



Latent Print Section

Zinc Chloride

Forensic Analysis Division



1. Processing evidence using Zinc Chloride

1.1 Scope

- 1.1.1 This document details the procedure for the mixing and use of zinc chloride on porous forensic materials by the Latent Print Section of the Houston Forensic Science Center (HFSC).

1.2 Equipment, Materials, and Reagents

- 1.2.1 Zinc chloride (7.5 grams)
- 1.2.2 The same ninhydrin carrier that was used to apply the ninhydrin (HFE-7100 or acetone 500mL)
- 1.2.3 Equipment: balances, graduated cylinders, magnetic stirrer and stirring bar, funnel, and storage bottles
- 1.2.4 Safety Equipment: fume hood, gloves, orange filtered goggles

1.3 Safety

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

1.5 Procedure

- 1.5.1 The application of zinc chloride is applied by spraying, ensuring the bottle is continually shaken during application to prevent the separation of the zinc chloride with the carrier.
- 1.5.2 Items that have been processed with zinc chloride may be placed in a humidity chamber at approximately 70° to 80°C and 60% to 80% humidity for a short time to accelerate the development of latent prints. If a humidity chamber is not available, a common household steam iron can also be used.
- 1.5.3 Developed latent prints will fluoresce under a green LASER/ALS and are viewed with orange goggles.

1.6 Preparation of Zinc Chloride

- 1.6.1 Working Solution



1.6.1.1 Using a magnetic stirrer, slowly add the zinc chloride to the 500 mL of HFE-7100 or acetone and stir for approximately 20 minutes until the zinc chloride is dissolved.

1.6.1.2 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 References

Defense Forensic Science Center, *CILA LP 51.5, Zinc Chloride*, 13 January 2014.

Margot P, Lennard C. *Fingerprint Detection Techniques*. Lausanne, 1994.