

EUROPASS CERTIFICATE SUPPLEMENT

TITLE OF THE DIPLOMA (ES)

Técnico en Operaciones de Laboratorio

TRANSLATED TITLE OF THE DIPLOMA (EN)⁽¹⁾

Technician in Laboratory Operations

(1) This translation has no legal status.

DIPLOMA DESCRIPTION

The holder of this diploma will have acquired the General Competence with regard to:

Performing materials testing, physico-chemical, chemical and biological analysis, keeping the equipment and the auxiliary service facilities operating, as well as complying with the regulations of quality and labour risk prevention, safety and environmental protection.

Within this framework, the PROFESSIONAL MODULES and their respective LEARNING OUTCOMES acquired by the holder are listed below:

“Applied Chemistry”

The holder:

- Characterizes chemical elements and compounds, relating their properties to the type of link.
- Classifies organic compounds, recognizing their properties and chemical behavior.
- Prepares mixtures and solutions with the required concentration, selecting the materials and the products needed.
- Defines the chemical reactions describing their analytical applications.
- Characterizes the basic chemical production processes, distinguishing the reaction producing them.

“Sampling and Laboratory Unit Operations”

The holder:

- Takes samples, applying standard operating procedures.
- Prepares samples for analysis, following standard operating procedures.
- Performs mechanical operations on the samples, using established procedures.
- Performs thermal operations on samples, using standard procedures.
- Performs diffusional operations, following standard work procedures.

“Physicochemical Tests”

The holder:

- Characterizes material identifying its physicochemical properties.
- Determines physical properties of the material, using standardized tests.
- Determines the material properties associated with changes of state, applying standard procedures.
- Determines the colligative properties of solutions, applying standard procedures.
- Measures liquid properties, using standard procedures.
- Measures optical properties, using standard procedures.

“Auxiliary Services in the Laboratory”

The holder:

- Characterizes auxiliary equipment and installations in a laboratory, describing the function they perform.
- Operates with water installations and equipment for a laboratory, controlling the operating parameters established.
- Operates with gas supply installations, complying with the current legislation.
- Operates with vacuum production installations, following standard operating procedures.
- Operates with heating and cooling systems, relating environmental conditions to those required for process development in the laboratory.

“Safety and Organization in the Laboratory”

The holder:

- Performs actions in cases of risk or simulated emergency, selecting the risk prevention regulation concerning the laboratory operations.
- Applies safety rules, relating them to the risk factors in the laboratory.

- Identifies potential environmental contaminants in the laboratory, selecting the established regulations.
- Manages laboratory waste, identifying its characteristics and its dangers.
- Applies protocols of quality management, relating them to work procedures.
- Records laboratory documentation, assessing their usefulness in organizing the laboratory.

“Basic Techniques of Microbiology and Biochemistry”

The holder:

- Characterizes microorganisms according to their structure and behavior, interpreting their detection techniques.
- Characterizes systems and equipment for microbiological tests, relating them to their use or application.
- Manages the microscope to identify microorganisms in biological samples, describing their operation.
- Prepares microbiological samples, relating them to the techniques to be used.
- Applies techniques of observation and records test data, using established procedures.
- Characterizes tests in biomolecules, performing assay techniques.
- Applies biochemical techniques in identifying proteins and nucleic acids, following established procedures.

“Chemical Analysis Operations”

The holder:

- Identifies techniques for chemical analysis, describing its basic principles.
- Performs volumetric analysis, applying the established procedure.
- Performs gravimetric determination, following the standard work procedures.
- Applies electrochemical techniques, using the established work procedures.
- Applies spectrophotometric techniques, the following the established work procedures.
- Applies separation techniques, using the established work procedures.

“Materials Testing”

The holder:

- Characterizes materials, identifying their properties and applications.
- Prepares the necessary means, relating the techniques used to the type of test to be performed.
- Determines the mechanical properties of materials using destructive testing.
- Determines the mechanical properties of materials using non-destructive testing.
- Performs metallographic and corrosion tests, applying the test procedures laid down.

“Storage and Distribution in the Laboratory”

The holder:

- Characterizes storage facilities, interpreting the established regulations.
- Classifies products for its storage, using quality and safety criteria.
- Performs the receipt and dispatch of goods and materials, identifying the associated documentation.
- Performs product storage, justifying its distribution and organization according to their characteristics.
- Packages and labels products and samples, relating the established requirements to the characteristics of packages.

“Principles of Electromechanical Maintenance”

The holder:

- Identifies mechanical elements in equipment, machinery and systems, describing the function they perform and their influence on the whole.
- Recognizes the components involved in pneumatic systems, analyzing the function they perform and their influence on the entire system.
- Recognizes the hydraulic elements, describing the function they perform.
- Identifies the elements of electrical installations, describing the mission carried out in the entire system.
- Identifies electrical machines and the construction elements involved in the coupling of the industrial equipment of the sector, describing their operation and applications.
- Applies first line maintenance, linking procedures used with the equipment and facilities involved.

“Professional Training and Guidance”

The holder:

- Selects job opportunities, identifying the different possibilities of labour integration, and the alternatives of lifelong learning.
- Applies teamwork strategies, assessing their effectiveness and efficiency on the achievement of the company's goals.
- Exercises rights and complies with the duties derived from labour relationships, recognising them in the different job contracts.
- Determines the protective action of the Spanish Health Service in view of the different covered eventualities, identifying the different types of assistance.

- Assesses risks derived from his/her activity, analysing the job conditions and the risk factors present in his/her labour setting.
- Participates in the development of a risk prevention plan for a small enterprise, identifying the responsibilities of all the agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Technician in Laboratory Operations.

“Business and Entrepreneurial Initiative”

The holder:

- Recognizes skills related to entrepreneurial initiative, analysing the requirements derived from the different job positions and business activities.
- Defines the opportunity of creating a small enterprise, assessing the impact on the performance setting and incorporating ethic values.
- Carries out the activities for the setting-up and implementation of a company, choosing its legal structure and identifying the associated legal obligations.
- Carries out basic administrative and financial management activities of an SME, identifying the main accounting and tax obligations and filling in documentation.

“On the Job training”

The holder:

- Identifies the structure and organization of the company relating it to the type of service provided.
- Applies ethical and work habits in the development of his/her profession, according to the characteristics of the job and the procedures established by the company.
- Performs storage operations, applying regulations on quality and safety.
- Prepares samples for analysis, following the procedures of the company.
- Performs tests or analysis, applying the company procedures.
- Performs maintenance of equipment and laboratory support services, applying company procedures.

RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Technician in Laboratory Operations works in various business sectors and laboratories where they perform physical, physico-chemical, chemical and microbiological tests, operating and maintaining the equipment and auxiliary facilities oriented to quality control.

The most relevant occupations or jobs are the following:

- In the chemical industry, storage areas and laboratory of quality control.
- In other industries requiring physicochemical processes, such as food processing, pharmaceuticals, construction, metallurgy, mechanics, electronics, textile and plastics and rubber processing, among others.
- Laboratories in general, whether undertaken by public or private companies.

AWARD, ACCREDITATION AND LEVEL OF THE DIPLOMA

Name of the body awarding the diploma on behalf of the King of Spain: Spanish Ministry of Education or the different Autonomous Communities according to their areas of competence. The title has academic and professional validity throughout Spain.

Official duration of the education/ training leading to the diploma: 2000 hours.

Level of the diploma (national or international)

- NATIONAL: Post-Compulsory Secondary Education
- INTERNATIONAL:
 - Level 3 of the International Standard Classification of Education (ISCED3).
 - Level _____ of the European Qualifications Framework (EQF___).

Entry requirements: Holding the Certificate in Compulsory Secondary Education or holding the corresponding access test.

Access to next level of education/training: This diploma may provide access to Higher Technical Cycles provided that an entrance exam is passed.

Legal basis: Basic regulation according to which the diploma is established:

- Minimum teaching requirements established by the State: Royal Decree 554/2012, of 23 March, according to which the diploma of Technician in Laboratory Operations and its corresponding minimum teaching requirements are established.

Explanatory note: This document is designed to provide additional information about the specified diploma and does not have any legal status in itself. An Annex I may be added and will be filled in by the corresponding Autonomous Community

INFORMATION ON THE EDUCATION SYSTEM

