Section J - Subsection 1 Iodine Spray Reagent Page 1

Name of Procedure:

Iodine Spray Reagent

Suggested Uses:

This process offers an alternative method in developing latent impressions prior to the use of ninhydrin, related ninhydrin analogs and other processing methods. Latent impressions can be developed on most porous and non-porous items of evidence with this technique. However, developed impressions should be photographed as soon as they become visible as they tend to fade over a period of time.

Equipment Needed to Perform Procedures:

A - Magnetic stirrer, magnetic follower and magnetic retriever

B - Glass beakers

C - Facial tissue, paper towels or filter paper

D - Sprayer or mini-spray gun with compressed air

E - Camera (35 mm, 2 1/4, MP-4, CU 5, TC III)

F - Rubber gloves and protective clothing

G - Refrigerator for storage of solutions

H - Fume hood

I - Dust or mist respirator (For usage outside of laboratory or in conjunction with fume hood)

Chemical(s) Needed for Preparation of Chemical Solution(s):

A - One (1) gram of iodine

B - One (1) liter of cyclohexane (1,1,2 trichlorotrifluoroethane may be substituted)

C - Five (5) grams of naphthoflavone

D - Forty (40) ml of methylene chloride (dichloramethane)

Formula/Directions for Preparation of Chemical Solution(s):

Stock Solution A:

1. Place one (1) gram of iodine in one (1) large beaker.

2. Add one (1) liter of cyclohexane and place the magnetic follower in the beaker. Using the magnetic stirrer, stir the solution until all the crystals have dissolved.

3. Store Stock solution A in a dark shatterproof container until needed.

Stock Solution B:

1. Place five (5) grams of naphthoflavone in one (1) large beaker.

2. Add forty (40) ml of methylene chloride (dichloramethane) and place the magnetic follower in the beaker. Using the magnetic stirrer, stir the solution until all the crystals have dissolved.

3. Store Stock solution B in a dark shatterproof container and **refrigerate** until needed.

Working Solution:

1. Pour two (2) ml of Stock solution B in a large beaker.

2. Add one-hundred (100) ml of Stock solution A and place the magnetic follower in the beaker. Stir for approximately five (5) minutes.

3. The working solution should be filtered through facial tissue, paper towels or filter paper into a second beaker.

Note: The working solutions must be used within twenty-four (24) hours.

Processing Procedures for Application to Item(s) of Evidence:

1. The working solution may be applied to the item of evidence by lightly spraying the area of interest. A fine mist is the most effective form of application.

2. The item may be sprayed several times until the latent impressions develop sufficiently. Developed impressions may only be temporary and should be recorded as soon as possible.

Steps To Preserve Developed Impressions:

The only methods to preserve developed impressions is through photography, using the appropriate techniques (See Photographic Equipment/Procedures) and electronic recording (See Image Processing). Impressions developed with the iodine spray reagent should be recorded as soon as possible.

Safety Concerns:

Due to the toxic and flammable fumes this process should always be used in a fume hood. Improper usage may cause some irritation when in contact with the eyes or skin and may be harmful if inhaled or ingested. Protective goggles, rubber gloves and protective clothing should be worn at all times during processing.

Storage and Location of Chemicals and Solutions:

The iodine crystals and naphthoflavone should be stored in their original shipping containers until needed.
Cyclohexane and methylene chloride should be stored in their original shipping containers or in dark shatterproof containers until needed.

Stock solution B must be stored in a refrigerator as soon as possible after mixed.

Stock solution A may be stored at room temperature.

Both stock solutions may be stored in dark shatterproof containers until needed.

Shelf Life:

Iodine crystals and naphthoflavone - Indefinite.

Cyclohexane and methylene chloride - Indefinite.

Working solution - must be used within twenty-four (24) hours.

Both stock solutions - in excess of thirty (30) days.

Other Information:

Superglue fuming should not be conducted prior to the use of iodine spray reagent; however, it may be used effectively after treatment.

Ninhydrin and ninhydrin analogs may be used on porous surfaces after this technique.

Stains which may occur from the reagent may be removed with propanol.