

CHEMISTRY TECHNICIAN III

This is advanced level technical support work in a chemistry laboratory or field operation performing a wider range of both routine and non-routine tasks and duties, including the responsibility for a moderately sized technical function or project.

Employees perform continuing assignments that include some general objectives, priorities and deadlines, and receive assistance on unusual or very difficult situations. Work includes some use and application of chemical theory to evaluate and interpret the results of their quantitative and qualitative analyses. Employees are expected to recognize unanticipated or unusual reactions and to conduct a limited analysis to determine the cause and significance of the reaction. Work also includes operating and calibrating a variety of laboratory instruments and equipment that often requires fairly frequent adjustment during operation; making moderate repairs to a variety of laboratory equipment and instrumentation including some of the more complex instruments, performing range of both standard and non-standard wet or instrumental methods and procedures including some fairly complex tests on occasion; and preparing samples, reagents, standard solutions and quality control test samples as necessary. Methods, procedures and tests performed include a wide ranging combination of titration, gravimetric, volumetric, colorimetric, IR, UV and visible spectroscopy, extractions and other documented methods and tests including the more complex procedures such as atomic absorption spectroscopy or gas, liquid, ion or thin layer chromatography. Samples used are often in minute or very difficult to work with concentrations and may have substances that react or interfere with the reagents or with each other during analysis. Work normally includes instructing and training lower level technicians in methods, procedures, techniques and some chemical theory. Employees have a significant portion of their work reviewed for technical accuracy and for conformance to established policy and requirements but usually not for the methodology used. They may choose guides and references from a fairly wide variety of generally established procedure, methodology and instrument manuals, and evaluate, adapt and make minor deviations, modifications or extensions to these procedures as necessary. Employees may provide work direction and review to lower level technicians and may testify in court as a technical witness. Work may include other duties and responsibilities as assigned.

I. DIFFICULTY OF WORK:

Complexity - Employees conduct a fairly wide variety of both standard and non-standard wet or instrumental procedures including some complex methods. Instrumental or wet analysis, including sample preparation, can be delicate and exacting and require the limited application of chemical concepts and theories to solve problems. Employees may instruct, train, assign work and review the results of work performed by lower level technicians.

Guidelines - Employees use a wider variety of established and usually standardized guidelines including standard procedure and methodology manuals, laboratory operating procedures, chemistry textbooks and instrument handbooks. Guidelines usually are specific and directly applicable to most aspects of work.

II. RESPONSIBILITY:

Accountability - Employees in laboratory operations usually have limited direct contact with outside agencies, private firms or the general public, while employees involved in field operations may have considerable contact. In both situations, contact would be to solicit or give information, or to explain results. Employees could be held accountable for some work performed by lower technicians, and normally have a significant portion of their own work reviewed before it leaves the laboratory or before any regulatory action is taken.

Consequence of Action - An error in conducting a wet or instrumental analysis, or in reviewing work, would probably be caught by review within the laboratory or by review of test results and reports. However, not all work is technically checked so an error could impact a variety of environmental, civil or criminal situations causing a moderate time, material or financial loss and reflecting adversely the laboratory.

Review - A significant portion of work is usually reviewed at completion for technical accuracy, methodology and compliance with instructions and established procedures. The more complex or controversial work is checked very thoroughly. Work could also be checked and reviewed by other laboratory personnel as a crosscheck when working on joint projects, or by using the same sample or solution.

III. INTERPERSONAL COMMUNICATIONS:

Subject Matter - Employees perform their work and exchange information in a chemistry laboratory or-field operation. In the laboratory, they primarily have contact with other laboratory personnel, while in the field or at a court hearing, they may have contact with non-technical private individuals. Employees generally get clear and detailed instructions for new assignments but generally operate under set objectives, priorities and established quantity and quality of work expected. Employees perform moderate to complex chemical procedures including the use and application of chemical theory.

Purpose - Employees receive instructions, objectives or assignments from laboratory supervisors or lead chemists and report the results of their analyses to them. Employees in field operations may have to explain results, methods or procedures to non-technical private individuals.

IV. WORK ENVIRONMENT:

Nature of Working Conditions - Working conditions can vary from a relatively clean and safe chemistry laboratory requiring only minimal safety precautions, to a laboratory that exposes employees to high risks and potentially dangerous situations and requires the use of a wide range of safety precautions.

Nature and Potential of Personal Hazards - Employees may work with irritant chemicals, acid fumes, infectious or carcinogenic materials and a wide variety of laboratory equipment and glassware. Some discomfort is ongoing but the likelihood of severe or fatal injuries is normally very small if safety precautions are followed.

V. RECRUITMENT STANDARDS:

Knowledges, Skills and Abilities - Considerable knowledge of the basic principles, concepts, theories and reference sources used in the laboratory application of chemistry and other related sciences. Working knowledge of scientific methodology and of the hazards involved in laboratory procedures along with related safety practices. Ability to independently perform and record standardized, non-standardized and fairly complex laboratory tests and procedures. Ability to understand and solve simple theoretical problems, and to provide work direction and instruction to other technicians concerning a variety of chemical procedures. Ability to express technical information clearly, both orally and in writing, when reporting results and explaining procedures to others. Ability to perform advanced mathematics and statistical analysis to understand and follow moderately complex oral and written instructions, to perceive colors normally and to make olfactory distinctions, and the ability to establish and maintain effective working relationships.

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Minimum Training and Experience Requirements - Associate's degree in one of the chemical, biological, microbiological, environmental or natural resource sciences or a closely related curriculum including related chemistry laboratory coursework from an appropriately accredited institution and two years of directly related chemistry laboratory experience; or a bachelor's degree in one of the chemical, biological, microbiological, environmental or natural resource sciences including related chemistry laboratory coursework from an appropriately accredited institution; or an equivalent combination of education and experience.