

GUN SHOT RESIDUE ANALYSIS BY VARIABLE PRESSURE SEM-EDXA

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Crimes involving firearms are serious and the investigating efforts are challenging. In crimes involving firearms, Gun Shot Residues (GSR) ejected from a gun during its discharge form one of the crucial evidence. If GSR evidence is properly collected and correctly analyzed, this trace evidence can associate the suspect with the firing of the gun in question, identify the bullet hole on target material and estimate the range of fire. Though several established techniques based on qualitative and quantitative analysis of gun shot residues are available, the famous Aerospace Report of USA could demonstrate the importance of GSR Particle Analysis Technique using Scanning Electron Microscope coupled with Energy Dispersive X-ray Analyzer (SEM-EDXA) in the analysis of this vital evidence. This article is a short overview on detection and analysis of GSR with special emphasis on GSR Particle Analysis Technique. The subsequent developments of this technique like the introduction of Variable Pressure SEM-EDXA in the GSR analysis and its forensic significance are also discussed in this article. As the analysis of GSR particles using VP SEM-EDXA is different from the conventional method, analysis of GSR particles sampled from the hands of a suspect and examination of bullet hole on target material using VP SEM-EDXA are also studied and the findings are presented here.
