Developing And Lifting Latent Fingerprints Off Unusual And Textured Surfaces

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This handout covers various techniques not all techniques are done in the hands-on class


* Items will be presented in this class

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What a pain to be on a crime scene at 2 a.m. and have to mix ingredients together to cast a tool impression on a doorjamb! It's hardly worth the mess so instead of casting it you just photograph it. Try the AccuTrans system instead. It acts like a caulking gun. Simply insert a double cartridge into the gun, put on a special mixing tube and then squeeze the trigger. The polyvinylsiloxane (PVS) compound will come out through the mixing tube that is laced with veins to mix the two compounds. When it comes out, the compound is thoroughly mixed. Apply it directly to the area you want to cast and use the tip to stir the compound to remove any air bubbles that may be trapped. It dries in a relatively short time depending on the air and surface temperature. Your cast with the extruder gun will produce very fine detail.

**Note:** When applying over latent prints be careful not to allow the tip to touch the latent print as it could damage and possibly ruin the latent print.

Tool marks and impressions have long been excellent evidence when developing a case. The problem in the past has been the ability to make clean impressions in awkward places. The AccuTrans system automatically mixes the polyvinylsiloxane (PVS) perfectly every time through the mixing tip. The cast will set quickly and is easy to remove from the surface you are casting. Ideal for field for tool-mark impressions and as a lifter for fingerprint powder on textured surfaces.
Does this sound familiar? You’re on a crime scene and have just located a great latent fingerprint. The only problem is it’s on a surface that will be very difficult to lift the print from, it is textured! You place some tape on your one good print…. and this is what you get! (See figure 1)

The new DIFF-Lift is a soft tape-like substance discovered to be useful lifting powdered latent fingerprints on textured surfaces. DIFF-Lift fills in the contours of textured surfaces and lifts ALL of the powdered print. (See figure 2)

DIFF-Lift comes in 60” rolls 1½” wide. The surface density is extremely low so the adhesive surface goes into all bumps and valleys of a difficult surface.

Diff-Lift is used just like standard fingerprint lifting tape. It comes on a roll, which can easily be handled. Use your index finger and press firmly on the dusted latent print only. You should be able to run your finger gently over the tape and feel the texture of the surface through the tape. Lift the latent fingerprint with the DIFF-Lift tape and place it on a contrasting backing card.

NOTE: You will need to cut the DIFF-Lift with scissors or a sharp knife. You can not tear it. Always fold the end over after you cut it. This way you are ready for the next time you use the DIFF-Lift.
Extruder Gun

Use to lift tool marks and latent prints off Textured and multi-contoured surfaces

What a pain to be on a crime scene at 2 a.m. and have to mix ingredients together to cast a tool impression on a doorjamb! It's hardly worth the mess so instead of casting it you just photograph it. Try the Extruder gun instead. It acts like a caulking gun. Simply insert a double cartridge into the gun, put on a special mixing tube and then squeeze the trigger. The polyvinylsiloxane compound will come out through the mixing tube that is laced with veins to mix the two compounds. When it comes out, the compound is thoroughly mixed. Apply it directly to the area you want to cast and use the tip to stir the compound to remove any air bubbles that may be trapped. It dries in a relatively short time depending on the air and surface temperature. Your cast with the extruder gun will produce very fine detail.

As an example, a partial shoe impression on Styrofoam can be lifted with the extruder gun for comparison.

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Tool marks and impressions have long been excellent evidence when developing a case. The problem in the past has been the ability to make clean impressions in awkward places. The Extruder Gun automatically mixes the polyvinylsiloxane perfectly every time through the mixing tip. The cast will set quickly and is easy to remove from the surface you are casting. It is ideal for field use on both tool-mark impressions and as a lifter for fingerprint powder on textured surfaces.
GOO Print Powder

Develop prints on adhesive side of tape
View video demo on www.csigizmos.com

Goo Print Powder is excellent for developing latent prints on the adhesive side of tapes and labels.

Kit contents:

- 1 - All Purpose Brush
- 48 grams Goo Print Powder
- 4 oz Dispersing Solution
- 2 - Mixing Jars
- 3 - Mixing spoons
- 1 - Liquid mixing bottle
- 2 - Bulb pipettes

Mixing Instructions:

In mixing jar place small amount of Goo Print Powder (2-3 spoonfuls using mixing spoons) in mixing jar.

In liquid mixing bottle place equal amounts of water and Dispersing Solution using the bulb pipettes.

Gradually add the water and Dispersing Solution to the Goo Print Powder and mix with the mixing spoon until the mixture is the consistency of thin paint.

Application:

Use the all-purpose brush to paint the mixture onto the adhesive side of the tape or label. Let the solution set on the tape or label for 10 to 15 seconds and then rinse off under running water.

Note: If the solution is left on too long, it becomes difficult to rinse off. The solution will adhere to strongly to some tapes and labels.

Photograph any developed latent prints.
Mikrosil

Use to lift tool marks and latent prints
View video demo on www.csigizmos.com

Mikrosil has been formulated to give excellent rendering of small details, highest contrast for microscopical observations, good releasing ability and short setting time. These properties are of special importance with shallow marks and marks with small details requiring large magnification. It is also suited for lifting developed latent fingerprints from textured surfaces.

Mikrosil comes in various colors, white, black, gray and the original brown.
Select a color to contrast with the powder being used. Brown is best suited for tool marks.

Procedure for use

From the large Mikrosil tube squeeze out approximately 1-cm onto supplied mixing card. Add approximately 1-cm of the small tube of hardener.
Note: Discard the first inch of hardener when tube is first opened.
Note: If you need a larger amount mixed up, squeeze out equal lengths of Mikrosil and hardener.

Use supplied mixing sticks and thoroughly mix until a uniform color is achieved. Mixing time 1½ minute’s.

Apply the mixed Mikrosil to the tool mark or developed latent fingerprint, using the mixing stick. When applying to developed latent fingerprints do not allow the mixing stick to scratch the developed latent fingerprint.

Cut the enclosed foil to a desired size. Place on a pad of paper and write identifying information (case number, date, item number, collector’s initials) on the smooth side with a scribe, pen or pencil. Press the label into the Mikrosil before it sets. The information will be permanently recorded in the cast by using this method.

Setting time: 5-8 minutes at 68° Fahrenheit
12-15 minutes at 14° Fahrenheit

The setting time can be shortened by increasing the amount of hardener or lengthened by decreasing it. Do not add more than 6 % hardener.

Close cap tightly on both the Mikrosil and hardener when done.
The PathFinder is a wireless electrostatic dust lifting device, which has revolutionized the recovery of dust lifts on most surfaces. Because of its size, it can easily be carried. Measuring only 150mm x 80mm x 34.5mm, it has been designed to eliminate the need for wire connecting leads normally associated with more conventional devices. The dust lifting devices can be used to make lifts from a surface that have insulating properties, such as wooden window ledges, carpet, tile, and upholstery, as well as, surfaces that have conductive properties. It operates on a single 9-volt battery that produces one hour of continuous use or approximately 200 lifts based on 15-second charge time. As a safety feature, the device is designed to only operate when placed correctly onto the earth plate or other suitable conducting medium.

The PathFinder is simple to use. Place lift film over the dust print, then place the grounding plate approximately ½” from the lift film. Place the PathFinder unit on the lift film and grounding plate, then turn on the unit to activate the charge. When the film has been sucked down on to the surface (which should take only 5-10 seconds), turn the unit off. You can use a foam paintbrush to smooth out any air bubbles that may appear in the film. Remove the lift film and look at the dust lifting using side lighting. Photograph. Store the lift film in a shallow box (such as a pizza box) to prevent any dust from being attracted to it.
Polyethylene Tape

Lifting latent prints off multi-contoured surfaces
View video demo on www.csigizmos.com

In some cases, processing items is the easiest part of the procedure. After
the latent print has been developed, it is time to lift the developed print.
Standard lifting tapes work fine on flat and single curved surfaces (such
as a glass, pop can, etc.). What happens when you have to lift a latent
print off a doorknob, light bulb or the inside of a bowl? When dealing
with a multi curved surface, polyethylene tape is the way to go. It will
stretch and conform to light bulbs, doorknobs and bowls without
distorting the latent print when lifted.

Polyethylene tape is easy to use. Cut off the desired length of
polyethylene tape. Press it directly on the print with your thumb then
work the tape out from the center. Remember that what you are
concerned with is the latent print. If you get a wrinkle or crease away
from the latent print, it's okay. This will not affect the comparison.
Footwear track identification is a widely accepted form of identifying or connecting a suspect to a criminal act. The responsibility lies with law enforcement personnel to detect, collect, analyze, and present this evidence in a court of law.

Footwear tracks, when visible, should be recorded by photographic methods. Whenever possible, recover the item containing the footwear track by using lifting tapes, various types of lifters, or casting material. Even if proper photographic techniques are applied, there is no guarantee that the resulting images would be of value for comparison and/or identification.

Devices commonly referred to as "Electrostatic Dust Lifting Devices" are marketed for detecting and recovering dust or non-visible wear tracks as well as latent prints in dust. The list price of these devices can range from about $500.00 to $900.00. However, there is a device that can be easily and readily adapted that performs equally well, is less expensive, lightweight, and is widely available. This item is commonly known as the stun gun.

The equipment needed to do this application is as follows:

- Stun gun
- Sun blocking window film without adhesive sold under the brand name Gila River Products.
- Probe with 2’ lead and alligator clip on the end.

To begin, as with any method, be sure to PHOTOGRAPH FIRST then attempt your lift. Place film with metallic side up over the dust print. Attach the alligator clip with the probe attached to one of the outer contacts of the stun gun.

**NOTE: The inner contacts are not used.**

Place the opposite contact approximately ¼" from the edge of the solar film. With the probe in the other hand, place it approximately ¼" from the opposite edge of the solar film. When you press the switch you will observe an electrical charge arcing between the probe, the contact and the film. This is creating static electricity. While it is arcing, move the probe around the outer edge of the solar film. You will see that the solar film will appear to vibrate then suck down on the item. This should take approximately 15 to 30 seconds.

Making sure you do not move the lift film once it is down on the print, press out all air bubbles, streaks, etc. using an inexpensive foam brush. Once completed, carefully pull off the solar film. Use a strong flashlight for side lighting to observe the dust print.
The dust print can now be photographed quite easily by using side lighting. This is a fragile print so handle it as such. The lift film with the print will need to be protected by placing it in a shallow box such as a pizza box, a thin computer label box or by purchasing a box. The solar film can be wiped off with a dry clean cloth and reused if no useable print is developed.

Depending on the brand, the price of the stun gun is $59.00 to $120.00 and can be purchased through a law enforcement supply company.

The probe, which comes with a 24” lead and will plug into the alligator clip, can be purchased at an electronics store for approximately $3.95.
Wet Print

Develop and lift latent prints off wet surfaces
View video demo on www.csigizmos.com

Wet Print is like liquid fingerprint powder. When sprayed on the surface of non-porous wet evidence, the micro fine particles attach themselves to the latent print residues as the solution runs off the surface. The residue is sprayed with water to remove excess and when dry the developed latent fingerprints can be lifted with lifting tape.

**Potential Uses:**

1. Processing non-porous items covered with water or snow.

2. Developing latent prints on non-porous items that have been lightly washed.

3. Processing items in situations where mud, dirt, or heavy dust has covered prints making them impossible to develop by conventional means.

**General comments for optimum results**

1. Objects should be as close to room temperature (70°F) as possible.

2. Wet Print 1 and 2 used as spray should also be at (70°F).

3. Always use fine mist soft mist when spraying.

4. Wet Print dries silver on dark objects and dark on light colored objects.