

IV. Development (enhancement) of Latent Fingerprints

A. Composition of Latent Print Residue

1. _____ sweat glands

--Type of gland in friction ridge skin

--Produce watery sweat

--This sweat = basis for latent fingerprint residue

2. _____ sweat glands

--Type of gland found elsewhere on body

--Produce oily sweat

--Can become part of fingerprint residue

3. Substances from the environment

4. Summary = after evaporation of water, residue is ½ _____ and ½ _____ such as amino acids, lipids, vitamins, and oils

B. Three Categories of print enhancement- (Physical, chemical, alternate light)

1. Physical Methods (effective on hard, nonabsorbent surfaces)

a. Powder Dusting- _____ powders; Several colors

b. Magnetic Brush-Magna Brush; Uses special magnetic powders (colors); Powder adheres to fatty components in residue; Gentler b/c no _____

c. SPR = _____ - Spray that adheres to lipid components of residue; Useful on evidence that has been wet

2. Chemical Methods of Fingerprint Development --involves chemicals/chemical reaction

a. _____ (AgNO₃)- AgNO₃ reacts with salt in residue; not used often anymore because items which have been wet may be leached of their chloride and salt impressions.

--Surfaces that have high chloride or salt compounds coating their surfaces or imbedded in them will produce unacceptable background staining.

b. _____ - used for prints on porous paper; iodine sublimates with heat and reacts with fatty oils in print residue; forms visible yellowish-brown print; BUT . . . _____, so must photograph immediately

c. _____ - Used for prints on paper and porous surfaces; Biochemical reagent that reacts with amino acids; Makes a bluish-purple image; Development time can take up to _____ **

d. Super glue (_____)- Used for prints on non-porous surfaces; Super glue induced to fume in enclosed chamber; Cyanoacrylate ester reacts with print residue to make white permanent impression; Can then treat with powders or fluorescent dye

e. Physical developer (PD)- Photographic-type process that deposit silver onto print (dark gray reaction); Reacts with lipids or water-insoluble components; Good for items exposed to _____

3. Special Illumination

-- _____ lighting, bright-white light sources, UV lights can be used solo or in combo with other methods

--allow for view of ridge detail, especially to then be photographed

4. Specials

--How would you get prints out of blood?- Most techniques do NOT interfere with the collection & processing of _____; Best to use STICKY SIDE POWDER – composed of _____ powder mixed with detergents & water

5. Overall Process of FP Examiner:

--When collecting & processing evidence: _____ always; collected printed objects 1st; use _____ destructive techniques; techniques depend on surface textures (porous vs. nonporous)

A _____
C _____
E _____
V _____