

SENIOR ENVIRONMENTAL CHEMIST
(CHROMATOGRAPHY-MASS SPECTROMETRY)

DISTINGUISHING FEATURES OF THE CLASS: Under the general supervision of the Chief-Environmental Laboratory Services, the incumbent in this class organizes and directs the activities of a specialized area of organic environmental chemistry. This position is directly responsible for the coordination of all operations concerning the gas chromatography-mass spectrometer-data system, peripheral equipment and instrumentation including programming and program modification, data system manipulation, tuning and sensitivity, sample and data quality control, preventive maintenance repairs and workload assignments. Incumbents perform advanced environmental examinations as well as coordinating and conducting independent research of new and improved procedures and methods for increased sensitivity and specificity. Incumbents must maintain a satisfactory rating of performance by the New York State Department of Health for those procedures for which approval has been granted to the laboratory. Does related work as required.

EXAMPLES OF WORK: (Illustrative Only)

General:

Assists in preparing environmental laboratory budget requests by identifying needs; gathering and compiling appropriate justifications; evaluating new instrumentation and equipment as to its applicability for environmental laboratory organic work;

Responsible for overseeing installation of new equipment and instrumentation as well as to its implementation for laboratory uses;

Provides consultation and advice to local health department personnel, local water company personnel, private companies and private individuals regarding sampling and analyses programs;

Directs and participates in training personnel in the organic laboratories;

Assures the maintenance of procedure manuals, quality control manuals, and instrument manuals;

Assures the maintenance of statistical data in a manner that will facilitate orderly storage and retrieval;

Responsible for the daily, monthly and other reports requested from the organic laboratory;

Directs and participates in analyzing quality assurance samples as mandated by federal and state guidelines to maintain laboratory certification;

May be required to give expert testimony in court or before other administrative hearings regarding results and methodology;

EXAMPLES OF WORK: (Illustrative Only) (Cont'd.)

Responsible for maintaining N.Y.S. laboratory approval for those parameters for which approval has been granted to the organic laboratory;

Maintains the Gas Chromatography-Mass Spectrometer-Data System

Plans, directs and participates in the operation of the GC/MS/DS which includes tuning of the mass spectrometer, preparation and verification of working multi-point calibration curves, sample purge and extraction procedures;

Conducts GC/MS performance tests, column performance tests, internal and external standard calibration procedures, use of surrogate standards, isotope dilution methods, relative response factors, mass spectral interpretation, data acquisition of mass spectra, building and use of mass spectra libraries, search and reverse search of MS libraries, and data processing software to search, locate, identify, compute retention time and peak areas, quantify and generate reports.

Organic:

Plans, directs, coordinates and participates in researching, developing and initiating new, approved and improved methods for use in the pretreatment of water, wastewater, fish tissue, soil, sediment and other related environmental samples to remove interference and to improve sensitivity and specificity;

Directs, plans and initiates protocols for submitting samples to the laboratory, accessioning samples and the recording and reporting of results.

Chromatography:

Directs the utilization of the gas chromatographs and the interfacing of them to detectors, detectors to records, instrument to purging devices and detectors to integrators; evaluates column supports and coating materials; determines instruments operating parameters;

Reviews samples and sample extractions prior to instrumental chromatographic analysis for organic parameters such as pesticides, herbicides, trihalomethanes, and toxic substances;

Participates in the identification and quantitation of chromatographs.

REQUIRED KNOWLEDGE, SKILLS, ABILITIES AND ATTRIBUTES: Thorough knowledge of the principles, practices, techniques, procedures and applications of environmental organic chemistry; thorough knowledge of the theory and practice of liquid chromatography, gas chromatography and mass spectrometry; a high degree of technical competence as well as a demonstrated ability in the operation and maintenance of a modern GC/MS quadrupole system; good knowledge of computer systems and languages used in the acquisition, processing and quantitation of mass spectral data; good knowledge in mass spectral interpretation and identification; ability to trouble-shoot the GC/MS/DS located in the environmental organic chemistry laboratory; good knowledge of basic statistical calculations as they apply to environmental chemistry; good knowledge of federal, state and local laws, rules, regulation and policies as they apply to the operation of the environmental laboratory; ability to plan and conduct independent professional scientific research to improve laboratory methods and procedures and prepare comprehensive reports of findings and recommendations; ability to plan, organize and supervise the utilization and work assigned professional and technical laboratory personnel; ability to understand, follow and explain technical guidelines; ability to communicate effectively both orally and in writing; ability to follow detailed oral and written instructions; accuracy; thoroughness; dependability; initiative; judgment; integrity; physical condition commensurate with the demands of the position.

MINIMUM ACCEPTABLE TRAINING AND EXPERIENCE: A Bachelor's Degree* in Chemistry or a Biological Science which must have included twenty credits in Chemistry and either: (a) a Ph.D.* in Organic Chemistry and three years of professional environmental organic chemistry laboratory or closely related organic chemistry experience in instrumentation and methodology in a recognized laboratory including at least two years of hands-on experience with a Gas chromatography-Mass spectrometer-data system and two years in a supervisory position; or (b) a Master's Degree* in Chemistry, Environmental Engineering or related field and four years experience as stated in (a), including the two years specialized experience and two years supervisory experience; or (c) six years experience as stated in (a), including the two years of specialized experience and two years supervisory experience.

*SPECIAL NOTE: Education beyond the secondary level must be from an institution recognized or accredited by the Board of Regents of the New York State Education Department as a post-secondary, degree-granting institution.