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Developing Latent Fingerprints using Colored Superglue

By Roberto Alfaro
THE PREMISE OF THIS EXPERIMENT WAS TO DETERMINE HOW TO ACQUIRE A COLORED LATENT FINGERPRINT THROUGH FUMING TO SEE IF ADDING COLOR TO SUPER GLUE WOULD ENHANCE THE VISIBILITY AND DEFINITION OF FRICION RIDGES ON LATENT FINGERPRINTS. COLORED PRINTS ARE EASIER TO OBSERVE AND HAVE A GREATER POTENTIAL TO GLOW USING AN ALTERNATE LIGHT SOURCE (ALS). THE COLORED AGENTS THAT WILL BE INVESTIGATED ARE HIGHLIGHTER INK, VITAMIN B, AND LAUNDRY DETERGENT. THESE METHODS WERE TESTED ON NON-POROUS SURFACES OR POROUS ITEMS WITH A GLOSSY FINISH.

Materials and Methods:

- 12 Firearm cartridges (Four sets of 3)  
- Highlighter ink  
- Vitamin B powder capsule  
- Laundry detergent  
- Alternate light source (with orange filter)  
- Superglue  
- Superglue fuming chamber

Fingerprints were placed on all cartridge casings after being fired and discharged.

The first set of fired ammunition casings used the highlighter ink mixed with superglue. The second set four fired casings were treated with vitamin B, from a dietary capsule. These cartridges were superglue fumed and then dusted using the vitamin B powder. The third set used laundry detergent. The last set of casings served as the control and were superglue fumed only.

Each set of fired ammunition casings were processed separately according to the mixed substance. Cartridge casings were placed on the base of the fuming chamber containing the cup warmer with weigh boat, warm water and mixed substance.

Each set of experiments used three drops of mixed substance and five drops of superglue. Items were hung for 8-10 minutes to produce a better result. All 12 casings were processed through ALSs. Results were compared to the ridge quality grading system, as described in Figure 1.
Results and Discussion

The majority of the casings produced four levels of ridge detail: very few, some, good, and excellent. The casings processed with superglue and highlighter ink produced an excellent print, however the prints were not enhanced through the ALS. The cartridge casings processed with superglue produced a clearer result and enhanced visibility of the minutiae points found on the print. After the casings were processed with superglue and vitamin B produced some, good and excellent prints on the casings. Casings processed with superglue and laundry detergent did not produce quality prints because the liquid detergent was too thick to mix with superglue and, therefore, did not enhance prints through the ALS.

Conclusion

In general, the colored superglue produced a

FIGURE 2

Examples of the substances that mixed with the superglue with the intention of producing a colored fingerprint, but failed to effectively do so.
FIGURE 3
Image a depicts the cartridge casing treated with vitamin B after being superglue fumed under ambient lighting. Image b illustrates the developed fingerprint under alternate light sources.

mixed with vitamin B, they were dusted with the vitamin B powder, which produced the best friction ridge detail. In addition to enhanced visibility of latent fingerprints through the ALS.

Note for future latent fingerprint examinations

Vitamin B is environmentally safe and does not require protective equipment while processing evidence. In the case where fluorescent powder is not available during evidence collection and processing, vitamin B is inexpensive and available in most convenience stores without delaying the process of acquiring latent fingerprints.

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