

# Instrumental Methods for Pharmaceutical Trace Metals Analysis

Location: Your Computer Offering # 0908-702 Priority Code: 520

This course presented by CfPA in conjunction with



and

**PFQ**

## WHO SHOULD ATTEND

This course is intended to help pharmaceutical professionals evaluate, select and employ spectrometric instruments for robust, unambiguous metals analyses. Metallic elements can occur as designed-in cationic or anionic components of the API, impurities, adulterants or as potential health hazards. Selecting an appropriate analytical method depends on the need for identification, concentration or location. Selection also includes the need for speed of analytical response and site compatibility. Personnel who will benefit from the course include:

- Formulators
- Quality program managers & analysts
- New product developers
- Production managers
- Scale-up pharmacists
- CAPA and Root Cause Analysis personnel
- Quality-by-Design (QbD) teams
- In-process analysts
- Product release analysts
- Process-Analytical Technology (PAT) teams
- Technology transfer personnel

## LEARNING OBJECTIVES

After participating in this course, you will be able to:

- Choose an analytical method based on sampling and dosage form type
- Evaluate and control potential test-method interferences
- Learn to use site-specific metals analysis
- Accommodate disparate dosage form structures, such as coatings
- Assure appropriate sensitivity, linearity and sample-matrix contribution

## COURSE DESCRIPTION

This 90-minute **accredited** online course examines the presence and form of metals found in pharmaceutical drug products. Each condition calls for a distinct instrumental method in order to provide identification, concentration and in some cases, location of the metal of interest. The course addresses the physics underlying ICP-MS, LIBS, Atomic Absorption and Fluorescence, as well as wet methods. Following selection principles, the material includes guidelines for sampling, data reduction and interpretation.

### Module 1:

- Pharmaceutical trace metals in their various forms
- Sensitivity and response groups for metal classes
- Dispersion of metals in dosage forms
- Spectrometric vs. chemical identification

### Module 2:

- Atomic absorption: simple, non structural, sensitive, wet reagents
- LIBS: Simple, sensitive, structural response, no reagents
- ICP-MS: Sensitive, relates to the molecular moiety, sophisticated
- Considering matrix and reagent effects

### Module 3:

- Reducing test data to information
- Enhancing information with multivariate analysis
- Relating results to the "big picture"
- Method selection matrix

### Question and Answer Session

## TUITION AND REGISTRATION

**TUITION\*** – **Single Rate:** U.S. \$295.00 per person **Group Rate:** U.S. \$245.00 per person\*\*

Register at [www.cfpa.com](http://www.cfpa.com). Enter **Course Offering #0908-702** into **Quick Jump**. To register use **Priority Code: 520**.

For Questions and Information call Customer Service at 732-613-4500.

**Please Note:** Multiple participants are not authorized to share access provided to a single registrant, a single dedicated seat license must be purchased for each individual. CfPA reserves the right to cancel access or collect the group rate payment if this requirement has been violated. Only registered participants will receive accreditation.

For more information see reverse side ➡



**CfPA**

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## COURSE DIRECTOR

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**John E. Carroll**, C.Ph.C., President, Carroll Ventures, Inc., Managing Partner, Cadrai Technology Group

John E. Carroll is Managing Partner, Cadrai Technology Group and President, Carroll Ventures, Inc. The Cadrai Technology Group develops and presents focused training programs for issues germane to the current needs of the pharmaceutical industry including small-molecule, biologic and nutraceutical preparations. Cadrai has an equally strong focus in both training and business development for the analytical instrument industry. Among Cadrai successes are: ion-mobility spectrometry for cleaning verification, NIR dedicated to tablet & capsule analysis, laser-induced breakdown spectroscopy, chemical imaging and automated dissolution.

As Pharmaceutical Business Unit Manager for Perstorp Analytical Instruments (now Foss), Mr. Carroll built a global, sustainable business that saw over 8,000 NIR test instruments placed within the pharmaceutical manufacturing industry.

Mr. Carroll has a B.A.S in Engineering Technology/Chemistry, an M.B.A. (c) in International Marketing, sixty publications and numerous technical presentations. He is the author of "The NIR Desk Reference" (Carroll, He and Landa) and "The Handbook of FTIR" (Carroll). He is also the editor of "IR-MS: High sensitivity and selectivity for organic analysis" (Mattson and Carroll). Professional memberships include AAPS, ACS, CNIRS and ISPE.

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## ACCREDITATIONS

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The Center for Professional Advancement has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 8405 Greensboro Drive, Suite 800, McLean, VA 22102. In obtaining this approval, The Center for Professional Advancement has demonstrated that it complies with the ANSI/IACET Standards which are widely recognized as standards of good practice internationally. As a result of their Authorized Provider membership status, The Center for Professional Advancement is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standards.

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## WHO WE ARE

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The Center for Professional Advancement (CfPA) is the largest accredited technical training organization in the world with a curriculum of approximately three hundred and fifty short courses in 18 industries including Pharmaceutical, Biotechnology, Medical Device, Chemical, Cosmetics, Food and more.

Since our founding in 1967, we have successfully trained nearly a half million people worldwide in topics ranging from basic and introductory concepts to new advances and cutting-edge technology, and current U.S. and European regulations. CfPA courses are offered in a variety of formats – Public offering, Client Site and Online – to fit you or your company's training needs.

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## ABOUT WILEY-BLACKWELL

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Wiley-Blackwell was formed in February 2007 as a result of the acquisition of Blackwell Publishing Ltd. by John Wiley & Sons, Inc., and its merger with Wiley's Scientific, Technical, and Medical business. Together, the companies have created a global publishing business with deep strength in every major academic and professional field. Wiley-Blackwell publishes approximately 1,400 scholarly peer-reviewed journals and an extensive collection of books with global appeal. For more information on Wiley-Blackwell, please visit [www.blackwellpublishing.com](http://www.blackwellpublishing.com) or <http://interscience.wiley.com>.

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## COURSES OF INTEREST

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- **Active Pharmaceutical Ingredients**  
course ID# 840
- **Near Infrared Spectroscopy**  
course ID# 1583
- **Pharmaceutical Risk Management Tools: Getting the Most Out of ICH Q9**  
course ID# 2158
- **Real World Approaches to PAT and QbD Implementation**  
course ID# 2085
- **Quality Systems Integration Strategies**  
course ID# 2322
- **Key PAT Concepts: Focus on Design of Experiment –An Online Course**  
course ID# 2304
- **Key PAT Concepts: Focus on Desired State –An Online Course**  
course ID# 2305
- **Key PAT Concepts: Focus on Design Space –An Online Course**  
course ID# 2289

### ABOUT ON-DEMAND:

Our pre-recorded on-line training courses are available for viewing at your convenience at your computer. Register for a CfPA on-demand course, your registration will be processed within two (2) business days, after payment and registration are complete you will receive an email from [olinetraing@cfpa.com](mailto:olinetraing@cfpa.com) with your password to access the on-demand course. You will have two (2) business days to view the course. You MUST complete all polls and the course evaluation to receive your accreditation certificate for this course.

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## TERMS AND CONDITIONS

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**\*Payment:** Tuition payable in US funds net of all charges. Payment is due at time of registration in the form of a credit card. Please contact CfPA's Customer Service for other payment options.

**\*\*Group Rate:** The Group Rate is for two or more enrollments, up to five registering from the same company at the same time. For groups of six or more, please contact Customer Service for group pricing.

**Cancellations/No Show:** "Live"- Registrants may cancel up to two working days prior to the course start date and will receive a letter of credit to be used towards a future course up to one year from date of issuance. No credit will be issued for no-shows and/or cancellations less than two working days prior to the course. : "On-Demand"- No refund or credit will be issued for no-shows and/or cancellations of on-demand training courses. CfPA is not responsible for any outside related costs incurred by registrant's cancellation.