



E1 The Detection of Latent Bloodstains Covered With Three Types of Current Top-Selling Paint/Primer Mixtures Using BlueStar®

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Learning Overview: After attending this presentation, attendees will better understand the effectiveness of using BlueStar® to detect latent bloodstains covered with up to seven layers of commonly sold paints available in retail stores throughout the United States.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by promoting a better understanding of the capabilities of BlueStar® in presumptively detecting the presence of human blood under one to seven layers of three commonly sold paint/primer combinations. Similar research has previously been completed; however, much of it is outdated and does not include paint/primer combinations commonly available at United States retail stores. Furthermore, most of the previous research involved the use of luminol, not BlueStar®, to detect blood.

Approximately .05mL of undiluted human blood was projected onto Gold Bond® ½" drywall samples in a manner to simulate impact spatter stains. The bloodstains were allowed to air dry for a minimum of 24 hours prior to painting. Four drywall samples were each painted with between one and seven layers of three of the most commonly sold paints within the United States: (1) Colorplace® Antique White Ultra interior paint plus primer; (2) Glidden® Warm Caramel interior paint plus primer; (3) Glidden® White Flat interior paint plus primer. Each layer of paint was allowed to air dry before the next layer was applied. BlueStar® was then applied, in total darkness, to the samples using a fine mist spray bottle. Results were photographed using a Nikon® D5200 Digital Single-Lens Reflex (DSLR) camera.

Chemiluminescence was observed upon application of BlueStar® in 83 of 84 samples. One of the Colorplace® Antique White samples covered with six layers of paint did not yield chemiluminescence upon application of BlueStar®. The intensity of the chemiluminescence was rated as medium or high in all samples with three or fewer coats of the paints. The intensity of the chemiluminescence gradually declined with the fourth, fifth, sixth, and seventh coats of paint.

Research has previously established the effectiveness of luminol in detecting latent blood that had been painted over; however, BlueStar® presumptive testing has been less studied. In addition, many of the previous studies resulted in inconsistent and variable results. Prior studies did not involve commonly sold paints currently available in retail stores and did not involve paint/primer combination mixtures. The focus of this study is to provide tangible results that relate to three of the top-selling, contemporary paint/primer mixtures sold by retail stores in the United States. Additional study recommendations include using BlueStar® to detect bloodstains painted over with additional layers of the paints used in this study, using diluted blood in a similar constructed study, and performing this study using different volumes of blood.

BlueStar®, Blood, Paint