

TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division



Latent Print Standard Operating Procedures

2.1 Powder

2.1.1 Scope

The dusting powder method is used to develop latent prints on evidence with non-porous or semi-porous surfaces. The powder adheres to oil, moisture, and other residues present in latent print deposits and can improve the contrast of a latent print. Black powder is the most commonly used powder, even on dark surfaces.

2.1.2 Evidence

Powder is recommended for non-porous and semi-porous evidence.

2.1.3 Safety Precautions/Limitations

A fume hood or respirator may be used during this process when applicable.

Powders should not be exposed to excessive humidity or moisture.

Biohazard brushes and powders are designated with biohazard stickers. These brushes and powders shall only be used on biohazard evidence.

Universal precautions shall be taken when handling biohazard evidence.

Samples for DNA testing should be collected prior to the dusting procedure. Brushes and powders may cause DNA contamination as they are often used multiple times on many items before being discarded. When an item must be processed with dusting powder prior to DNA collection, a new brush and powder (unopened) will be used.

Magnetic powder is not recommended for use on metallic surfaces.

2.1.4 Materials

Black Carbon Powder
Bichromatic/Dual Use Powder
Magnetic Powder
Fluorescent Powder (various colors)
White Powder

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2.1.5 Instruments/Equipment

Beaker
Filament brush
Magnetic Wand
Alternate Light Source
Goggles
Latent Print Developing Mitt
Lifting tape
Index cards/paper

2.1.6 Preparation

All powder is purchased.

2.1.6.1 Shelf Life

No expiration date is provided, however a control will be performed prior to use on evidence.

2.1.7 Controls

One or more latent prints are placed on a comparable non-evidence item. Powder is applied to the item(s) for ridge detail development to determine if adequate results are achieved.

A positive result occurs with the development of friction ridges.

A negative result occurs when no ridge detail develops after application.

A control must be successfully performed before applying powder to evidence. This control must be documented in the examiner's notes.

If at any time a control test indicates that the product is not working properly, the examiner or technician performing the control will properly dispose of that bottle, open a new bottle, and test a new control. Once the control tests appropriately, the powder may be used.

2.1.8 Procedure

By visual examination, determine if any latent prints are present and need to be photographed before applying powder.



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2.1.8.1 Black Powder

1. Pour dusting powder into a container large enough to fit a brush, such as a beaker.
2. Place brush into powder.
3. Shake excess powder off of brush.
4. Apply powder to evidence by rotating the brush back and forth over the evidence.
5. Monitor the development of the ridges and stop applying powder when the latent print reaches the best clarity. If the print stops developing, begins to fade, or over-develops, stop applying powder.

2.1.8.2 Fluorescent Powder

1. The procedure for fluorescent powder is the same as described above for black powder.
2. Once the powder is applied, examine the evidence with the Alternate Light Source at the recommended wavelength with an appropriate filter.
3. Care should be taken to not over apply the powder.

2.1.8.3 Magnetic Powder

1. Place the magna brush wand into the container of magnetic powder. The magnet will attract the powder when the magnet is depressed. This will produce a bristle-like effect at the end of the wand when withdrawn.
2. Apply the powder in a circular motion, ensuring only the powder is touching the item.
3. Hold the wand over the container of powder and withdraw the control wand to release the powder.



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2.1.8.4 Latent Print Development Mitt

1. A latent print development mitt may be used for processing large areas, such as a vehicle.
2. Powder is first applied to the white side of the mitt. Magnetic powders are not recommended for use with the mitt.
3. Using light pressure, the mitt is then used to dust the surface of the item as per manufacturer's instructions.
4. A latent print development mitt is intended for one-time use and shall be disposed of after use.

2.1.9 Interpretation of Results

Latent prints of comparable value shall be marked and lifted or photographed with ruler included.

2.1.10 Photography

Refer to Chapter 2 - Imaging of Friction Ridge Detail in the Forensic Imaging Standard Operating Procedures.

If using fluorescent powder, latent prints of comparable value shall be photographed using the Alternate Light Source (ALS) at the appropriate wavelength with the appropriate filter and a ruler included. Refer to Chapter 1.1 in this manual for further instructions.

2.1.11 Latent lifts

Lift latent prints by placing clear lifting tape smoothly over latent print while avoiding air bubbles or wrinkles in tape.

Lift tape off and place tape smoothly onto a card or paper of a color that achieves the best contrast (i.e. black powder lift placed on a white card).

Label lifts appropriately with lab number, exhibit number, person taking lift, date, description of item from which the lift was taken, location on the item from which the lift was taken, and a diagram of the area lifted.

Repeat lifting process as many times as is necessary.

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2.1.12 References

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