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## TECHNICAL INFORMATION

### Visible and Fluorescent Invisible Detection Products

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#### INTRODUCTION

A frequent and serious problem confronting investigators worldwide is that of forming a logical or natural association between a suspect, an object and a location with regard to a particular crime.

Visible and fluorescent invisible powders, pastes, dyes, crayons, ink markers and other tagging devices, in many cases, may serve as invaluable assistants to the investigator in establishing a link to a suspect, object or location. Some of the crimes that lend themselves to visible and fluorescent invisible tagging and tracing are:

- *Petty Theft*
- *Shoplifting*
- *Coin Box Tampering*
- *Money Laundering*
- *Illegal Drug Transactions*
- *Sexual Crimes*
- *Repeated Burglaries*
- *Firearms and Weapons*
- *Tampered Documents*
- *Kidnapping*
- *Food Stamp Fraud*
- *Industrial Theft*
- *Trailing*
- *Industrial Espionage*
- *Alarm Boxes*
- *Arson*
- *Prostitution*
- *Many Other Applications*

## CAUTIONS

- Before using any Sirchie theft detection product, consult the appropriate Safety Data Sheet (SDS) found on our website at [www.sirchie.com/support](http://www.sirchie.com/support).
- Wear protective gloves and clothing when using these products.
- Visible stain detection powders and pastes cannot be removed from most articles without destroying the color or surface of the article. Therefore, they should be considered destructive entrapments.

## GENERAL PRINCIPLES

The technique of this investigative procedure is simple. A substance that is easily identified is placed in intimate contact with an article or substance that is likely to be touched by the perpetrator in the commission of a crime.

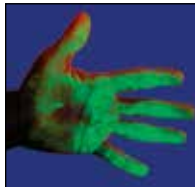
The substance selected is one known never to be associated with the labeled materials unless added for this express purpose. Thus, if the labeled material is later found on or in the possession of a suspect, vivid proof of his connection with the crime has been established.

The materials usually employed are fluorescent substances that are only detectable under UV light or dyes that stain the hands. These substances are used as powders, pastes, or solutions and may be of natural or synthetic origin.

## PROCEDURE

### Fluorescent Invisible Detection

Apply invisible detection powder or paste to the probable area or object of theft and later observe telltale traces on the perpetrator's person or clothing under ultraviolet light. Consider these factors when making your selection:



*No. UVT208 Neutral Fluorescent Invisible Detection Paste on hand fluoresces brilliant green when in response to longwave exposure.*

1. Color (the ability to blend with the object to be labeled and fluorescent contrast to background surfaces).
2. Adhesive quality and the difficulty required for the perpetrator to remove the telltale evidence.
3. Effect of weather conditions on exterior surfaces. (Erosion can be minimized by the use of paste compounds rather than powders.)

Carefully dust the powder on a pocketbook, wallet, pocket lining, drawer, doorknob, or other object that the thief is likely to touch. A fluorescent UV paste may be used on outdoor surfaces such as fire alarm box handles, railroad car doors, garage locks, etc. When the thief touches the treated object, some of the fluorescent traces cling to his person or clothing.

To camouflage the detection powder, choose a powder of the same color as the object to be marked. For example, use a No. 118L applicator brush with No. UV201 Fluorescent Invisible Detection Powder to cover paper currency or bonds. When the theft of the powdered currency or bonds is discovered, all people on the premises should be requested to subject themselves to an ultraviolet examination. Usually some of the powder will have clung to the clothes or skin of the guilty person.

### Examination

Only a suitable ultraviolet light and a darkened room are necessary for ultraviolet examinations. The room should contain adequate table space to spread items for examination. Place the hands or materials to be examined under the lamp and darken the room. Allow time for the eyes to become adapted to the dark before making final observations. On articles of clothing or other items, the spots or areas that fluoresce may be marked with lead or wax pencil for subsequent exhibits. When hands fluoresce, make notes regarding not only the area that shows fluorescence, but also the particular color and hand on which it was found.



## Fluorescent Materials Selection Guide

### *Detection Powders*

Brilliant fluorescent powders in various natural colors blend with nearly any background to eliminate visual detection. Good adhesion properties permit easy transfer from the object to hands or clothing.

### *Fluorescent Invisible Detection Pastes*

Brilliant fluorescent waterproof pastes have wide applications for outdoor situations or extremely smooth surfaces. After application pastes leave a thin film that transfers readily to hands or clothing. Pastes do not dry out, nor are they affected by rain or other inclement conditions. They are excellent for use on doorknobs, alarm pull handles, telephones, automobiles, etc.



### *Invisible Fluorescent Crayon*

This crayon (No. UV739) provides an excellent means of marking money, merchandise, tires, paper, cloth, etc. for identification and investigation purposes. The material is highly fluorescent when exposed to long wave ultraviolet light. Press lightly when using the crayon to avoid leaving visible wax tracings. Crayons provide a permanent label except where excessive washing or continuous heavy rubbing may wear off the marking.





*Scissors marked with No. UV7311 viewed under UV light.*

### *Metal Marking Ink (Metal, Plastic, Wood, etc.)*

No. UV7311 is a unique ink that permits rapid invisible marking of all metal surfaces allowing identification of stolen articles such as tools, auto parts, and many goods in retail operations. This ink is fast-drying, permanent and may be applied with a cotton swab or fine-pointed brush. After a few minutes, the ink markings will dry and will not wear off. No. UV7311 metal marking Ink fluoresces a brilliant blue/white when exposed to UV light.

### *CLUE SPRAY™ Powder*

This detection powder can be sprayed on any surface, and it leaves an invisible film that is immediately transferred to hands or clothing when touched. CLUE SPRAY™ is suitable for large and small objects. It is highly fluorescent when exposed to UV light but invisible under normal light.



*Twenty dollar bill (treated with CLUE SPRAY™) as it appears under normal light (left) and UV light (right).*



*A mark made on a cardboard box with No. UV700 as viewed under UV light.*

### *Invisible Marking Pen*

The No. UV700 Fluorescent Invisible Marking Pen permanently marks paper, cardboard, cloth, wood and any other porous materials. Marks are made easily and may be removed from glass, plastics, metals and any other non-porous materials. Markings fluoresce a brilliant blue/white when exposed to longwave or shortwave UV light.



### *Invisible Coin Lacquer*

No. UV7321 is a frost-colored lacquer that rapidly dries clear, leaving an invisible but highly fluorescent tag. Primarily used on coins involving vending machines and parking meters. Apply with a swab or brush. It fluoresces a brilliant green when exposed to UV light.

### *Invisible Skin Marking Ink (Pass In-Pass Out)*

No. UV743E dries immediately with no visible trace. It fluoresces a brilliant blue/white when exposed to longwave (UV) light. The combination of fluorescent invisible skin ink and ultraviolet light is one of the easiest methods of controlling access or egress from facilities such as prisons, detention houses and other control areas.



*Invisible skin marking ink is visible when exposed to UV light.*

### *Invisible Writing Ink*

Use No. UV734 ink to permanently mark legal papers, stocks and bonds, currency and other documents with completely invisible tagging and identification marks using a cotton swab, bladder-type fountain pen or even a toothpick for writing. Markings are highly fluorescent when exposed to UV light.



*Twenty dollar bill treated with No. UV734 as viewed in natural light (left) and UV light (right).*

### *Visible Stain Detection*

Apply these powders to objects with a No. 118L applicator brush. If powder does not blend well with the surface, apply an even coat over the entire surface rather than to a small portion of the object. **CAUTION:** *Visible stain detection powders and pastes cannot be removed from most articles without destroying the color or surface of the article. They should be considered destructive entrapments.*



Visible stain detection powder should be carefully dusted on a pocketbook, wallet, drawer, doorknob, safe vault, or other object that the thief is likely to touch. A paste solution of the compound should be used on outdoor surfaces such as fire alarm box handles, railroad car doors, garage locks, etc. When the thief touches the treated object, traces of the stain material will cling to his hands or person. Speckles of the stain color will appear upon contact with the perspiration exuded by the sweat pores. When the perpetrator notices this, he will wash his hands and only spread the stain further. Some stains can be almost completely washed away by repeated scrubbing with abrasive hand soaps; however, it is very difficult for the suspect to remove stains from under finger nails, within flexure lines, near knuckles, and at the base of the fingers. The success of the entrapment is dependent upon an investigative observer, or person who shares the confidence of the authorities, calling the law enforcement agency as soon as the stains of evidence are seen. *NOTICE: Powders are meant for use indoors, and pastes are meant for use outdoors.*

To camouflage the application of visible stain powders, match the color of the powder to the color of surface or object of application as closely as possible. Gloves should be worn when applying powders to avoid contaminating hands.

## Visible Materials Selection Guide

### *Visible Stain Pastes*

To use, simply squeeze a small amount of paste on the target object in the area that a hand would have to touch, and spread a thin, even coat that will blend with the object's color. Upon contact with the compound, the suspect's hands develop visible stains. No. VST313 is demonstrated to the right.



*Doorknob treated with No. VST313 (left) and contact result on hand after exposure to moisture (right).*



*Resulting effect on a hand that came into contact with an object treated with No. VS301 after exposure to moisture.*

### *Visible Stain Powders*

A visible stain powder should be selected based on its natural color blending with the color of the target object. It should be carefully dusted on the object with a soft applicator brush. When contact with the object is made, a transfer occurs. When the transferred powder contacts moisture, such as perspiration, facial fluids or water, the powder goes into solution and a resulting vivid color appears.