



THERMANIN

#A-B79810, B79850, B79860

TECH INFO

INTRODUCTION

ThermaNin will not develop any fingerprints by itself. The process relies on the fact that after application of its solution to paper, ThermaNin will readily convert to ninhydrin and the alcohol upon contact with water present in the paper or in the atmosphere. This conversion can be detected from the weak odor of the alcohol that will be given off by the paper afterwards. The ninhydrin will then be available to react with any fingerprint residue in the paper. The ninhydrin will not dissolve in petroleum ether, so the paper can be dipped twice (with a certain waiting time in between, to allow for the conversion of the ninhydrin hemiketal to ninhydrin and alcohol) to increase the ninhydrin concentration in the paper.

PROCEDURE

ThermaNin is used for processing for latent fingerprints on thermal paper which is used in retail shops, supermarkets and other printers for point-of-sales transactions. Thermal paper turns black on application of heat (as in the printer) and with polar solvents like alcohols, acetone, ether, ethyl acetate, etc. These are the regular solutions for ninhydrin and DFO. These solutions have a detrimental effect on thermal paper: on application the paper surface turns dark grey or black thereby obscuring any fingerprints that may subsequently develop.

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The prints developed will be purple in color as they are when processed with ninhydrin.

Stable working solution:

Reagents:

4-5 g ThermaNin crystals

5 mL Isopropanol

15 mL Ethyl acetate (optional for petroleum ether/heptane based solutions)

980 mL Petroleum ether (60-80 degrees), heptane, or HFE-7100

1000 mL working solution

PREPARATION:

Dissolve 4 grams of ThermaNin crystals in petroleum ether/pentane or heptane by shaking (for 5-10 minutes). Slight warming of the solution (till around 30-40 degrees C) will aid the dissolution of the ThermaNin crystals considerably. Adding 0.5 ml of isopropanol (and optionally 1.5 ml of ethyl acetate) per 100 ml of solution helps also. ThermaNin cannot be made in HFE-7100 alone.

A working solution should be used within 1-3 weeks.

The working solution should be stored in plastic or aluminum containers, but preferably aluminum.

If stored in glass bottles the shelf life of the working solution is drastically shortened.

ARROWHEAD FORENSICS

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A SMALLER working solution:

Reagents:

0.4 to 0.5 gram ThermaNin

0.5 mL Isopropanol

1.5 mL Ethyl Acetate

HFE-1700

100 mL

PREPARATION:

In a 100 mL bottle (glass or aluminum) add the ThermaNin, Isopropanol and Ethyl Acetate. Dilute with the HFE-1700 to equal 100 mL.

PROCEDURES AND PROCESSING FOR BOTH SOLUTIONS:

Procedure:

1. Before beginning the procedure, make sure to photograph any visible fingerprints on the object or objects being studied.
2. The procedure involves dipping objects into the solution to wet the latent fingerprints.
3. For objects to be dipped pour the solution into a shallow pan to a depth of about 20 mm. Use forceps to dip the object into the solution until the item is saturated with the solution.

Processing:

1. Lay item on a flat surface at room temperature, in the dark and elevated humidity (around 80% is preferred).
2. DO NOT use heat as an accelerant; this will only turn the paper black, covering any latent fingerprints.
3. Because of the sensitivity of the paper for polar solvents, treatment of the thermal paper with zinc chloride is not an option either.
4. Photograph all latent prints to make a permanent record.

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