

Processing Evidence Using Acid Fuchsin (Protein Dye)

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1 INTRODUCTION

This procedure is intended to be utilized by trained personnel to ensure consistency and transparency of methods employed during the enhancement of patterned impressions observed in blood located on evidence received in the Questioned Documents Unit (QDU).

2 SCOPE

These procedures apply to examiners and analysts in the QDU enhancing patterned impressions in blood utilizing Acid Fuchsin (Protein Dye).

3 EQUIPMENT

- Balance
- Weighing pans
- Spatulas
- Beakers (10 mL – 2000 mL)
- Magnetic stirrer
- Magnetic stirring bars
- Dipping trays (appropriate size for item being processed)
- Squirt bottles or spray bottles
- Appropriate Personal Protective Equipment (e.g., gloves, lab coat, eyewear)
- 5-Sulfosalicylic acid
- Acid Fuchsin
- Distilled water
- Tap water

4 STANDARDS AND CONTROLS

4.1 Acid Fuchsin Solution

- A. Using a 2-liter beaker on a magnetic stirring device, dissolve 20 grams of 5-Sulfosalicylic acid and 2 grams of Acid Fuchsin in 1 liter of distilled water.
- B. The solution will be tested on a positive control blood stain prior to use.
 - A positive reaction will produce a deep magenta color.
- C. A small area of the background of the object or surface being enhanced should be stained with the solution prior to application.
 - If the background develops a significant color, the Acid Fuchsin solution may not be appropriate for enhancement of this item.
- D. Record the results of the control test in the Chemical Enhancement and Control Logbook located in the Footwear/Tire Laboratory space.
- E. The Acid Fuchsin solution can be stored in clear or dark bottles indefinitely.

5 PROCEDURE

- A. Apply the Acid Fuchsin solution to the item(s) by completely covering the target area and allowing it to develop for approximately one minute.
 - o The Acid Fuchsin solution may be applied by dipping the item to be enhanced in a tray filled with the solution or by using a squirt bottle filled with the solution to saturate the stained area.
- B. The item(s) should be rinsed with tap water and allowed to air dry.
- C. At the completion of chemical enhancement, refer to [IMPRS-300 Footwear and Tire Evidence Examinations](#).

6 LIMITATIONS

The color and porosity of the background substrate must be tested prior to use of this solution. Acid Fuchsin will react with the protein present in blood to produce a deep magenta color. If the background substrate is similar in color to deep magenta or if the background substrate stains a deep magenta color, then it will obscure the chemically enhanced impression.

7 SAFETY

Standard precautions should be followed for the handling of chemical and biological materials. Chemical and biological materials that are hazardous or potentially hazardous will be maintained and examined in specifically designated areas within QDU space. QDU personnel may refer to the [FBI Laboratory Safety Manual](#) for additional guidance.

All chemicals will be disposed of according to the Chemical Disposal Guidelines on file in the Footwear and Tire Laboratory space.

Safety information concerning each of the chemicals used in these procedures are available from the Material Safety Data Sheets (MSDS) on file in the Footwear and Tire Laboratory space.

8 REVISION HISTORY

Revision	Issued	Changes
02	01/14/2022	Document reformatted for new technical procedure requirements.