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Nota di contenuto	FORENSIC CHEMISTRY HANDBOOK; CONTENTS; Preface; Contributors; 1. Forensic Environmental Chemistry; 1.1 Introduction; 1.2 Chemical Fingerprinting; 1.2.1 Hydrocarbon Mixtures; 1.2.2 Polycyclic Aromatic Hydrocarbons; 1.2.3 Biomarkers; 1.2.4 Additives; 1.2.5 Isotopes; 1.2.6 Tracers; 1.2.7 Methods of Detection; 1.2.8 Weathering; 1.3 Spatial Association of Environmental Incidents; References; 2. Principles and Issues in Forensic Analysis of Explosives; 2.1 Introduction; 2.2 Sample Collection; 2.3 Packaging; 2.4 Sorting; 2.5 Documentation; 2.6 Environmental Control and Monitoring; 2.7 Storage 2.8 Analysis2.9 Records; 2.10 Quality Assurance; 2.11 Safety and Other Issues; Conclusion; References; 3. Analysis of Fire Debris; 3.1 Introduction; 3.2 Evolution of Separation Techniques; 3.3 Evolution of Analytical Techniques; 3.4 Evolution of Standard Methods; 3.5 Isolating the Residue; 3.5.1 Initial Sample Evaluation; 3.5.2 ILR Isolation Method Selection; 3.5.3 Solvent Selection; 3.5.4 Internal Standards; 3.5.5 Advantages and Disadvantages of Isolation Methods; 3.6 Analyzing the Isolated ILR; 3.6.1 Criteria for Identification; 3.6.2 Improving Sensitivity

3.6.3 Estimating the Degree of Evaporation; 3.6.4 Identity of Source; 3.7 Reporting Procedures; 3.8 Record Keeping; 3.9 Quality Assurance; Conclusion; References; 4. Forensic Examination of Soils; 4.1 Introduction; 4.2 Murder and the Pond; 4.3 Oil Slicks and Sands; 4.4 Medical Link; 4.5 Examination Methods; 4.5.1 Color; 4.5.2 Particle-Size Distribution; 4.5.3 Stereo Binocular Microscope; 4.5.4 Petrographic Microscope; 4.5.5 Refractive Index; 4.5.6 Cathodoluminescence; 4.5.7 Scanning Electron Microscope; 4.5.8 X-Ray Diffraction; 4.6 Chemical Methods; 4.6.1 FTIR and Raman Spectroscopy; 4.7 Looking Ahead; References; 5. Analysis of Paint Evidence; 5.1 Introduction; 5.2 Paint Chemistry and Color Science; 5.2.1 Binders; 5.2.2 Pigments; 5.3 Types of Paint; 5.3.1 Automotive Finish Systems; 5.3.2 Architectural Coatings (Structural Paints or House Paints); 5.3.3 Other Coatings; 5.4 Paint Evidence Interpretation Considerations; 5.5 Analytical Methods; 5.5.1 Microscopic Examinations; 5.5.2 Physical Nature of the Transfer; 5.5.3 Microscopy; 5.5.4 Microspectrophotometry; 5.5.5 Infrared Spectroscopy; 5.5.6 Raman Spectroscopy; 5.5.7 Pyrolysis Gas Chromatography and Pyrolysis Gas Chromatography-Mass Spectrometry; 5.5.8 Elemental Analysis Methods; 5.5.9 Other Methods; 5.6 Examples; 5.6.1 Example 1; 5.6.2 Example 2; 5.6.3 Example 3; References; 6. Analysis Techniques Used for the Forensic Examination of Writing and Printing Inks; 6.1 Introduction; 6.2 Ink; 6.2.1 Ink Composition; 6.3 Ink Analysis; 6.3.1 Physical Examinations; 6.3.2 Optical Examinations; 6.3.3 Chemical Examinations; 6.3.4 Ink Dating; 6.4 Office Machine Systems; 6.4.1 Inkjet Ink; 6.4.2 Inkjet Ink Analysis; 6.4.3 Toner Printing; 6.4.4 Toner Analysis; Conclusion

Sommario/riassunto

A concise, robust introduction to the various topics covered by the discipline of forensic chemistry. The Forensic Chemistry Handbook focuses on topics in each of the major chemistry-related areas of forensic science. With chapter authors that span the forensic chemistry field, this book exposes readers to the state of the art on subjects such as serology (including blood, semen, and saliva), DNA/molecular biology, explosives and ballistics, toxicology, pharmacology, instrumental analysis, arson investigation, and various other types of chemical residue analysis. In addition, th
