3a.7 1,2 Indanedione

3a.7.1 Introduction

Indanedione is an amino acid sensitive reagent that results in a fluorescent product.

3a.7.2 Safety Considerations

3a.7.2.1

Application should be conducted in a fume hood using appropriate PPE.

3a.7.2.2

Safety precautions in the SDS available at each worksite for the components in this protocol shall be followed.

3a.7.3 Storage

The stock solutions and working solutions shall be stored in a dark glass bottle in a dark place.

3a.7.4 Preparation

Zinc Chloride Stock Solution:
Dissolve 2g Zinc Chloride solution in 50 mL Isopropanol

Indanedione Stock Solution:
Dissolve 1g Indanedione in 115 mL Ethyl Acetate
Add 10 mL glacial acetic acid
Add 1 mL Zinc Chloride Stock Solution

Working Solution:
10 mL of Indanedione Stock Solution
90 mL HFE 7100

3a.7.5 Pre-Wash Solution for Thermal Paper

Formula #1
93 ml HFE-7100
7 ml Ethyl Acetate

Formula #2
90 ml Petroleum Ether
10 ml 200 Proof (100%) Ethanol

Formula #3
Acetone

3a.7.6 Instrumentation

3a.7.6.1

A humidity chamber or a dry mounting press is utilized to achieve the desired post treatment temperature.

3a.7.6.2

A forensic light source and camera equipment are required to visualize and capture suitable latent prints.

3a.7.7 Controls

3a.7.7.1

A test impression (from a finger, an amino acid pad, or amino acid solution) shall be placed on a porous item. The test sample is processed using 1,2 Indanedione. Development of the test impression using a Forensic Light Source indicates a positive control test for the reagent.

3a.7.7.2

Documentation of the control test prior to use in a case shall be maintained in the case worksheet.

3a.7.7.3

A periodic reagent test must be documented in the reagent log.

3a.7.8 Procedure for Application

1. Apply Pre-wash solution only if the item is thermal paper (such as receipts).
    a. Dip item in pre-wash solution and agitate for 30 seconds. Carefully pat dry with Kem wipe or paper towel and allow to dry completely.
2. Dip, spray, or wash the item in the reagent.
3. Air-dry the item. allowing it to dry thoroughly.
4. Heat the item to the appropriate temperature;
    a. Heat Press: 320 degrees F / 160 degrees C for 10 - 20 seconds
    b. Humidity Chamber: 212 degrees F / 100 degrees C for 15-30 minutes.

3a.7.9 Interpretation of Results

3a.7.9.1

A light pink color should be observed after heating the treated item.

3a.7.9.2

View treated items with a forensic light source with an appropriate barrier filter.

- For most papers, view at 515nm with an orange barrier filter.
- For manila, brown paper, cardboard items, and/or craft paper view at 515 - 570nm with orange or red barrier filters.

3a.7.10 Limitations

3a.7.10.1

Both stock and working solutions must be stored in dark bottles and in a dark place when not in use. Exposure to light will decrease the shelf life.

3a.7.10.2

Carbon charged paper will darken with application of Indanedeion. A pre-wash must be completed prior to processing with indanedione.

3a.7.11 References

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