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Name of Procedure:

Inherent Luminescence

Suggested Uses:

The inherent luminescence examination is used to analyze items of evidence for the presence of latent fingerprints, palmprints, footprints, footwear and other impressions. Palmer sweat contains a variety of compounds such as amino acids, lipids, and riboflavin. It has been found that several of these compounds will fluoresce naturally under the influence of a powerful laser beam or an alternate light source. Florescent compounds such as paint residue, certain inks, makeups and some body fluids such as blood, semen and saliva will often fluoresce under the appropriate light sources.

Equipment Needed to Perform Procedures:

A - Laser, Omniprint 1000, Ultra-Violet Light Sources or other available light sources.

B- Camera Equipment

Chemicals 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:

Items of evidence should be subjected to this beam prior to applying processing techniques in an attempt to detect any inherent luminescence. Follow the procedure instructions for the particular light source which may be available.

Examination of Evidence:

1. Wearing safety goggles with the appropriate filters, scan the item of evidence with the light source (a strong hand held magnifier may be utilized to enhance visualization of the latent impressions).

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2. If a latent impression is noted, immediately note the location and direct the beam away from the area.
3. Place the area noted under the appropriate camera and place the laser filter over the lens of the camera.
4. Direct the laser beam over the area to be photographed and begin photography (a number of photographs may be taken at various times and F-stops to record the latent impression).
5. After each photograph is taken it is advisable to redirect the beam away from the impression to avoid destruction of the area or surface (Prolonged exposure to the beam will cause the latent impression to photo degenerate over a short period of time until eventually the impression will disappear.)

Note: After the impression is photographed, further techniques should be applied to enhance or develop additional impressions.

Steps to Preserve Developed Impressions:

The most appropriate methods of preserving developed impressions is through photography, utilizing the appropriate techniques, (See Photographic Equipment/Procedures) and electronic recording (See Image Processing). The utilization of a 35 mm, 2 1/4, MP-4, or CU5 camera will suffice for developed impressions prints; however, all laser prints must be photographed using a laser filter to be recorded on the film.

Negatives produced from Polaroid film are the most effective manner to accurately reproduce the developed impressions (See Photographs/Negatives Preservation).

Safety Concerns:

Never look directly into any light beam as this will cause eye damage.

Do not expose the light beam to the skin as it will not immediately cause harm, but may have long term effects with prolonged exposure.

Eye protection should be worn at all times and this includes any other individual who may also be in the same room or area. This is particularly important when examining reflective surfaces as the beam may be reflected and result in eye damage.

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Storage and Location of Chemicals and Solutions:

Not Applicable

Shelf Life:

Not Applicable

Other Information:

The laser or an alternate light source should always be used as one of the first steps in analyzing items of evidence. This will serve to detect any inherent latent impressions and to show the color and the intensity of the surface's background. This will allow the analyst to determine which florescent dye will be appropriate to use in the sequence of processing evidence.

The particular laser or alternate light source which may be utilized may not be evident initially. The analyst should view the evidence under a number of light sources, if available, to detect any latent impressions which may fluoresce inherently. Various wavelengths should be utilized on items of evidence as certain substances will fluoresce under different settings.