Section F LCV (Leucocrystal Violet) Subsection 7

Name of Procedure:

LCV (Leucocrystal Violet)

Suggested Uses:

LCV is used to enhance and develop bloody latent impressions on non-porous surfaces and some porous surfaces. LCV is a catalytic test for blood and will bind with the proteins found in blood which will limit the running or leaching of the developed impression.

Equipment Needed to Perform Procedures:

A - Camera (35mm, 2 1/4, MP-4, CU5)

B - Fume hood

C - Rubber gloves and apron

D - Face shield visor and/or safety goggles

E - Plastic applicators with spouts or glass tray for submerging items

F - Processing Trays

Chemicals Needed For Preparation of Chemical Solution(s):

A - One (1) gram of Leucocrystal Violet

B - 3.7 grams of Sodium Acetate

C- Ten (10) grams of 5-Sulfosalicylic Acid

D - Five-hundred (500) ml of Hydrogen peroxide (3 %)

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

Note : Super glue fumes may be detrimental to this process. The Leucocrystal violet crystals

should be white in color prior to using. If the crystals are yellow in color they should be discarded.

1. Place ten (10) grams of 5-Sulfosalicylic Acid in a beaker with a magnetic stirrer.

2. Add five-hundred (500) ml of 3 % Hydrogen peroxide stir until completely dissolved.

3. Add 3.7 grams of Sodium Acetate to the solution with continual stirring.

4. Add one (1) gram of Leucocrystal violet to the solution with continual stirring.

5. Place the solution in a clearly marked dark shatterproof container until needed.

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

1. Utilizing a fume hood and rubber gloves, spray or completely submerge the item of evidence in the LCV solution and allow to completely air dry. Spraying with a fine mist is the most effect method to apply the solution.

2. Development of the impressions will occur in approximately thirty (30) seconds and the area may be blotted with tissue or paper towels.

3. Allow the area to completely air dry and reapply the solution to improve the contrast of the impression.

Note: This dye will adhere to the bloody impression; however, a certain amount will adhere to the item itself. If the impression over develops or become dark, wash the area with distilled water to remove the excess dye. The excess dye will wash away and in most cases the dye adhering to the latent impression will remain.

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 utilization of a 35 mm, TC III, MP-4, or CU5 camera will suffice for LCV developed prints. The LCV developed impression may be enhanced

with the use of a Laser or an alternate light source.

When LCV is applied in sunlight or a lighted environment, the impression should be photographed as soon as possible to avoid unwanted background development.

Safety Concerns:

Presently the safety concerns have not been thoroughly investigated in respect to the use of this chemical; however it should be applied and treated with extreme care until the full health effects are known. As with any chemical, it may cause some irritation if it comes in contact with the eyes or skin and may be harmful if inhaled or ingested.

Storage and Location of Chemicals and Solutions:

The LCV and Sodium Acetate reagents should be stored in the original shipping container until needed.

The 5-Sulfosalicylic Acid and Hydrogen peroxide may be stored at room temperature until needed.

Shelf Life:

LCV and Sodium Acetate reagents - Indefinite

LCV working solution - Sixty (60) to ninety (90) days if stored properly.

Other Information:

Avoid the super glue process if LCV will be used on an item of evidence.

Serological samples should be taken prior to treating an item of evidence with LCV.

This procedure is not recommended at this time for use on items which may be transferred to other laboratory sections until the health effects are thoroughly investigated.

The hydrogen peroxide solutions will become a catalyst for oxidation of the hemoglobin and its derivatives found in blood thus producing a violet colored dye. The crystal violet found in this process will bind with the proteins which have been affixed by the 5-Sulfosalicylic Acid to

develop latent impressions and limit the running and leaching which may occur in other processes.

Care should be taken when development occurs with LCV as it is extremely light sensitive.