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| Nota di contenuto | TRACE CHEMICAL SENSING OF EXPLOSIVES; CONTENTS; FOREWORD; PREFACE; ACKNOWLEDGMENTS; LIST OF CONTRIBUTORS; PART I FUNDAMENTAL CONSIDERATIONS; 1 CHEMICAL SENSING; 1.1 What Is Chemical Sensing?; 1.2 Types of Sensing Systems; 1.3 Sensing Possibilities; 1.3.1 Bulk Sensors; 1.3.2 Trace Sensors; 1.4 Aromas; 1.4.1 Biosensors; 1.4.2 Electronic Sensors; 1.4.3 Other Indirect Methods (Switch of Molecules); 1.4.4 Target Possibilities; 1.4.5 Sensitivity and the Problem of False Positives; 1.5 Configuring an Electronic Trace Sensor; 1.5.1 Required Elements; 1.5.2 Integration and Packaging 1.6 Issue of Concentration1.6.1 Nomenclature; 1.6.2 Source to Sample; 1.6.3 Catch, Count, and Release Cycle; 1.6.4 Sensor Sensitivity Versus Sampling Time; 1.6.5 The Concentration Gap; 1.6.6 Sensitivity Comparison; References; 2 WHAT TO DETECT?; References; 3 DANGEROUS INNOVATIONS; 3.1 Introduction; 3.2 Theory of Improvised Explosives; 3.3 History and the Anarchist Literature; 3.4 Fertilizer-Based IEs; 3.4.1 Ammonium Nitrate IEs; 3.4.2 Urea Nitrate; 3.5 Peroxide |

Explosives; 3.6 The Next Wave; 3.6.1 Improvised Detonators; 3.6.2 Peroxide Main Charges; 3.6.3 Fringe Mixtures; 3.6.4 On the Horizon References4 WHERE SHOULD WE LOOK FOR EXPLOSIVE MOLECULES?; 4.1 Introduction; 4.1.1 Where Did the Molecules Come from and How Did They Get Here?; 4.1.2 Objects Other Than Buried Landmines; 4.1.3 Questions That Beg for Answers; 4.2 Source of the Molecules; 4.2.1 How the Molecules Diffuse or Leak from a Munition; 4.2.2 Example of Landmines; 4.2.3 Other Munitions; 4.3 Transport of the Molecules; 4.3.1 Buried Sources; 4.3.2 Concentration Estimates from Buried Sources; 4.3.3 Other Environments; 4.3.4 Odor Plumes; 4.4 EF&T Implications for Search and Sampling Strategies; 4.4.1 Sources Buried on Land
4.4.2 Sources Producing Plumes4.5 Open Questions and Fruitful Areas for Future Research; 4.5.1 Objects Buried in the Sea Bottom; 4.5.2 Sampling Plant Material; 4.6 Role of Computer Modeling; 4.6.1 Soil Transport Models; 4.6.2 Plume Transport Models; 4.6.3 Plume Search Models; 4.7 Conclusions; References; 5 STRUCTURE OF TURBULENT CHEMICAL PLUMES; 5.1 Turbulent Mixing; 5.2 Instantaneous Structure; 5.3 Time-Averaged Characteristics; 5.4 Information for Tracking Chemical Odor Plumes; 5.5 Variation of the Plume Structure; Acknowledgments; References; PART II FIELD EXPERIENCE
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6.5.2 Tests of the Diver-Deployed SeaDog Sensor and Initial Integration to the REMUS

Sommario/riassunto

This timely book covers the most recent developments in the chemical detection of explosives in a variety of environments. Beginning with a broad view of the need for and the potential applications of chemical sensing, the book considers the issue of how to effectively include chemical sensing into systems designed to find hidden explosives devices. Offering a firsthand look at the latest technologies direct from those who are actively developing them, the book features:A look at the history of the field, including the contributions of recent programsA brief explanation of the chem