



D32 A Comparison of Cyanoacrylate, Ninhydrin, and Gel Lifters for the Development of Latent Prints on Latex Gloves

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After attending this presentation, attendees will gain a better understanding of the effectiveness of ninhydrin, cyanoacrylate, and gel lifters when developing latent prints on latex gloves.

This presentation will impact the forensic science community by providing latent print examiners with added insight into the most effective technique for developing latent prints on latex gloves as well as whether or not time is a factor in the efficacy of these techniques.

Latex gloves are notorious for being difficult substrates for the development of latent fingerprints. Varying degrees of texture and fit, along with a multitude of other, uncontrollable variables make developing prints a very difficult task. Some of the most commonly used techniques in latent print development are cyanoacrylate fuming, ninhydrin, and gel lifters. These three techniques are relatively inexpensive and have been used in the past to develop prints on a variety of substrates, including latex gloves. Time is also important when processing evidence and can affect how well a print is developed or how well a technique will work. Fingerprints can potentially last for years depending on the substrate and conditions; however, it is still important to understand the effects of time on evidence and the quality of the results.

The experiment compared cyanoacrylate fuming with magnetic powder, ninhydrin, and black gel lifters to determine which produced the highest quality results when developing latent prints on latex gloves and whether or not time affected the quality of these results. Multiple pairs of size large, powder-free latex gloves were worn by eight different participants for 15 minutes at a time and were then divided into batches which were processed after being stored for varying amounts of time, from one day to six weeks. Latent prints were developed both on the inside of the fingers of the gloves as well as in the palm area, where a print was placed by the participant after removing the glove. Gloves from each batch were further divided into three different sub-groups which were processed by the different techniques. After processing, any results were given a rating of 0-3, with 0 being no results or only a fingermark present, 1 being small amounts of ridge detail present with or without the overall pattern visible, 2 being sufficient ridge detail to make an identification but without either or both 1st and 2nd level detail, and 3 being an identifiable print which has all three levels of detail. Results with a score of one or higher were photographed and reviewed a second time. The percentage of identifiable results produced was calculated for each technique along with the average rating over the course of the experiment.

The results of the experiment indicate that the cyanoacrylate with magnetic powder and the black gel lifter techniques produce comparable results, with the black gel lifter producing a slightly higher percentage of identifiable prints. The ninhydrin technique produced no identifiable prints in either of the finger and palm areas and consistently yielded much lower amounts of ridge detail than the other methods. Additionally, the amount of time the gloves were allowed to sit did not appear to affect the quality of the results, as prints with a score of three were developed in the six week group. The most important factors when it came to the quality of prints developed seemed to be the fit of the glove, with tighter fitting gloves producing better results.

Latent Prints, Latex Gloves, Fingerprint Analysis