



Criminalistics Section – 2006

B70 Color Analysis of Apparently Achromatic Paints by Visible Microspectrophotometry

Kristin A. Kopchick, MS, Drug Enforcement Administration, North Central Laboratory, 536 South Clark Street, Chicago, IL 60604; and Christopher R. Bommarito, MS, Michigan State Police Forensic Science Division, 7320 North Canal Road, Lansing, MI 48895*

After attending this presentation, attendees can expect to learn about the chromatic nature of modern achromatic automotive paints and implement visible microphotometric techniques into analysis schemes of this type of evidence.

This presentation will impact the forensic community and/or humanity by demonstrating research which applies currently employed techniques to evidence which was previously rarely examined in this manner. Incorporating a spectral analysis into achromatic automotive paint schemes will ideally reduce false inclusions and strengthen associations of known and questioned evidence. Improving the effectiveness of trace analyst conclusions in regards to paint evidence will positively affect the forensic science community.

Chromatic secondary pigments are utilized in achromatic automotive paints to create unique or enhanced paint systems. These pigments may or may not be observable in reflected light; however, by utilizing visible microspectrophotometry (MSP) discriminating data may be gathered. This presentation will present a study which analyzed 160 apparently achromatic automotive paints via polarizing light microscopy and visible MSP for visual and spectral evidence of secondary pigmentation. Positive spectral results were attained in the black and grey/silver topcoat sample set while the white topcoat and grey undercoat set yielded no spectral data. These results suggest that paint analysis schemes should incorporate visible microspectrophotometry for black and grey/silver samples. The presentation will review achromatic paint chemistry and experimental design along with instrumental parameters and results.

Visible Microspectrophotometry, Automotive Paint, Achromatic