxide in a small container.

2. Fill the container with one (1) liter of distilled water and agitate until all the sodium Hydroxide is completely dissolved.

3. Place the cotton pads in the solution and completely saturate. Squeeze the excess from the pads and allow to completely air dry prior to proceeding.

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

Note: The fumes produced during the super glue fuming processes are extremely dangerous. Always utilize a fume hood and avoid inhalation of the fumes produced.

Fuming with Heating Element:

1. Place a small container of warm water in one corner of the fuming chamber.

2. Place or suspend the item of evidence in the in the fuming chamber.

3. Place the heating element in the bottom of the fuming chamber and place the foil dish or tin on the heating area.
4. Turn the heating element on and place three (3) to four (4) drops of super glue in the foil dish or tin and immediately seal the heating chamber.

5. Frequently check the item of evidence to avoid over processing (Use of the heating element will greatly reduce the time necessary to develop latent impressions).

6. Remove the item from the fuming chamber when the impressions are sufficiently developed.

Sodium Hydroxide Treated Pads:

1. Place a container of warm water in one corner of the fuming chamber.

2. Place or suspend the item of evidence in the in the fuming chamber.

3. Place the wire brackets in the bottom of the fuming chamber and place one (1) or two (2) sodium Hydroxide pads on the wire brackets.

4. Apply approximately four (4) to eight (8) drops of super glue to the cotton pads and immediately seal the heating chamber.

5. Frequently check the item of evidence to avoid over processing.

6. Remove the item from the fuming chamber when the impressions are sufficiently developed.

Steps To Preserve Developed Impressions:

Developed impressions may be preserved through photography with the appropriate techniques utilized (See Photographic Equipment/Procedures) or electronically recorded (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:

This process should always be used in a fume hood. Improper use 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.

This process may be used in larger open areas and extreme care should be taken when conducting

this procedure. When a large area (ie. interior of a car, etc) is processed, always ensure that the area is tightly secured. Once the fuming of these areas is complete, open all windows or doors and let the area completely air out for an extended period of time prior to proceeding.

Storage and Location of Chemicals and Solutions:

Super glue should be stored in the original shipping container until needed.

Treated Sodium Hydroxide pads should be stored in a sealed container until needed.

Shelf Life:

Super glue - Indefinite

Treated Sodium Hydroxide pads - thirty (30) days

Other Information:

Follow all safety requirements to avoid injury with this procedure.

The item of evidence should be checked carefully during this procedure to avoid over super gluing an item.

Subsequent laser examinations may reveal additional latent impression which were not detected with powders. The time needed to properly super glue an item is very small and this must be taken into consideration when fluorescent dyes will be used.