

SCIENTIFIC PUBLICATIONS AUTHORED BY ROBERT THOMAS			
Title	Author	Journal/Magazine	Publication Date
1. X-Ray Fluorescence (XRF): Theory, Practice and Applications	Robert Thomas	Technology Networks	February, 2025
2. Expanding the Panel of Heavy Metals in Cannabis Consumer Products Beyond the Big Four: Understanding the Cost Difference	Robert Thomas	Cannabis Science and Technology	December, 2024
3. Understanding Sources of Heavy Metals in Cannabis and Hemp Consumer Products: Is the Fractured Nature of State-based Regulations Ignoring the Evidence - Part 2	Robert Thomas	Cannabis Science and Technology	November, 2024
4. Inductively Coupled Plasma-Mass Spectrometry: What Factors Are Driving Its Application Landscape?	Robert Thomas	Technology Networks	October, 2024
5. Understanding Sources of Heavy Metals in Cannabis and Hemp Consumer Products: Is the Fractured Nature of State-based Regulations Ignoring the Evidence – Part 1	Robert Thomas	Cannabis Science and Technology	July, 2024
6. The Role of ICP-MS in Understanding 7. the Toxicological Link Between Lead Toxicity and Human Disease	Robert Thomas	Environmental Technology	January, 2024
8. The Conflicting Personality of Hemp	Robert Thomas	Fundacion CANN (Spanish cannabis news platform)	December, 2023
9. Ensuring High Data Integrity When Measuring Heavy Metals in Cannabis Consumer Products by ICP-MS: The Importance of Comprehensive Validation Procedures	Robert Thomas	Cannabis Science and Technology	December, 2023
10. 4 <sup>th</sup> Edition of Practical Guide to ICP-MS and Other Atomic	Robert Thomas	CRC Press	October, 2023

Spectroscopy Techniques: A Tutorial for Beginners - TEXTBOOK			
11. What the Cannabis Industry Should 12. Know About Plastic	Robert Thomas	Analytical Cannabis	July, 2023
13. What the Cannabis Industry Should Know About Glass	Robert Thomas	Analytical Cannabis	May, 2023
14. Understanding Sources of Heavy Metals in Cannabis and Hemp: Benefits of a Risk Assessment Strategy – WHITE PAPER	Tony Destefano and Robert Thomas	Analytical Cannabis	March, 2023
15. 40 Years Old and Still Solving Problems: Evolution of the ICP-MS Application Landscape	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	March, 2023
16. What the Cannabis Industry Should Know About Stainless Steel	Robert Thomas	Analytical Cannabis	October, 2022
17. The Role of ICP-MS in Understanding the Toxicological Link Between Lead Contamination in Cannabis and Hemp Consumer Products and Human Disease – WHITE PAPER	Robert Thomas	Technology Networks	March, 2022
18. Impact of Measurement Protocol on ICP-MS Data Quality Objectives: Part II	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	December, 2021
19. Expanding the Panel of Elemental Contaminants in Cannabis and Hemp 20. Consumer Products by ICP-MS: Do You Know the Cost Difference?	Robert Thomas	Analytical Cannabis	October, 2021
21. Impact of Measurement Protocol on ICP-MS Data Quality Objectives: Part I	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	October, 2021
22. The challenges of measuring heavy metals in cannabis vaping devices - WHITE PAPER	Robert Thomas	Technology Networks	September, 2021

23. Regulating Heavy Metals in Baby Food: The Challenges of Food Manufacturers and the FDA Being on the Same Page	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	July, 2021
24. Measurement of heavy metals in cannabis vaping aerosols: a practical assessment	Robert Thomas	European Pharmaceutical Review	April, 2021
25. Measuring Heavy Metal Contaminants in Cannabis and Hemp - TEXTBOOK	Robert Thomas	CRC Press	October, 2020
26. Multi-Quadrupole ICP-MS: Pushing Limits of Detection to the Next Decimal	Eve Kroukamp, Fadi, Abu-Shakra, Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	September, 2020
27. The Importance of Measuring Heavy Metals in Cannabis and Hemp Consumer Products – WHITE PAPER	Robert Thomas	Analytical Cannabis	June, 2020
28. Regulating Elemental Contaminants in Cannabis: What Can be Learned from the Pharmaceutical Industry	Robert Thomas	European Pharmaceutical Review	February, 2020
29. Heavy Metals Testing Protocols are Just Not Good Enough	Robert Thomas	Analytical Cannabis	November, 2019
30. Why the Cannabis Industry Needs to Get Better at Measuring Heavy Metals in Cannabis and Hemp	Robert Thomas	Analytical Cannabis	October, 2019
31. Measuring Heavy Metals in Cannabis by ICP-MS – WHITE PAPER	Lori Dodson, Robert Thomas, Ryan Brennan, Patti Atkins, Steve, Pappas, Lawrence Neufeld, Andrew Fornadel, Melissa Phillips, Laura Lawler	Technology Networks	October, 2019
32. Beyond Potency: The Importance of Measuring Elemental Contaminants in Cannabis and Hemp	Robert Thomas	Cannabis Science and Technology	September, 2019
33. The Impact of Illegal Artisanal Gold Mining on the Peruvian	Robert Thomas	Atomic Perspectives Column,	February, 2019

Amazon: Benefits of Taking a Direct Mercury Analyzer into the Rain Forest to Monitor Mercury Contamination		Spectroscopy Magazine	
34. The Critical Role of Atomic Spectroscopy in Understanding the Links Between Lead Toxicity and Human Disease	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	October, 2018
35. From Heavy Metals Testing to the Measurement of Elemental Impurities in Pharmaceuticals: Over 100 Years in Making the Change	Tony Destefano and Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	May, 2018
36. Choosing the Right Atomic Spectroscopic Technique for Measuring Elemental Impurities in Pharmaceuticals: A J-Value Perspective	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	March, 2018
37. Measuring Elemental Impurities in Pharmaceuticals: A Practical Guide - TEXTBOOK	Robert Thomas	CRC Press	Feb, 2018
38. Single Particle ICP-MS: A Key Analytical Technique for Characterizing Nanoparticles,	Chady Stephan and Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	May, 2017
39. Characterizing Fuel by Gas Chromatography: Making Sure that IndyCar Race Teams are Playing by the Rules	Robert Thomas	Petro Industry News	January, 2017
40. New Approaches in Sample Preparation and Precise Multi-Element Analysis of Crude Oils and Refined Petroleum Products Using a Single Reaction Chamber Microwave Digestion System Coupled with Triple Quadrupole ICP-MS.	John Casey, Yongjun Gao, Weighing Yang and Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	October, 2016
41. Optimization of EPA Method 325 for the Fast, Accurate, and	Lee Marotta, Jamie Brown, and Robert Thomas	Petro Industry News	September, 2016

Precise Monitoring of VOCs Around Oil Refinery Fencelines			
42. The Applicability of Field-Portable GC–MS for the Rapid Sampling and Measurement of High-Boiling-Point Semi volatile Organic Compounds in Environmental Samples	Tai Van Truong, Nathan L. Porter, Edgar D. Lee, and Robert Thomas	Current Trends in Mass Spectrometry	July, 2016
43. The Benefits of GC/MS Coupled with a Headspace Trap to Monitor Volatile Organic Compounds in the Production of Beer,	Lee Marotta and Robert Thomas	Chromatography Today	May/June, 2016
44. Money To Burn: Do you Know What is Costs to Run your Atomic Spectroscopy Instrumentation?	Robert Thomas	International Labmate	April, 2016
45. Extending the Hydrocarbon Range for the Analysis of Soil Gas Samples Using Automated Thermal Desorption Coupled with GC-MS	Lee Marotta, Stephan Varisco, Miles Snow, Tom Kwoka, Robert Thomas	LC/GC Magazine	March, 2016
46. Replacing Traditional Heavy Metals Testing with Modern Plasma-Based Spectrochemical Techniques	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	March, 2016
47. The Benefits of Single-Particle ICP-MS to Better Understand the Fate and Behavior of Engineered Nanoparticles in Environmental Water Samples	Chady Stephan, Robert Thomas	Spectroscopy Magazine, Environmental Issue,	October, 2015
48. Approaches to Maximize Performance and Reduce the Frequency of Routine Maintenance in ICP-MS	Ryan Brennan, Jerry Dulude, Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	October, 2015
49. Handheld X-ray Diffraction for Remote, Field-Based Applications	Robert Thomas	Atomic Perspectives Column, Spectroscopy Magazine	July, 2015
50. Determining Elemental Impurities in Pharmaceutical	Robert Thomas	Spectroscopy magazine: Atomic	March, 2015

	Materials: How to Choose the Right Technique		Perspectives Column	
51.	GC Ensures Integrity of Drinking Water in Fracking Locations	Lee Marotta and Robert Thomas	Chromatography Techniques	February, 2015
52.	Beginners Guide to ICP-MS	Robert Thomas	The Analytical Scientist	February, 2015
53.	Shifting the Landscape of Nanomaterial Measurement	Chady Stephan, Kevin Wilkinson, Robert Thomas	The Analytical Scientist	November 24, 2014
54.	A Single-Method Approach for the Analysis of Volatile and Semi Volatile Organic Compounds in Air Using Thermal Desorption Coupled with GC-MS	Lee Marotta, Roberta Provost, Robert Thomas	LC/GC	October, 2014
55.	The Use of Raman Spectroscopy for Forensic Applications	Robert Thomas and Katherine Bakeev	Spectroscopy Magazine Raman Supplement	June, 2014
56.	Technology Trends in Atomic Spectroscopy are Solving Real-World Application Problems	Robert Thomas	Spectroscopy Magazine	March, 2014
57.	The Benefits of Ion-Molecule Chemistry for the Determination of Titanium in Whole Blood and Serum Using Quadrupole-Based Collision-Reaction Cell ICP-MS Technology	David Price, Fadi Abou-Shakra, Lynne Jung, Christine Sieniawska, and Robert Thomas	Spectroscopy Magazine – Applications of ICP-OES and ICP-MS Supplement	November, 2013
58.	How to Select an ICP-MS System: Some Important Considerations,	Robert Thomas	Spectroscopy Magazine	November, 2013
59.	3 <sup>rd</sup> Edition of Practical Guide to ICP-MS: A Tutorial for Beginners - TEXTBOOK	Robert Thomas	CRC Press	October, 2013
60.	Collaboration Results in a Breakthrough Design of Desorption Tube For Soil Vapor Intrusion Analysis	Robert Thomas	Pollution Equipment News	October, 2013
61.	The Use of Raman Spectroscopy in Cancer Diagnostics	Robert Thomas, Katherine A. Bakeev, Michael Claybourn, and Robert Chimenti	Spectroscopy Magazine	September, 2013
62.	Practical Guide to ICP-MS: A Tutorial for	Robert Thomas	Publisher: CRC Press/Taylor	May, 2013

Beginners – 3 <sup>rd</sup> Edition		and Francis	
63. Miniature Spectrometer Designs Open New Applications Potential	Robert Chimenti and Robert Thomas	Laser Focus World	May, 2013
64. The Benefits of a High-Performance, Handheld Raman Spectrometer for the Rapid Identification of Pharmaceutical Raw Materials	D. Yang, Robert Thomas	American Pharmaceutical Review	December, 2012
65. Portable Raman for Raw Material QC: What's the Return on Investment?	E. Lozano Diz, Robert Thomas	Pharmaceutical Manufacturing	November, 2012
66. Field-Flow-Fractionation Coupled with ICP-MS for the Analysis of Engineered Nanoparticles in Environmental Samples	D. Mitrano, J. Ranville, K. Neubauer, Robert Thomas	Spectroscopy Magazine	September, 2012
67. Efficient Removal of Polyatomic Spectral Interferences for the Multielement Analysis of Complex Human Biological Samples by ICP-MS,	M. Hamster, R. Chemnitzer, P. E. Riss, A. Gaal, X. Wang, Robert Thomas	Spectroscopy Magazine	July, 2012
68. Optimization of an Analytical Method for the Determination of Trace Metals in Urine by ICP-MS Coupled with a Dynamic Reaction Cell	M. Powell-Hernandez, A. Maizel, Robert Thomas	Spectroscopy Magazine	January, 2012
69. Ensuring the Safety and Quality of Foodstuffs in China: The Role of ICP-MS	A. Ryan and Robert Thomas	Applications of ICP and ICP-MS Technologies for Today's Spectroscopist (Spectroscopy Magazine Supplement)	November, 2011
70. Analysis of Toxic Trace Metals in Pet Foods Using Cryogenic Grinding and Quantitation by ICP-MS (Part 2)	P. Atkins, W. Driscoll, L. Ernyei, R. Obenauf, Robert Thomas	Spectroscopy Magazine	February, 2011
71. Analysis of Toxic Trace Metals in Pet Foods Using Cryogenic Grinding and Quantitation by ICP-	P. Atkins, W. Driscoll, L. Ernyei, R. Obenauf, Robert Thomas	Spectroscopy Magazine	January, 2011

MS (Part 1)			
72. Comparison of Different Sample Preparation Procedures for the Determination of RoHS/WEEE Regulated Elements in Printed Circuit Boards and Electrical Components by Energy Dispersive X-Ray Fluorescence	J. E. Martin, L. Anderson Smith, G. Adjei-Bekoe, Robert Thomas	Spectroscopy Magazine	April, 2010
73. A Novel Sample Preparation Approach to Increase the Throughput of Pesticide Analysis by LC/MS/MS	J. McClory, R. Henze, K. Tucker, Robert Thomas	LC/GC	July, 2009
74. 2 <sup>nd</sup> Edition of Practical Guide to ICP Mass Spectrometry: A Tutorial for Beginners - TEXTBOOK	Robert Thomas	CRC Press/Taylor and Francis	June, 2008
75. Using ICP-MS for Environmental Trace Metal Detection	S. Richardson, Z. Grosser, Robert Thomas	Lab Manager	June, 2008
76. ICP-MS Plays a Vital Role in the Investigation of Lead Levels in a Public School System's Drinking Water Supply	S. Richardson, Z. Grosser, Robert Thomas	Controlled Environments	May, 2007
77. Optimization of a High Sample Throughput Method for the Determination of Trace Nutrients in Agricultural Soil Samples Using ICP-OES	C. Bosnak, D. Yates. Robert Thomas	Applications of ICP and ICP-MS Technologies for Today's Spectroscopist (Spectroscopy Magazine Supplement)	Oct, 2006
78. New Developments in Wavelength Dispersive XRF and XRD for the Analysis of Foodstuffs and Pharmaceutical Materials	R. Yellepedi, Robert Thomas	Spectroscopy Magazine	Sept, 2006
79. Advances in the Separation and Detection of Chromium, Arsenic and Selenium Species in Potable Waters Using HPLC and Dynamic Reaction Cell ICP-MS	K. Neubaur, W. Reuter, P. Perrone, Robert Thomas	Current Trends in Mass Spectroscopy (Spectroscopy Magazine Supplement)	May, 2006
80. Biodiesel: A Renewable and Biodegradable Fuel	M. Bowman, D. Hilligoss,	Hydrocarbon Processing	Feb, 2006



	S. Rasmussen, Robert Thomas		
81. Using Infrared Spectroscopy in Used Engine Oils - Estimating Base Number	D. Wooton, S. Barry, S. White, Robert Thomas,	Practicing Oil Analysis	Nov/Dec, 2005
82. Harsh Environments Dictate Design of Imaging Spectrometers	D. Bannon, Robert Thomas	Laser Focus World	Aug, 2005
83. On-Line Sampling of an ICP-MS to Monitor Semiconductor Chemicals	D. Palsulich, Robert Thomas D. Wiederin, K. Kawabata, Y. Kishi,	Semiconductor Manufacturing	July, 2005
84. Reducing the Impact of Spectral Interferences on the Determination of Precious Metals in Geological Matrices Using DRC-ICP-MS	S. Beres, L. Dione, K. Neubaur and Robert Thomas	Current Trends in Mass Spectroscopy	May, 2005
85. Preventative Maintenance Oil Analysis Program: A Cost-Effective Way to Optimize Performance and Reduce Machinery Down-Time	C. Tolas, D. Hilligoss, Robert Thomas	Plant Engineering	May, 2005
86. Using Dynamic Reaction Cell ICP-MS to Determine the Full Suite of Elements in Rainwater Samples	H. Gurleyuk, C Schneider, R Thomas	Spectroscopy	January, 2005
87. Meeting the Demands of the Next Generation of Hyperspectral Imaging Spectrometers	D. Bannon, Robert Thomas	Photonics Tech Brief	October, 2004
88. Reduction of Carbon-Based Interferences in Organic Compound Analysis by Dynamic Reaction Cell ICP-MS	Y. Kishi, K. Kawabata, H. Shi, Robert Thomas	Spectroscopy	September, 2004
89. 1 <sup>st</sup> Edition of A Practical Guide to ICP Mass Spectrometry - TEXTBOOK	Robert Thomas	Marcel Decker	January, 2004
90. An Optimized Sample Delivery Procedure Coupled with Chromatography Separation Techniques to Improve Protein Yield Measurements	R. Dunne, Robert Thomas	PharmaGenomics	October, 2003
91. The Benefits of	K. Kawabata, Y.	Analytical	October, 2003

Dynamic Reaction Cell ICP-MS for the Analysis of Semiconductor Materials	Kishi, Robert Thomas	Chemistry	
92. Achieving High Trace Metal Purity Levels Using DRC ICP-MS	C. M. Ping, Y. Kishi, K. Kawabata, Robert Thomas	Micro	April, 2003
93. The Benefits of DRC ICP-MS for the Analysis of High Purity Sulfuric and Phosphoric Acid	K. Kawabata, Y. Kishi, Robert Thomas	Spectroscopy	January, 2003
94. A Statistical Approach to Reporting Uncertainty on Certified Values of Chemical Reference Materials	M. Kocherlakota, R. Obernauf, Robert Thomas	Spectroscopy	September, 2002
95. Physiomics and Drug Discovery	Robert Thomas	Modern Drug Discovery	July, 2002
96. Implementing Enhanced ICP-MS Technology to Attain SEMI Grade 5 Purity Levels	J. M. Collard, K. Kawabata, Y. Kishi, Robert Thomas	Micro Magazine	January, 2002
97. Determining the Link between Trace Elements and Human Disease	Robert Thomas	Today's Chemist at Work	January, 2002
98. A Beginner's Guide to ICP-MS - Part 1: Fundamentals of ICP-MS	Robert Thomas	Spectroscopy	April, 2001
99. A Beginner's Guide to ICP-MS - Part 2: The Sample Introduction System	Robert Thomas	Spectroscopy	May, 2001
100. A Beginner's Guide to ICP-MS - Part 3: The Plasma Source	Robert Thomas	Spectroscopy	June, 2001
101. A Beginner's Guide to ICP-MS - Part 4: The Interface Region	Robert Thomas	Spectroscopy	July, 2001
102. A Beginner's Guide to ICP-MS Part 5: The Ion Focusing System	Robert Thomas	Spectroscopy	September, 2001
103. A Beginner's Guide to ICP-MS - Part 6: The Mass Analyzer - Quadrupole Technology	Robert Thomas	Spectroscopy	October, 2001
104. A Beginner's Guide to ICP-MS - Part 7: The Mass Analyzer - Double Focusing Magnetic Sector Technology	Robert Thomas	Spectroscopy	November, 2001

105.A Beginner's Guide to ICP-MS - Part 8: The Mass Analyzer - Time of Flight Technology	Robert Thomas	Spectroscopy	January, 2002
106.A Beginner's Guide to ICP-MS - Part 9: The Mass Analyzer - Collision/Reaction Cell Technology	Robert Thomas	Spectroscopy	February, 2002
107.A Beginner's Guide to ICP-MS - Part 10: Detectors	Robert Thomas	Spectroscopy	April, 2002
108.A Beginner's Guide to ICP-MS - Part 11: Peak Measurement Protocol	Robert Thomas	Spectroscopy	July, 2002
109.A Beginner's Guide to ICP-MS - Part 12: A Review of Interferences	Robert Thomas	Spectroscopy	October, 2002
110.A Beginner's Guide to ICP-MS - Part 13: Sampling Accessories (1)	Robert Thomas	Spectroscopy	November, 2002
111.A Beginner's Guide to ICP-MS - Part 13: Sampling Accessories (2)	Robert Thomas	Spectroscopy	February, 2003
112.A Beginner's Guide to ICP-MS Wall Poster	Robert Thomas	Spectroscopy	Feb, 2001
113.A Solid Sampling Tool Finally Reaches Maturity: What Drove the Development of Laser Sampling for Atomic	T. Howe, J. Shkolnik, R. Myers, Robert Thomas	Spectroscopy	Feb, 2001
114.Recent Developments in LC-MS-MS for the Identification and Measurement of Nanoscale Amounts of Proteins and Peptides	Robert Thomas	Spectroscopy	January, 2001
115.Oil Analysis Prevents Paralysis: Monitoring Engine Lubrication Can Help Avoid Wear and Breakdown	Robert Thomas	Today's Chemist at Work	October, 2000
116.Money to Burn: Consider What it Costs to Run Your Trace Element Analysis	Robert Thomas	Today's Chemist at Work	September, 2000
117.Early Detection of Cervical Cancer	Robert Thomas	Modern Drug Discovery	July/August 2000
118.Beta Test Site Proves Mass Spec's Mettle	Robert Thomas	Today's Chemist at Work	February, 2000
119.Choosing the Right	Robert Thomas	Today's	October, 1999

Trace Element Technique		Chemist at Work	
120. An Overview of Clinical Applications by Inductively Coupled Plasma Mass Spectrometry	E. Pruszkowski, K. Neubaur, Robert Thomas	Atomic Spectroscopy	July/August, 1998
121. Uses and Applications of Inductively Coupled Plasma Mass Spectrometry in the Petrochemical Industry	F. McElroy, Robert Thomas	Spectroscopy	February, 1998
122. A New Approach to Extending the Dynamic Range in ICP Mass Spectrometry	E. Denoyer, L. Cousins, Robert Thomas	Spectroscopy	February, 1997
123. Benefits of a Dual-View ICP-OES for the Determination of Boron, Phosphorus and Sulfur in Low Alloy Steels	M. Duffy, Robert Thomas	Atomic Spectroscopy	May/June, 1996
124. Determining Critical Trace Elements in High Purity Hydrochloric Acid by ICP-MS Alone	T. Jacksier, T. Gluodennis, Robert Thomas	Microcontamin ation	March, 1996
125. Benefits of a Microconcentric Nebulizer for the Multielement Analysis of Small Sample Volumes by ICP-MS	T. Gluodennis, Robert Thomas	Atomic Spectroscopy	September/October, 1995
126. Relying on ICP-MS for Routine Analysis	K. Foster, Robert Thomas	Environmental Laboratory	February/March , 1994
127. The Benefits of ETV for Minimizing Interferences in ICP-MS	S. Beres, E. Denoyer, Robert Thomas	Spectroscopy	January, 1994
128. The Benefits of a Multiparameter Optimization Algorithm for the Analysis of Difficult Samples by ICP-OES	J. Collins, Robert Thomas	Spectroscopy	February, 1990
129. Use of a Commercial Software Package with ICP-OES to Report Inorganic CLP Data to the US EPA	Robert Thomas, C. Anderau	Atomic Spectroscopy	November/December, 1989
130. Comparison of a Pumped Drain System with a Conventional Drain on the Perkin-Elmer Plasma II ICP-OES	Robert Thomas	Atomic Spectroscopy	May/June, 1989

131.Evaluation of an Ultrasonic Nebulizer Using a Sequential ICP	Robert Thomas, D. Yates	Atomic Spectroscopy	March/April, 1989
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