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Name of Procedure:

5-Methoxyninhydrin

Suggested Uses:

This ninhydrin analog is an excellent developer of latent impressions on paper and porous items. Visible development of latent impressions will closely resemble that which is achieved with ninhydrin; however, fluorescence after Zinc Chloride treatment will be considerably stronger than that of ninhydrin-developed impressions.

Equipment Needed to Perform Procedures:

A - Magnetic stirrer, magnetic follower and magnetic retriever

B - Glass beaker (1200 ml)

C -Dark shatter proof storage container (one (1) liter)

D - Application Equipment

1. Sprayer
2. Glass tray for submersion

E - Rubber apron and gloves

F - Forceps (type which will not leave indented impressions)

G - Fume Hood

Chemicals Needed For Preparation of Chemical Solution(s):

A - 0.5 gram of 5-Methoxyninhydrin crystals.

B - One (1) liter of Acetone.

Formula/Directions for Preparation of Chemical Solution(s):

1. Fill the beaker with one (1) liter of Acetone and place magnetic follower in the beaker (Do not use heat).

2. Add 0.5 gram of 5-Methoxyninhydrin to the Acetone solution. Using magnetic stirrer, stir the solution until all the ninhydrin crystals have dissolved.

3. Remove the magnetic follower from the beaker using the magnetic retriever and carefully pour the solution into a dark shatter proof container.

Processing Procedures for Application to Item(s) of Evidence:

1. The 5-Methoxyninhydrin solution may be applied to the item of evidence by using one of the following methods:

    a. Spray method - spray the item with a sufficient amount of the solution to completely saturate the item.

    b. Dipping method - place a sufficient amount of the solution in a tray to completely submerge the item for approximately five to ten seconds.

2. Allow the item to completely air-dry prior to proceeding.

3. Latent impressions will develop over a period of time at room temperature. One recommended method for developing latent impressions is to place the items in a plastic bag for a period of time until the impressions develop.

4. To speed up the process a number of methods may be used:

    a. Steam iron - the iron is heated with the steam to provide a moist heat. The iron is then held just above the item taking care not to touch the item. Great care must be taken as this method may scorch the item if the iron comes in contact with surface of the item.

    b. Microwave - the microwave should be heated with a tray of water in the bottom to produce steam for approximately five minutes. The item is the placed in the microwave on a rack to avoid contact with the water and heated for approximately five minutes. Once the heating time is complete, it is recommended that the item be left in the microwave for five more minutes to

absorb additional moisture.

c. Humidity Chamber - Large bulky items or a large number of papers may be placed in a humidity chamber for approximately four to five hours to develop latent impressions. The humidity chamber should be checked periodically to ensure adequate moisture is present.

5. Developed latent impressions should be photographed utilizing the appropriate camera techniques (See Photographic Equipment/Procedures).

6. Zinc Chloride should be applied to the item and allowed to completely air-dry prior to proceeding (See Zinc Chloride Procedures).

7. View the item with the appropriate laser and/or light source and photograph if necessary (See Laser/Alternate Light Sources and Photographic Equipment/Procedures).

Steps to Preserve Developed Impressions:

The most appropriate methods to preserve developed impressions is through photography, using the proper techniques (See Photographic Equipment/Procedures) and/or electronically recording the impressions (See Image Processing).

Safety Concerns:

A fume hood should always be utilized as the fumes from the solution is toxic and the acetone used is highly flammable. Improper use may cause some irritation when in contact with the eyes or skin and may be harmful if inhaled or ingested. Protective goggles, gloves and aprons should be worn at all times during processing as the solution will also stain skin and clothing.

Storage and Location of Chemicals and Solutions:

The 5-Methoxyninhydrin crystals should be stored in their original shipping container until needed.

5-Methoxyninhydrin solutions should be stored in non-breakable dark containers at all times to avoid direct exposure to sunlight.

Shelf Life:

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5-Methoxyninhydrin Crystals - Indefinite

5-Methoxyninhydrin solution - thirty (30) days.

Other Information:

5-Methoxyninhydrin (followed by Zinc Chloride) will fluoresce yellow; therefore, should not be used on items which that fluoresce the same color. It is recommended that each item be viewed with the various light sources prior to processing to determine what color the item will fluoresce.

Various improved formulations are presently pending research to improve the quality and application process of ninhydrin solutions.

5-Methoxyninhydrin will react with the amino acids present in fingerprint residue.