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# 1,2-Indanedione

## 1. Processing evidence using 1,2-Indanedione (IND)

### 1.1 Scope

- 1.1.1 This document details the procedure for the mixing and using IND on porous and semiporous forensic materials

### 1.2 Equipment, Materials, and Reagents

- 1.2.1 IND (2.0 grams)
- 1.2.2 Ethyl Acetate (70mL)
- 1.2.3 3M Novec HFE-7100 (930 mL)
- 1.2.4 Equipment: balances, graduated cylinders, magnetic stirrer and stirring bar, and dark storage bottles
- 1.2.5 Safety Equipment: fume hood, safety glasses, gloves, orange filtered goggles

### 1.3 Safety

- 1.3.1 Examiners/Technicians shall wear appropriate personal protective equipment (PPE) while preparing and using IND.
- 1.3.2 Fume hood use is required when preparing and applying IND.
- 1.3.3 See applicable Safety Data Sheets (SDS).

### 1.4 QA/QC

- 1.4.1 A Quality Control check must be performed before use each day and/or when the reagent is made.
- 1.4.2 To test the solution, apply a finger to an Amino Acid Standard Pad and place a test print on a piece of paper (Matrix = amino acid; Substrate = paper). Apply IND as described below.
- 1.4.3 A successful Quality Control Check is one in which a positive test result is achieved. A positive test result is one in which the test print is visible under LASER/ALS light.

### 1.5 Procedure

- 1.5.1 IND may be applied by dipping or spraying.
- 1.5.2 Items that have been processed with IND may be placed in a humidity chamber at approximately 80°C to 100°C and 60% to 80% humidity for 10 to 20 minutes to accelerate the development of latent prints.

NOTE: Do not use heat on specialty papers (i.e. thermal) because it will darken the paper.

- 1.5.3 Developed latent prints will fluoresce under a green LASER/ALS and are viewed with orange goggles.

### 1.6 Preparation of IND

- 1.6.1 Working Solution

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- 1.6.1.1 Add 2.0 g of IND to 70 mL of ethyl acetate and place on a stirring device for approximately 20 minutes until the IND is dissolved.
- 1.6.1.2 Add the dissolved mixture to 930 mL of 3M Novec HFE-7100 solvent.
- 1.6.1.3 Place the appropriate safety label and information on the bottle. Proper labeling should include:

- Name of Reagent
- Date of Preparation
- Date of Expiration (if applicable)
- Preparer's name and initials
- Batch Number

## 1.7 Records/Results

- 1.7.1 Processes used are documented in the case examiner's/technician's case notes via the Laboratory Information Management System (LIMS).
- 1.7.2 Reagent test results are recorded in the Latent Print Laboratory Reagent Log.

## 1.8 Storage

- 1.8.1 Store solution in a dark bottle in a refrigerator to enhance shelf life.

## 1.9 References

Bicknell DE, Ramotowski RS. Use of an Optimized 1, 2-Indanedione Process for the Development of Latent Prints. J Forensic Sci; 2008; 53(5):1108 -1116.

Defense Forensic Science Center, CILA LP 51.3, 1,2 Indanedione, 07 February 2014

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