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THERMAL DEGRADATION OF INK USING FTIR SPECTROSCOPY

Ink analysis plays a crucial role in forensic document examination by enabling the differentiation between genuine and counterfeit documents through the examination of ink composition and characteristics. This research investigates the effectiveness of Fourier Transform Infrared (FTIR) spectroscopy for the forensic characterization of ballpoint pen inks. Standard samples were prepared using various solvents and analysed to establish reference spectra. The study evaluates the impact of different drying methods for FTIR, examines the effects of temperature exposure on ink properties, and spectral differences between inks of various brands and batches. The results aim to enhance the detection of forgery, overwriting, and alterations, provide insight into the thermal degradation of inks, and improve the discrimination of ink types even in minimal or tampered samples. This spectroscopic approach demonstrates significant potential for advancing non-destructive, reliable, and reproducible ink examination in forensic science.
Keywords: Forensic document examination, Ballpoint pen inks, Fourier Transform Infrared Spectroscopy (FTIR), Forgery detection.

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