You Missed a Spot: Accuracy of Luminol Chemiluminescence to Detect Blood at a Crime Scene using Concealment Techniques and Measurements of False Positives

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The purpose of this project is to find what circumstances and substances could luminol give a false positive result at a crime scene? Additionally, can blood residue be concealed, cleaned, or washed from the chemiluminescence? It is hypothesized that luminol will show a false positive reaction on substances, metals, and surfaces containing iron. Also, that surfaces sprayed with blood then cleaned or concealed will still test positive with luminol chemeluminscene. Additionally, that fabrics sprayed with blood then washed and dried will not test positive with luminol chemeluminscene. Various types of substances, metals, and surfaces were each sprayed with luminol to test for a false positive result. After concealing and cleaning synthetic blood with various products, they were sprayed with luminol to test for luminol chemiluminescence. Lastly, synthetic blood was applied to cotton samples then placed into groups to either be washed 1 time, 2 times, 3 times, or not washed at all. They were sprayed with luminol to test for luminol chemiluminescence. All luminol test were based on a scale of 0-5 of light emitted from the luminol chemiluminescence test. The first hypothesis was supported. Turnip pulp, parsnip pulp, horseradish pulp, and bleach were all found to be false positives. As well as copper, steel, black iron, and the unfinished edge of drywall. The second hypothesis was rejected. Mr. Clean, Oxy Clean, Kilz, and enamel gloss were able to hide blood from luminol. The third hypothesis was rejected. After all attempts of washing blood away, luminol chemiluminescence still took place.

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