B129 Stable Isotopes of Explosives Provide Useful Forensic Information

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After attending this presentation, attendees will understand how the utility of stable isotope analyses adds additional useful information with respect to explosives investigations.

This presentation will impact the forensic community and/or humanity by providing information and case examples of a new and useful technique for the forensic science investigative community.

There are differences in the natural abundances of carbon, nitrogen, and oxygen isotopes in high explosives (HMX, RDX, PETN, and TNT) that make it possible to establish the relatedness of two or more explosive samples of identical chemical composition. In some cases there are sufficient differences in the isotope ratio composition of explosive compounds produced by different manufacturers that allow identification of the manufacturer or manufacturing process. The stable isotope ratio composition of explosive residues are closely related to that of the undetonated materials. The forensic application of stable isotope ratios in explosives is discussed through its application to a specific criminal case.

Explosives, Stable Isotopes, Terrorism

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