

The Isotope Fingerprints and What They Tell Us for Criminal Forensic Investigations

History can't hide from the Isotope Hunter. Forensic materials can be effectively examined by detecting their unique chemical signature—their isotope fingerprints. Trace your sample history with the Thermo Scientific™ Isotope Ratio Mass Spectrometry portfolio.

¹³Carbon

Interprets: Botanical processes, source rock geology, factory production processes/batch processes

Identifies: Human diet, travel and provenance, food label authenticity, tracing packaging, arson

Sample types analyzed: Bones, teeth, hair, nails, food, timber origin, oil, narcotics, cellotape, matchsticks

¹⁸Oxygen

Interprets: Local-regional rainfall, geographical area, factory production efficiency

Identifies: Human travel and provenance, narcotics, food and beverage authenticity and origin, tracing packaging, arson

Sample types analyzed: Bones, teeth, hair, nails, animal horn, narcotics, food and beverage, timber origin, explosives, matchsticks

¹⁵Nitrogen

Interprets: Nitrogen fixation, factory production processes

Identifies: Human diet, travel and provenance, food label authenticity

Sample types analyzed: Bones, teeth, hair, nails, food, explosives, oil, narcotics

³⁴Sulfur

Interprets: Bedrock uptake, atmospheric deposition and microbial activity in animal and human tissue

Identifies: Human diet and provenance, food origin

Sample types analyzed: Bones, teeth, hair, nails, food, timber origin, human and animal tissue, oil

²Hydrogen

Interprets: Local-regional rainfall, geographical area, factory production processes/batch processes

Identifies: Human travel and provenance, synthetic and narcotic origin, food and beverage authenticity, tracing packaging, arson

Sample types analyzed: Bones, teeth, hair, nails, animal horn, narcotics, timber origin, oil, matchsticks

Detecting ¹³Clues, tracking ¹⁸Origin, unraveling ²History with isotope fingerprints

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