G58 Photographic Imaging of Handgun Gas Clouds Compared to Gunshot Residue Swabs

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After attending this presentation, the attendee will understand that a false negative result may be reported from gunshot residue analysis when ammunition with lead free primers are used.

This presentation will impact the forensic community and/or humanity by demonstrating why gunshot residue analysis is so non-specific when different ammunition is fired, even from the same weapon, and the possibility of a false negative result when lead free primer ammunition is used.

High speed photography is used to capture images of the gas/particle cloud emitted when firing full metal jacketed ammunition, hollow point ammunition and lead free primer ammunition from the same weapon, showing that similiar gas clouds are emitted. Gunshot residue analysis is performed by Scanning Electron Microscope and Induction Coupled Plasma screening (ICP).

Lead is typically one of three components reported in a GSR analysis. using ICP. When the type of ammunition primer is not known and lead free primer ammunition was used to fire the weapon, the results may represent a false negative.

This study calls attention to the fact that GSR analysis has many variables. The results may be skewed when lead free primer ammunition and full metal jacketed ammunition are used and false positives may result.

Handgun Gas Clouds, Gun Shot Residue Analysis, Lead Free Primers

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