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# Basic Red 28

## TECHNICAL NOTES

### Background

In the January/February 1995 issue of the *Journal of Forensic Identification* (volume 45, number 1), Williams D. Mazzella and Christopher J. Lennard of the *Institut de Police Scientifique et de Criminologie* in Lausanne-Dorigny, Switzerland, discuss the uses of Basic Red 28 and how it compares to Rhodamine 6G, Basic Yellow 40 and Styryl 7. They concluded that Basic Red 28 has a Stokes Shift three times that of Rhodamine 6G (90 nm versus 30 nm). It can be mixed with a solution of Basic Yellow 40 to provide a wider range (145 nm) of fluorescence.

### Safety

As with all chemicals, always read the MSDS (material safety data sheet) to learn about the safe handling and health hazards of each chemical. With Basic Red 28, it is recommended that rubber gloves and safety glasses be worn. When combined with any of the solvents listed below, the solution should be mixed and used in a fume hood. When examining the evidence with a light source, wear protective goggles. Be familiar with the light source you are using and know which goggles to wear under all circumstances.

### Mixing Instructions

**Stock Solution:** Dissolve 0.2 grams of Basic Red 28 in 60 ml of propanol and then add 40 ml acetonitrile.

**Working Solution:** Dilute 5 ml of the stock solution with petroleum ether to make 100 ml. Mix and use these solutions in a fume hood. Store the liquids in dark brown glass jars with tight-fitting lids.

### Application

In a fume hood, apply the Basic Red 28 solution by submerging the evidence in a tray or container. "Washing" the solution over the surface using a chemical wash bottle can also be done. Catch the runoff solution in a clean tray and use it again. **DO NOT SPRAY THIS**

**SOLUTION.** After the item has dried, rinse it with distilled water to remove any background staining. Allow the item to air-dry before examining with a light source.

### **Modified Solution**

A modified solution can be made using a combination of a solution of Basic Yellow 40 and a solution of Basic Red 28.

**Stock Solution of Basic Yellow 40:** Dissolve 0.1 g of the powder Basic Yellow 40 in 60 ml of propanol and add 40 ml acetonitrile.

**Working Combination Solution:** Mix 3 ml of Basic Yellow 40 Stock Solution and 2 ml of Basic Red 28 Stock Solution. Dilute this mixture in petroleum ether to make 100 ml of solution.

### **Glue Fuming**

Before using Ardrex, it is necessary to glue-fume the piece of evidence. It is recommended to under-fume rather than over-fume. If heavy white residue is present on the background surface or heavy white latent prints are developed, the Ardrex may stain the entire surface and the latent prints will appear as bright glowing globs with no ridge detail when illuminated with a light source. The use of fast-acting, chemical catalysts or accelerator pads is not recommended, as the process can develop heavy, white residue before the reaction can be stopped.

Place a few drops of liquid glue or a Hard Evidence™ Pouch in a closed container, such as the Portable Fuming Chamber, with the evidence and a cup of warm water. Allow the evidence to remain about ten minutes before checking. To check the progress of the fuming without opening the lid of the Fuming Chamber, place a black latent print backing card in the tank with test prints on it. When these test prints are just becoming visible, remove the evidence from the chamber to stop the process.

Fuming under vacuum with a Coleman Vacu-Print™ will help to eliminate the problems associated with over-fuming. This method will develop latent prints without excessive residue coating the surface of the evidence, and it will be easier to handle the evidence. For additional information on the Coleman Vacu-Print™ vacuum fuming chamber and glue fuming processes, the Technical Note on Glue Fuming can be found on our website.

Because there is no residue buildup on the evidence, dye-staining for fluorescent examination is more effective. Dyes such as Rhodamine 6G and Ardrex adhere to the glue residue on the item. When there is excessive buildup of the glue residue, the dye stains all of it, causing the entire surface to fluoresce, perhaps obscuring ridge detail. With a vacuum process, items of evidence, such as garbage bags do not have to be opened up. The fumes will coat all of the surfaces. Also, items such as soda cans, screwdrivers and handguns can be placed inside the chamber with the items touching each other. It is not necessary to leave space between each item.

### **Photography**

To photograph the fluorescent-developed latent prints, duplicate the arrangement by which the best contrast was viewed with the eye. Use the wavelength, the color of viewing goggles and the angle of the light source to obtain the best photograph. Include a fluorescent scale in the photograph.

## **Additional Reading**

*Advances in Fingerprint Technology* edited by Dr. Henry Lee and Dr. R. E. Gaensslen  
*Fingerprint Detection by Fluorescence Examination* by the British Home Office  
*An Introduction to Lasers, Forensic Lights and Fluorescent Fingerprint Detection Techniques* by Dr. E. Roland Menzel

## **Ordering Information**

Catalog No. 1-0075 ..... Basic Red 28, 10 grams  
Catalog No. 1-0044 ..... Basic Yellow 40, 25 grams  
Catalog No. 6-3847 ..... Adhesive Fluorescent Scales, 2 in (50mm), pack of 50  
Catalog No. 6-3816 ..... 6 inch Fluorescent Scales, cardstock, pack of 10  
Catalog No. 6-3885 ..... INCH "L" Shaped Scale, Fluorescent, cardstock, pack of 5  
Catalog No. 8-5015 ..... HOME OFFICE/*Manual of Fingerprint Development Techniques*, 2ND edition  
Catalog No. 8-5039 ..... HOME OFFICE/*Fingerprint Detection by Fluorescence Examination*  
Catalog No. 8-5041 ..... LEE/*Advances in Fingerprint Technology*  
Catalog No. 8-5043 ..... MENZEL/*Intro to Lasers, Forensic Lights & Fluorescent Fingerprint Detection*