

# FINGERPRINT POWDERS

## Product information

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### Latent Print Investigation

Generally, the term “latent print” is used for all types of prints resulting from the transfer of small, hardly visible amounts of skin secretion and dirt. As the prints of the friction ridge pattern on the tip of the finger usually give the most important clues to the investigator, “latent prints” are almost equivalent to the fingerprint itself.

Other prints used as investigative leads are palm prints and foot prints. In some cases even the surface of a glove is known to have left a latent print which led to apprehension of a suspect. In latent fingerprint investigation the hardly noticeable or completely invisible prints of the ridge pattern of the finger first have to be developed for primary examination. Fingerprints of possible culprits should then be lifted and preserved for identification.

Latent fingerprints usually are a mixture of secretions from the various glands found in the skin. When fresh, they contain a large amount of water (98.5-99.5%), together with small amounts of fatty acids, urea, amino acids, and/or salts. Chemical methods to visualize fingerprints make use of the presence of these components. Ninhydrin, for example, reacts with the amino acids to produce purple compounds. Silver nitrate on the other hand reacts with the small amounts of chloride ion present. Upon reaction the light sensitive silver chloride is formed, which on illumination decomposes to silver, thereby producing a silver image (just as in photography with film).

Powders do not work by chemical methods but simply adhere to the fingerprint. With fresh finger prints, the water still present in the print contributes significantly to the adhesion of powders. With older fingerprints, powders adhere in principal to the fatty deposits from the sebaceous glands secretions. The prints of the friction ridges may be transferred by substances other than skin secretion, such as dust or oil. In such cases, the fingerprint often is immediately visible, but for proper examination further development will usually be necessary.

The friction ridge pattern also appears in finger *impressions* in soft matter or in dust covered surfaces. There exists a basic difference between such an imprinted trace and a normal fingerprint formed by transfer. A print formed by transfer gives a positive image of the friction ridge pattern while a finger impression in soft matter gives a negative image.

### Conventional Powders

Many of the well-known Conventional Powders have good qualities. They are very fine-grained and appear “greasier” and softer than the special powders. They have some inconveniences, however. Due to their fine-grained and/or hygroscopic nature, they often become lumpy. Some powders can be called “greasy” and these are inclined to adhere too much to the surface, but also to the very soft hairs of the brush. Consequently, too large an amount of powder adheres to the latent fingerprints, so that upon brushing the latent print gets blurred.

### BVDA Special Powders

To solve the problems associated with the Conventional Powders, BVDA developed the Special Powders, which have been utilized by customers all over the world, for many years. The Special Powders have been the subject of long lasting experimentation and are composed of a combination of various raw materials. Thereby the greasy features are reduced, lumps are avoided, prints can be clearly seen, far less problems are encountered with overdose. Consequently the investigation of latent prints can be done much faster than before, with less risk and with far better results.

With some experience it is possible to apply powder on a surface by “sprinkling” of the powder. After having dipped the brush into the powder container, the brush is horizontally held above the area to be investigated and the powder is “sprinkled” by tapping the handle with the index finger. It is also possible though to use a tipped brush, on strongly adhesive objects, dirty or porous surfaces. If the print does not show up sufficiently, the procedure can be repeated without any difficulty.

## B - 32000 Special Silver

Very suitable for relatively clean and smooth, non-porous surfaces such as glass, painted wood, steel furniture, enameled articles, glazed tiles etc. Excellent contrast against dark surfaces and black BVDA gelatin lifters (B-11000), as well as transparent Gellifters (B-17000) with a black backing sheet.

## B - 33000 Special Gold

Very much like Special Silver B - 32000. It gives, however, a better contrast against light colored surfaces. It is also very suitable for leatherware, plastic bags, aluminium pans and the like, imitation leather, etc. **WARNING:** Prints developed with Special Gold and lifted with Gellifters will fade, and ultimately disappear, in time (months) so should be photographed.

## B - 34000 Special Black

This powder is also very suitable for relatively clean or smooth objects as specified under Special Silver. It is also extremely suitable on china, domestic appliances and the like. Furthermore Special Black Powder can be used on cardboard, coated paper and the like.

## B - 420000 Swedish Black

Swedish Black fingerprint powder is an excellent powder for use with a squirrel hair brush. It combines a good adhesion to the fingerprint with minimal adhesion to the background surface.

## BVDA Instant powders

The Instant Powders have many characteristics in common with the three special powders. They differ from them in that they contain relatively large particles. The larger particles are surrounded with a thin layer of the finer ingredients of the powder. Due to this composition the Instant Powders are less prone to fill in the fingerprint ridge detail.

These powders can be processed with a brush, preferably one with a round top.

In general the instant powders are better suited for horizontal than vertical surfaces. The large particles tend to fall from the brush although the small amount of powder that remains can still develop prints.

A special application method, for which Instant Black is eminently suited, consist of pouring the powder over the object to be examined. By pouring the powder over the surface (directly from the bottle or by sprinkling from a table spoon), and moving the powder over the object by gravity, (tilting the object), the print is developed. In this way very fresh fingerprints on porous surfaces, such as cardboard and paper can be developed.

## B - 37000 Instant Silver

Very suitable for relatively clean and smooth non-porous surfaces such as glass, painted wood, steel furniture, hard plastic as specified under Special Silver B-32000.

It has a strong adhesive power. Excellent contrast against dark surfaces and black gelatin lifters. This powder is suitable for most surfaces found at crime scenes that have to be processed for fingerprints.

## B - 38000 Instant Gold

Like Instant Silver B-37000, Instant Gold is a good adhesive powder. It provides better contrast against light-colored surfaces than Instant Silver. However, it adheres more strongly on surfaces and is therefore less suitable for routine use. It has more or less the same qualities as Special Gold (B-33000).

**WARNING:** Prints developed with Instant Gold and lifted with BVDA Fingerprint Lifters will fade, and ultimately disappear, in time (months) so should be photographed.

## B - 39000 Instant Black

Although suitable for general use with a fingerprint brush, its special quality lies in the development of prints on porous objects such as cardboard boxes and paper by sprinkling and moving the powder over the object, or by tapping the object to move the particles over the surface.

Going over the print with a brush afterward will often smear the developed print.

## B - 40000 Instant White

Instant White Powder was developed as a substitute for white lead powder (basic lead carbonate, not used anymore due to the danger of poisoning). The adhesive power, however, is much better, so that this powder is extremely suitable for relative clean and smooth objects. It has more or less the same qualities as the Instant Black Powder B-39000.

## Magnetic powders

Magnetic powders can be used only in combination with a magnetic brush. A mixture of iron and pigment particles, such powder is attracted by the magnet in the head of the magnetic brush, causing the iron particles to form a kind of brush. When the powder has to be returned to the jar, the magnet is drawn up. The broad rim around the head of the magnetic brush prevents the iron particles from following the magnet. Eventually, its attraction to the particles weakens until they fall off the brush. Due to the nature of the powder and the magnetic brush, use on steel objects is not feasible.

## B - 44000 Magnetic Silver

Universal powder, also suited for smooth leather and metals. It is a strongly adhering powder providing excellent contrast on dark surfaces.

## B - 45000 Magnetic Jet Black

A deep black, strongly adhering powder providing excellent contrast. This very popular magnetic powder can be used on many surfaces. Examples are: aluminum, candles, and polystyrene foam. Very fresh fingerprints on paper can also be developed with this powder. A special application is in making comparison prints of shoe soles. The soles are coated with a very small amount of silicone oil (for example, from the SLM spray), and an impression is made on a sheet of paper, then visualized with Magnetic Jet Black.

## B - 46000 Magnetic Grey

Magnetic Grey has two special qualities: first, it brings out detail very well and second the chance of blurring a fingerprint is less than with other powders. The contrast is somewhat less, compared to Magnetic Silver.

## **B - 47000 Magnetic Black**

This black powder is suited for both smooth non-porous surfaces and smooth porous surfaces such as planed wood and paper. Adheres a bit less than Magnetic Jet Black. However, the adhesion to the background when developing prints on dirty surfaces is also reduced. Articles covered with a thin layer of dirt or dust can be processed too. The magnetic brush should then be used in a dabbing fashion.

## **B - 47200 Magnetic Grey Special**

A special characteristic of this powder is that it works well on plastics and visibility is good, on both light and dark-colored surfaces. When inadvertently too much powder is used, the excess can be removed with an ordinary fingerprint brush.

## **BVDA Blower Powders**

These types of finger print powders have specially been developed for the fast processing of large areas with the BVDA blower brush B-52000. Because the powder is blown inside the brush, accurate dosing is possible. It has either a marabou feather brush or a zephyr brush (the brushes on the blower brush can be interchanged.)

## **B - 35500 Special blower black**

Special blower black is a fine milled powder mixture and excellent for use with a blower brush. It combines a good adhesion to the fingerprint with minimal adhesion to the background surface.

## **B - 34400 Concentrated blower black**

Concentrated blower black is a unmixed fine milled powder and excellent for use with a blower brush. It has a good adhesion to the fingerprint with minimal adhesion to the background surface.

## **B - 36500 Special blower silver**

Special blower silver is a mixture of an aluminium flake powder and an inert material. Very suitable for relatively clean and smooth non-porous surfaces such as glass, painted wood, steel furniture, hard plastic. Excellent contrast against dark surfaces and black gelatin lifters. This powder is suitable for most surfaces found at crime scenes that have to be processed for fingerprints.

# FINGERPRINT POWDERS

Product information

BVDA FINGERPRINT CHART	concentrated powders	silver special	blower silver	blower black	magnetic silver	magnetic grey	magnetic black	magnetic jet black	magnetic grey spec	instant powders	flame technique (so	iodine fuming	dfc	ninhydrin	physical developer	small particle reagent	Sudan black	Methyl violet	cyano acrylate	colloidal gold	iodine/benzoflavon	sticky side powder	
	stoneware 0,1																						
stoneware 2,3																							
stoneware 4																							
glass 0, 1																							
glass 3																							
glass (0, 1, 3) 4																							
wood 0																							
wood 1																							
wood 2																							
wood 3																							
wood (1, 3) 4																							
cardboard 0																							
cardboard 1																							
leather 1																							
leather 2, 3																							
leather 4																							
metal, ferro 0																							
metal, ferro 1																							
metal, ferro 3																							
metal, ferro 4																							
metal, nonferro 0																							
metal, nonferro 1																							
metal, nonferro 3																							
metal, nonferro 4																							
paper 0																							
paper 1																							
paper 4																							
paper 5																							
hard plastic 0																							
hard plastic 4																							
soft plastic 0																							
soft plastic 4																							
rubber 0																							
expanded polystyrene 2																							
expanded polystyrene 4																							
tape, adhesive side																							

preferred method  
possible method

Explanation of the chart:

- 0 = a surface that is smooth but not coated.  
*examples: glass, aluminium, some plastics, planed wood.*
- 1 = a surface treated with a coating (e.g. paint, laquer) and therefore smooth and non-porous.  
*examples: painted wood/board/metal.*
- 2 = a surface that is porous and rough (not painted)  
*examples: paper, non-glazed pottery, leather.*
- 3 = coated surface that is still rough.  
*for example: matt paint, hammered surface (coin box).*
- 4 = very dirty or greasy surface.
- 5 = wet surface