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## TECHNICAL INFORMATION

### GELifters™

#### Catalog Nos. GLT100, GLT200, GLT300, GLT400 Series

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#### INTRODUCTION

This manual is intended to provide comprehensive directions for the use of GELifters™. We have attempted to cover all possible points in order to help you obtain the best possible results.

##### General

Most crime scene technicians agree that no single latent print lifting medium serves well in all circumstances. GELifters™ are offered as an alternative when tape and other lifting mediums are not ideal for the situation. They are constructed of high-quality latex and a bonded low-tack adhesive gelatin layer. They are ideal for lifting powder-developed latent fingerprints, dust prints from footwear, dust marks, and micro-particle and hair evidence from most surfaces—including porous materials such as paper or cardboard. In addition, GELifters™ can be used on bullet holes in windowpanes, blood prints, paint particles, and indented writing.

GELifters™ are packaged in airtight foil packets and are available in black, white, and transparent. A removable transparent polyester film protects all GELifters™.



Writing on the white rubber backing can easily mark both black and white GELifters™. The transparent lifters have non-stick paper edges, which make them easy to mark as well. To meet the needs of a particular job, GELifters™ can be easily cut to size with a pair of scissors prior to removing the cover sheet.

Lifted prints or marks may be photographed prior to replacing the cover sheet. Once photographed, the cover sheet should be replaced after carefully cleaning it to remove any possible contamination. *CAUTION: Lifts should be stored at room temperature as heat may cause the gelatin to soften which may result in the lifted material being absorbed.*

## **PRECAUTIONS**

- Before using this product, consult the appropriate Material Safety Data Sheets (MSDS) found on our website at [www.sirchie.com/support](http://www.sirchie.com/support).
- Avoid contamination of the GELifter™ once its cover sheet has been removed.
- Wear dust-free clothing when handling and photographing the GELifters™.
- Wear protective gloves and clothing while lifting bloodstains.
- Collect blood samples needed for analysis prior to lifting a bloodstain with a GELifter™. The gelatin present in the product is a protein and will interfere with the analysis of the protein present in the blood.

## **PROCEDURE**

### **Fingerprints**

Fingerprints developed using latent print powders can be lifted with GELifters™. The kind of GELifters™ that should be used depends on the color of the powder and personal preference. For instance, silver or copper powder can be used with black GELifters™ to improve contrast. Remember that when white and black opaque lifters are used, a reversed image of the fingerprint is obtained. Photography or digital manipulation is then necessary to obtain the right-reading image.

1. Cut a piece of GELifter™ to lift a powdered print. We recommend cutting off a small corner of the lifter so that, after you lift the print, the cover sheet can easily be replaced exactly over the lifter. If you make a prac-

tice of cutting the lifter in the same manner while lifting (i.e. with the cut edge in the top right-hand corner), the orientation of the lifted print can always be reconstructed.

2. Before lifting the prints, always remove the cover sheet and set it aside (upside down) to avoid contamination with dust from the surface.
3. Place one edge of the GELifter™ on one side of a developed print. Carefully smooth down the upwardly slanted lifter while rubbing it with your thumb to avoid trapping any air bubbles. Next, press the lifter firmly over the entire surface. Once in place, pick up the lifter from one of the corners and place it on a flat, horizontal surface to replace the cover sheet. For small prints this can be done in a fashion similar to the lifting procedure. For larger prints (e.g. palm prints), a roller is very helpful. Trapping air bubbles will result in the creation of shallow craters that will not destroy the print but can cause problems when photographing it.



### ***Longevity of Lifted Prints***

To the best of our knowledge, there is only one scenario where a powdered fingerprint will fade on a SIRCHIE GELifter™. When certain competitive brand metallic powders are used, lifted prints can fade and ultimately disappear in time. Fading will be noticeable after days or weeks, depending on the storage temperature (low storage temperatures are better). Prints developed with SIRCHIE powders, on the other hand, will last for several years without apparent fading. Nevertheless, we always recommend photographing prints as soon as possible.

### ***Lifting Cyanoacrylate Developed Fingerprints***

The black GELifters™ can be used to lift fingerprints developed with cyanoacrylate. These lifters are very useful where:

- A developed fingerprint is stained with a staining solution and the object seems to fluoresce in the same range as the dye;
- An object is contaminated and the contamination also absorbs the staining solution, thereby causing a loss of contrast between the print and background;
- A fingerprint is overdeveloped; or

- An object is partly porous and partly non-porous, e.g. a plastic bottle with a paper label.

Due to the extreme sensitivity of the black gelatin layer of the GELifters™, a fingerprint is easily transferred onto the lifter by applying it over the developed fingerprint. After removing the lifter, the fingerprint can be viewed and photographed using oblique lighting as described in the section entitled “Indented Writing”. Often, the photographs produced after lifting a print with a black GELifter™ are better and sharper than the same print photographed in fluorescence. ***HINT:*** *The second lift of the same fingerprint is often even better, because the first lift removes most of the background.*

Cyanoacrylate lifts are known to disappear when using acrylic adhesives and they can fade in time when GELifters™ are used. To avoid this potential problem, dust cyanoacrylate prints with conventional powders and lift with a contrasting-colored lifter.

### ***Special Techniques for Lifting Fingerprints***

**DOUBLE LIFTING A FINGERPRINT**—A print developed with fingerprint powder may possibly be lifted two or three times. Additional lifts will, in many cases, be much clearer than the first, although they will have less contrast. Another possibility is lifting for a second or third time after additional dusting. Of course, no rules can be given for these techniques since much depends on experience. Multiple lifts are recommended for fingerprints on aluminum as a result of aluminum oxide buildup.

**IMPROVING OLDER FINGERPRINTS**—Fingerprints on objects that have been standing in sunlight or outside for long periods are difficult to render visible because much of the moisture has evaporated from the print, and it hardly absorbs any powder. The print can be re-humidified by attaching a piece of GELifter™ to it for several minutes. Subsequently, the print can be dusted in the usual way and lifted with a fresh piece of GELifter™. Before using this method, ensure that the object on which the print lies has cooled down.

### **Shoeprints**

The procedure for applying the GELifters™ to shoeprints is the same as that used to lift fingerprints (see above). GELifters™ can be used to lift shoeprints from all smooth, hard surfaces such as floors, painted wood, paper, tabletops, etc. The large black lifters (GLT201B—5.2" x 14.4") are commonly used for lifting shoeprints (dust

marks). If prints are visible on the surface as in the example shown, a white or transparent lifter may be used. These are usually prints where the sole of the shoe acts as a stamp on the surface thereby leaving an invisible print or one barely visible. Footwear impressions that are not visible to the naked eye can be found in a number of ways. The best-known method is to use a flashlight or floodlight at a low angle. Because shoeprints that are not visible, even when using low angle lighting, can be seen once they have been lifted with black GELifters™, another method is to cover the entire area with lifters where shoeprints are suspected. In order to reconstruct the pattern, once the entire area is covered with lifters, draw stripes over their seams. Before picking up the GELifters™ let them lie on the surface for several minutes to humidify the prints.

**USE OF ELECTROSTATIC LIFTING**—Electrostatic dust print lifting is an ideal method of recovering dust impressions from most surfaces. When using the ESP900 Electrostatic Dust Print Lifter, a GELifter™ may be used to lift the impression from the pickup mat.

**USE OF OBLIQUE LIGHTING**—Even if shoeprints do not show up when lighting the surface, and even if they are not visible after lifting, they can become apparent when obliquely lighting the surface of the GELifter™ in a dark room after removing the cover sheet. GELifters™ with no apparent prints in normal light might now show a highly detailed image. After photography, the cover sheet can be replaced following careful cleaning. Try using a large roller when replacing the cover sheet on these large lifters to avoid trapping air bubbles.

**USE OF POWDERS**—Shoeprints that have been rendered visible with fingerprint powders such as magnetic black or silver/black can also be lifted with GELifters™. The color of the GELifters™ depends on the color of the fingerprint powder, e.g. a white lifter for dark-colored powder and a black lifter for light-colored powder. Simply dust the area suspected of containing a latent shoeprint, then make the lift. **WARNING:** *Avoid contamination of the GELifters™ once the cover sheet has been removed. We recommend wearing dust-free clothing when handling and photographing the lifters.*

### ***Longevity of Lifted Shoeprints***

Lifted shoeprints (dust marks) might slowly fade in time. For very weak prints, this could be noticeable after storing them for a few days, depending on the temperature. The lower the temperature, the slower they will fade. This, however, should not be a concern since lifted shoeprints can easily be photographed after removing the

cover sheet. Oblique lighting will show details that are not visible before photography. We are unaware of any materials that fade on the GELifter™ surface before timely and adequate photographs can be taken.

For best results, you should not replace the cover sheet before taking photographs. Transportation of the lifted print is more difficult without the cover sheet, so we suggest using double-sided adhesive tape and a clean, shallow cardboard box (like photographic paper comes in) when photographs cannot be made at the scene.

When shoeprints contain very coarse material like sand, you can expect difficulties when replacing the cover sheet. Small air bubbles are likely to collect around coarse particles. If too many are present, the cover sheet will not adhere properly to the GELifter™. Several measures can be taken to avoid these problems. First of all, it might be advisable to photograph the shoeprint before lifting it. Secondly, the lifted print could be photographed at the scene before replacing the cover sheet. Thirdly, instead of replacing the cover sheet, the GELifter™ could be put into a clean box (e.g. a photographic paper box) and taped to the bottom. Fourthly, the cover sheet could be secured to the GELifter™ with staples or adhesive tape to prevent movement that would allow the coarse particles to destroy characteristic details.

### **Paint Traces**

When paint left on a car by a hit-and-run driver has to be removed for examination, the white GELifters™ can be used. After removing the cover sheet, adhere one edge of the lifter to the surface of the car directly under the spot containing the paint that is to be removed. Carefully scrape this paint off with a scalpel. The material you remove will fall into the gap between the GELifter™ and the surface of the car or onto the lifter itself. When enough material has been removed, adhere the entire GELifter™ to the surface of the car and rub it firmly all over. This way, all loose particles will adhere to the lifter. Then remove the lifter and replace the cover sheet. If necessary, the cover can be secured with staples or adhesive tape.

### **Taking Samples of Micro-Particle Evidence**

Due to the non-aggressive nature of the GELifter™, samples of micro-particle and hair evidence may be taken without fear of damaging the material. If it is necessary to remove micro-particles from the GELifter™, the low tack facilitates their removal with a scalpel or suitable pair of tweezers. Take hair samples with white

GELifters™. If searching an area for micro traces, we recommend dividing it into squares (e.g. 8" x 8") and using a fresh piece of GELifter™ for each square. The size of the GELifter™ is actually dictated by the amount of contamination in the area being investigated since taking samples of dirt or large amounts of micro-particles will result in a rapid loss of tack. A size of 3" x 3" usually suffices.

### Bullet Holes in Windowpanes

Glass panes containing bullet holes often have a very specific pattern of cracks around the entry hole. Carefully remove any loose shards of glass using a clean, soft brush (No. 118L or similar). Brush the shards into an evidence collection bag or envelope. It is often difficult to photograph the glass due to reflections, disturbing background or stray light. If you encounter this difficulty, apply a coating of Silver/Black Powder (No. SB201L) to the glass. Collect this powdered image with one or several GELifters™. If you chose an opaque lifter (white or black), the image will be reversed.

### Blood

Use white GELifters™ to lift bloodstain prints. To humidify, leave the GELifter™ on a stain for one or more minutes before picking it up. **WARNING:** *Since gelatin is a protein, it will no longer be possible to analyze a stain once it has been lifted. Gelatin will interfere with the analysis of protein present in blood!*

Photographing bloodstain prints is the preferred method. On a non-absorbent surface, most prints will improve with chemical enhancement. In many situations, the treated print can still be lifted after chemical enhancement and photography. Lifting the stained print with a white GELifter™ eliminates any background interference. The print must be photographed soon after it has been lifted (preferably less than one hour), as the dye from the enhanced print will diffuse across and into the gelatin layer of the GELifter™. This will not be noticeable until a couple of hours after the lift. The diffusion is irreversible and continues even in freezing temperatures. The GELifter™, therefore, cannot be stored.

### Lifting Procedure for Blood Prints

1. Apply the white GELifter™ carefully to avoid trapping air bubbles that could result in an incomplete transfer.
2. Leave the GELifter™ on the print for up to 30 minutes.

Following lifting with a GELifter™, suitable print treatments include Amido Black (methanol and water based), Crystal Violet, and REDeSCENT™ Powder. **FLUORESCENCE:** The use of REDeSCENT™ has an additional advantage. The lifted print strongly fluoresces on a white GELifter™ under green light. Use a red barrier filter for viewing and photographing the fluorescence. **NOTE:** *Diaminobenzidine (DAB) will not transfer onto a GELifter™.*

### Indented Writing

Use the black GELifter™ to render indented writing visible. Especially effective on glossy papers (magazines), indented writing might be even more legible when oblique lighting is used. Use bright lighting such as a spotlight to view and photograph the mirror image of indented writing. The camera and the light should be as close together as possible, thereby creating almost coaxial lighting. Photograph in a dark room to avoid diffused lighting.

### Effective Temperature Range

The gelatin layer will melt between 40°C and 45°C (104°F and 113°F). Therefore, an object above 40°C must be cooled prior to lifting prints. Objects left in the sun will soon exceed this temperature limit and will require cooling. GELifters™ should not be left in sunlit areas of an automobile. They should be kept in shaded areas, such as under the front seat, or stored in a cooler.

GELifters™ can be used in freezing temperatures. The rubber of the black and white GELifters™ can become less flexible in low temperatures, but the main problem will be removing the cover sheet. Circumvent this problem by keeping the GELifters™ in a warm environment just prior to use in a very cold area. Some agencies have reported problem-free lifting at temperatures as low as -15°C (5°F).