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Publisher *Taylor & Francis*

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## International Journal of Environmental Analytical Chemistry

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713640455>

### Information

To cite this Article (1979) 'Information', International Journal of Environmental Analytical Chemistry, 6: 4, 335 – 339

To link to this Article: DOI: 10.1080/03067317908081225

URL: <http://dx.doi.org/10.1080/03067317908081225>

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## Information

CRC HANDBOOK OF CHEMISTRY AND PHYSICS, 59TH EDITION, edited by Robert C. Weast, Ph.D., Vice President, Research, Consolidated Natural Gas Service Co., Inc. Published July, 1978, the handbook contains 2512 pages, 7 × 10, ISBN-0-8493-0459-8.

With accumulated scientific information growing larger and more difficult to manage every day, scientists throughout the world find the *CRC Handbook of Chemistry and Physics* the one bright star in a universe cluttered with facts, figures and tables of all descriptions and degrees of reliability.

Often called the "bible" of the sciences, this handbook packs more important and reliable data between two covers than any other publication of its kind. Data are indexed by primary, secondary and tertiary categories to help you quickly find what you need, when you need it, in one handy volume.

Through tireless efforts of the editor and hundreds of advisors, collaborators and contributors, much information in the 59th edition has been extensively revised. This includes: 55 pages of chemical elements, a new table of lattice energies, an up-dated bond strength table featuring the addition of 80 diatomic molecules, 133 pages of tables of line spectra for 96 elements, transition probability tables for atomic and ionic species and new information on the limits of human exposure to toxic and hazardous substances.

(release CRC Press Inc.)

### THE FINNIGAN INSTITUTE ANNOUNCES A COURSE ON: ANALYSIS OF ORGANIC COMPOUNDS IN WATER.

#### ABOUT THIS COURSE

This course provides the training necessary to *identify* and *quantify* organic contaminants in water samples. The course was developed by Battelle's Columbus Laboratories to cover currently accepted procedures for the analysis of priority pollutants in industrial water effluents as well

as newer methods which show promise of providing improved sensitivity and specificity for analysis of organic contaminants in environmental water supplies. At least 2/3 of the training time is devoted to "hands-on" laboratory analysis. The ratio of participants to instructors does not exceed 4:1 in order to provide individual attention and to permit each participant to work at his own pace.

The course covers the full range of laboratory operations: from the removal of organic contaminants in the water samples through the interpretation of the analytical data acquired on individual contaminants. Sample collection techniques are dealt with only to point out some of the problems that can arise as a result of poor sample collection methods and storage procedures. Lectures on theoretical concepts are included to the extent that they are considered necessary for the understanding of laboratory operations. Throughout the course, heavy emphasis is placed on the importance of quality assurance in such matters as (a) the need to include an adequate number of sample blanks and reference standards, (b) the importance of daily evaluation of instrument performance, and (c) the use of internal standards to monitor extraction recoveries.

Primary attention is given to combined gas chromatography/mass spectrometry and its dedicated data system (GC/MS/DS). This methodology constitutes the most sensitive and versatile method for the identification and quantitation of organic constituents in samples obtained from the environment. Computer and manual methods of matching unknown spectra to reference spectra are used in the laboratory with little time devoted to the interpretation of the spectral data in terms of ion-fragmentation processes. The applications of high performance liquid chromatography/mass spectrometry (LC/MS) as well as positive and negative ion chemical ionization mass spectrometry are covered.

A course manual is included to complement the information provided in the lectures and to serve as a guide for the laboratory experiments. The manual contains instructions necessary for the basic computer operations involved in acquiring and processing GC/MS data. An extensive bibliography of reference material and reprints of key technical papers are also included.

#### WHO SHOULD ATTEND

This course is designed for persons involved in the analysis of organic pollutants in water. To gain the maximum benefit from the course, the participant should have a basic understanding of chromatography and mass spectrometry and should have had some "hands-on" experience with GC and GC/MS instrumentation. The course is also valuable for those whose analytical training predates the availability of modern instrumentation. This

course can provide managers and supervisors of analytical laboratories a better understanding of modern techniques and the problems encountered by the personnel with whom they collaborate.

A valuable feature of the course is the exchange of ideas and experiences among participants and instructors who face similar problems in their work.

### COURSE OUTLINE

1. Removal and concentration of organic compounds in water: liquid/liquid extraction; purge and trap; direct absorption on a solid; direct aqueous injection.
2. Sample fractionation: separation by extraction; liquid chromatography.
3. Sample derivatization.
4. Uses for internal standards; quantitation.
5. Gas chromatography: packed columns; capillary columns.
6. Mass spectrometry: electron impact; chemical ionization.
7. GC/MS/DS.
8. Analysis of data.
9. Analysis of water samples by each participant: identification and quantitation of organic contaminants.

### FACILITIES

Chromatography, GC/MS/DS, and wet laboratories are available for this course. The chromatography laboratory contains 4 GC and 3 HPLC instruments with computerized data acquisition and reduction. Four GC/MS/DS systems are located in the mass spectrometry laboratory. The wet laboratory has hood and bench space, extraction and concentration apparatus, glassware, solvents, reagents, etc.

The comfortable classrooms contain the latest available audio-visual equipment, and the library is stocked with journals and books which can be used as references to the literature of environmental analysis. The Institute's excellent staff and facilities are devoted to providing high quality training in pleasant surroundings conducive to learning and to the exchange of information.

### INSTRUCTORS

The course is conducted by a team of instructors headed by Dr. Rodger L. Foltz and Dr. Denis C. K. Lin of Battelle's Columbus Laboratories.

Other course instructors include Battelle scientists, Dr. Gregory A. Jungclaus, Dr. Sam V. Lucas, Dr. Bruce A. Petersen, and Dr. Lawrence E. Slivon, as well as members of the Finnigan Institute staff.

Dr. Rodger L. Foltz is Senior Research Leader of the Organic, Analytical, and Environmental Chemistry Section at Battelle's Columbus Laboratories. He is also associated with the Ohio State University as Adjunct Associate Professor in the Department of Pharmacology. Dr. Foltz obtained his Ph.D. Degree in Organic Chemistry at the University of Wisconsin and a B.Sc. Degree in Chemistry at the Massachusetts Institute of Technology.

During the past few years, Dr. Foltz's major research interests have been the development of analytical methods for quantitation of drugs and metabolites in biological media and the application of GC/MS to the analysis of environmental pollutants. Dr. Foltz has made substantial contributions to the development of chemical ionization mass spectrometry and its application to biomedical problems. The National Institute of Health Mass Spectrometry Center at Battelle was established under his direction.

Dr. Denis C. K. Lin is Associate Section Manager of the Organic, Analytical, and Environmental Chemistry Section at Battelle's Columbus Laboratories. He obtained his Ph.D. and B.Sc. degrees in the Department of Chemistry at the University of Manitoba. Dr. Lin is currently leading a team of experts in the analysis of organic compounds in water extracts. This work is being done under contract with the Environmental Protection Agency. He also has expertise in glass capillary column gas chromatography and has applied his knowledge to increase the sensitivity in the qualitative and quantitative analysis of trace amounts of organic materials in environmental samples. His activities in the identification of toxic impurities in technical grades of pesticides, the application of mass spectrometry in biomedical research, etc., have led to innovative approaches for solving a variety of analytical problems.

#### 1979 SCHEDULE FOR PRESENTATION OF "ANALYSIS OF ORGANIC COMPOUNDS IN WATER, PARTS I AND II"

This two-week course is now offered in two parts which can be taken separately. One week (Part I) features laboratory training in the currently accepted procedures for the analysis of priority pollutants, and the other week (Part II) features newer methods which show promise of improving the scope, sensitivity, specificity, and/or cost-effectiveness of the analyses. The fee is \$750 per week.

## Part I (currently accepted procedures):

<i>Date</i>	<i>Course No.</i>
May 14-18	1005 (I)
September 10-14	1009 (I)
November 26-30	1011 (I)

## Part II (newer methods):

<i>Date</i>	<i>Course No.</i>
May 21-25	1005 (II)
September 17-21	1009 (II)
December 3-7	1011 (II)

Total enrollment is limited by the amount of instrumentation available in the laboratories. To have a space held for you, please call or write:

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