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## TECHNICAL INFORMATION

### Erased Writing Detection Kit

#### Catalog No. EWD1001

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#### INTRODUCTION

One of the least common problems encountered by the Questioned Documents Examiner is that of restoring ink writing that has been erased. Very often, writing that has had new writing superimposed on the erased area is one of the contributing factors to the difficulties encountered in this restoration process.

The EWD1001 is the most complete Erased Writing Detection Kits available. It enables the investigator to restore erased writing with chemical or fuming reagents. An ultraviolet light is included for preliminary inspection of the questioned document prior to chemical treatment. The ultraviolet light may be converted to white light for microscope illumination. Also included in the kit is a 4.5X magnifier—a necessary addition. Individual applicator vials are provided for increased storage life and cross-contamination control.



#### PRECAUTIONS

- Before using this kit, consult the appropriate Material Safety Data Sheets (MSDS) found on our website at [www.sirchie.com/support](http://www.sirchie.com/support).

- Skin and eye irritant. If contact made with skin, wash with soap and water—consult physician if irritation occurs. If contact made with eyes, flush with plenty of water for approximately 15 minutes—seek medical attention.
- Flammable! Do not use Erased Ink Reagents around open flames or sparks—dispose of empty vials according to Local, State, and Federal regulations.

## BACKGROUND

The only inks where restoration is possible are those containing iron salts, namely gallotannic and logwoods. When writing is erased with the eradicators that are bought at an ordinary outlet, the ink is not removed—merely bleached. The iron and other ingredients in the ink causes the new ink compound to be formed, thereby enabling you to read the writing. The penetration of the iron in the paper goes on over a period of years. The amount of iron salts that actually comes in contact with the paper depends on a number of factors, the most important of which are whether or not the writing was blotted, the thickness of the stroke, and the size of the pen point.

There is no hope of bringing up the ordinary colored inks obtained on the commercial market due to the fact that they are solutions of aniline dyes containing no iron salts. This also holds true in the case of many of the washable blue inks. There are solutions of various dyes that are not dependent on the oxidation of iron for their color or permanency. Again, we stress the fact that the inks cannot be restored unless they contain iron.



No. PFP200

A rare type of erasure is where an abrasive material is used. As previously mentioned, the writing can be restored only if there is iron in the paper. One of the main disadvantages is that a larger amount of the surface of the paper is removed than in the case of chemical eradication. Therefore, more of the ink's ingredients are removed, reducing the chances of restoring the writing.

All reactions to the reagents should be viewed with the PFP200 4.5X Magnifier included with the kit or under a low-powered microscope. *NOTE: The reagents in this kit are manufactured in accordance with surveys and experiments made with the standard inks procurable on the commercial market.*

## PROCEDURE

### Erased Ink Reagent #1

This reagent should be brushed across the surface lightly using the applicator brush found in the cap or it can be applied with a cotton swab. The writing should appear instantly and be dark brown in color. The reagent itself leaves very little stain, but the reaction of the chemical on the eradicator and the ink ingredients produces a dark green stain. The results should be photographed immediately as this reagent will fade

### Erased Ink Reagent #2

This reagent should also be brushed across the surface lightly using the applicator brush found in the cap or it can be applied with a cotton swab. This reagent will develop eradicated writing in a light green color that should be instantly visible upon application. Reagent #2 will leave a light brown stain on the paper. Writing restored with this reagent does not have to be photographed as quickly as with Reagent #1 because this restored writing does not fade.

### Erased Ink Reagent #3

This reagent should also be brushed across the surface lightly using the applicator brush found in the cap or it can be applied with a cotton swab. This reagent will develop eradicated writing in a light to dark brown color—any ink eradications containing iron salts will turn blue. The fumes are very offensive and unpleasant and should be confined as much as possible. Developed results should be photographed immediately.

## Fuming Instructions

After completion of preliminary operations as previously described, the fuming process should begin to render some erased writing visible.

1. Take one Iodette Ampoule and break at score (Fig. 1), emptying Iodine Crystals into one of the Zip-Top Evidence Bags supplied with the kit.
2. Place the questioned document into the Zip-Top Evidence Bag and seal for fuming.



**FIGURE 1—Holding the ampoule between the forefinger and thumb of each hand, break ampoule at score.**

3. Allow the document to be fumed until it reaches maximum depth of color for contrast. The writing should appear yellowish-brown in color.
4. Since the writing developed is considered fugitive, apply the Iodine Fixative Solution with a cotton swab to all the writing to be preserved after the background of the paper has resumed its natural color.
5. Apply Iodine Fixative Remover to remove the writing fixed in the previous step.



As shown to the left, the investigator should scrutinize the texture of the document under low magnification for abrasion or tampering marks rendered visible by the stereomicroscope. The CUV100T UV Mini Light Source that comes with the kit can be converted to white light for microscope illumination by exchanging the bulb with the cool white lamp provided.

#### **EWD1001 CONTENTS:**

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| 1- 214C1 Iodine Print Fixative, 1 oz. (39ml)          | 4- KCP230 AA-Cell Batteries, Alkaline   |
| 1- 215CS1 Iodine Print Fixative Remover, 1 oz. (39ml) | 1- PFP200 4.5X Fingerprint Magnifier, Model M2  |
| 1- AMP2066 Iodette Ampoules, 3g, 6 ea.                | 1- KCP218 Lamp, Fluorescent, Cool White, 4-watt   |
| 1- CUV100T UV Mini-Light, DC only                     | 6- ZTE021 Zip-Top Evidence Bags, 9" x 12" (22.9cm x 30.5cm) x 4 mil   |
| 8- EINK1 Erased Ink #1, 2ml vial                      | 24- KCP193 Brush, Applicator 3.25" (8.2cm)  |
| 8- EINK2 Erased Ink #2, 2ml vial                      | 1- EWD10011 Carrying Case, Molded Copolymer, with Latch; Dimensions; 14.375" x 8" x 7" (36.5cm x 20.3cm x 17.8cm); Weight: 3.8 lbs. (1.7kg) |
| 8- EINK3 Erased Ink #3, 2ml vial                      |   |
| 15- KCP217 Cotton Balls                               |   |