

LIGHTNING[®]
POWDER COMPANY, INC.

1230 Hoyt Street SE
Salem, Oregon 97302
Tel. 503-585-9900 or 800-852-0300
FAX 503-588-03-98 or 800-588-03-99
e-mail: info@redwop.com www.redwop.com

Technical Note No. 1-2801
April 2000

Iodine Processes

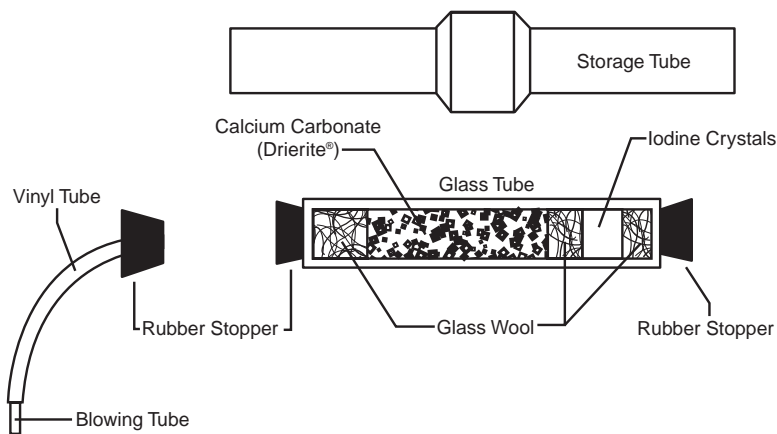
T E C H N I C A L N O T E S

Introduction

The iodine fuming method is used on surfaces that are generally impractical for dusting with fingerprint powder or may have residue which will damage the dusting brush. On greasy surfaces the iodine fumes may be absorbed at different rates by different fatty or oily residues, and the latent impressions may be visible. Most paper surfaces, and especially hard smooth surfaces, may show high quality latent prints when fumed with iodine.

Fuming Process

There are different methods for applying iodine and different circumstances when iodine would be the process of choice. One method is to construct a blowing tube to be used in producing fumes from iodine crystals. For your convenience, we have produced a partially-assembled kit for iodine fuming. The process to fill and use the kit is simple.



Unscrew the black plastic storage tube and you will find the iodine fuming apparatus in a partially “loaded” condition. (See diagram at left) That is, the glass tube will already be packed with layers of glass wool and calcium carbonate. There is a cork stopper in each end of the glass tube for storage. Remove both corks and note that on one end is one wad of glass wool. On the other end are two wads of glass wool. Extract one of these wads and pour about one-fourth inch of iodine crystals into the tube. Replace the wad of glass wool to hold the crystals in place. Insert the blowing tube into the other end of the glass tube.

CAUTION: DO NOT INHALE THE FUMES AS THEY ARE HARMFUL TO THE MUCOUS MEMBRANES.

Wrap your hand around the fuming apparatus and hold it snugly in order to provide additional heat from your hand to release the iodine fumes. Blow into the vinyl tube and hold the other end of the apparatus about an inch from the area you want to fume. If it is too difficult to blow through, the ingredients are either packed too tightly or the calcium carbonate has absorbed too much moisture and hardened.

Wash the apparatus after each use and store it empty. If the calcium carbonate hardens, soak the unit in warm water. The glass wool can be used even after it darkens. The glass wool serves only to hold the other ingredients in place. The calcium carbonate collects moisture from your breath so that mostly dry warm air reaches the iodine crystals.

Drierite[®]

Our Iodine Fuming Kit now contains a bottle of Drierite[®] in place of calcium carbonate, but the pre-packed fuming gun will have calcium carbonate in it. After the first use, replace the calcium carbonate with Drierite[®]. In addition to being a superior moisture-removing agent, Drierite[®] can be reused. Drierite[®] is blue in color when “dry.” As it removes moisture from the air, it gradually turns pink. When all the Drierite[®] has turned pink, it is saturated with moisture. Heat the Drierite[®] in an oven at low temperature to remove the moisture and return it to a blue color. It can then be reused.

Photography

Latent prints developed with iodine fuming will only be visible for a couple of hours. Although they can be fumed again, it is best to photograph them as soon as possible. A high contrast film can be used to photograph these latent prints, but it is not absolutely necessary. It is recommended that, like any latent print photography, the latent prints should be photographed in one-to-one size. Iodine fumes are corrosive. Protect the camera, lens and other metal equipment from coming into contact with iodine fumes.

Silver Plate Transfer Method To Develop Latent Prints on Skin

Iodine fuming and the silver plate transfer method can be used to attempt to develop latent prints on the skin of live or dead people. No technique for obtaining latent prints from skin has been consistently successful. This is just another option to try when the opportunity arises.

CAUTION: IF THIS PROCESS IS TO BE USED ON A LIVE PERSON, BE ADVISED THAT SOME PERSONS MAY HAVE A SEVERE SKIN REACTION TO IODINE FUMES.

Fume the area of the suspected location of any latent prints. A brownish color may appear. Roll a polished silver plate on the area and hold it there for a few seconds. Carefully roll it off the skin. Hold the silver plate under a photo flood lamp or take it into the sunlight. Any latent prints will begin to tarnish a brown color on the silver plate. Do not leave the silver plate unattended at this time as the light could overdevelop the latent print. Quickly photograph the latent print before it overdevelops. If no latent print is developed on the plate, it can be polished and used again.

Liquid Iodine Formula

In their classes, the FBI is teaching a new method of using iodine. By mixing it with solvents and spraying it on papered or painted walls or paper documents, latent prints are being developed which last several hours. Therefore, photography of latent prints developed using Liquid Iodine need not be immediate. This method of spraying Liquid Iodine can be used at crime scenes if protective measures are taken. A full-face, self contained breathing apparatus and protective clothing such as coveralls and gloves must be worn.

CAUTION: THE MIXING AND SPRAYING OF THIS SOLUTION MUST BE DONE IN A FUME HOOD OR WHILE USING A FULL-FACE BREATHING APPARATUS.

Solution A: Dissolve one gram of iodine in one liter of cyclohexane and label the container properly. Store at room temperature. *Shelf life is at least 30 days.*

Solution B: Dissolve 5 grams of naphthoflavone in 40 ml of methylene chloride (dichloromethane) and label the container properly. Store in a refrigerator. *Shelf life is at least 30 days.*

Add 2 ml of solution B to 100 ml of Solution A. Using a magnetic stirrer, mix thoroughly for 5 minutes. Filter the solution into a beaker. The solution should be lightly sprayed on the surface. Several applications may be necessary.

The working solution should be used within 24 hours after mixing. On porous surfaces, DFO and/or Ninhydrin may be used after the iodine spray. DO NOT fume with glue prior to iodine spraying; however, glue fuming can be used after iodine spraying. Propanol may be used to remove the staining.

Additional Reading

Scott's Fingerprint Mechanics by Robert D. Olsen, SR.

The Science of Fingerprints by the Federal Bureau of Investigation

Ordering Information

Catalog No. 1-2800 Iodine Fuming Kit
Catalog No. 1-2805 Iodine Crystals, 100 grams
Catalog No. 1-2803 Drierite® crystals, 2 oz.
Catalog No. 1-2804 Glass wool
Catalog No. 1-2844 Silver Transfer Plate, 4" x 4"
Catalog No. 8-5000 OLSEN/*Scott's Fingerprint Mechanics*
Catalog No. 8-5044 FBI/*Science of Fingerprints*