

# EUROPASS CERTIFICATE SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico en Operaciones de Laboratorio*

## TRANSLATED TITLE OF THE DIPLOMA (EN)<sup>(1)</sup>

*Technician in Laboratory Operations*

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(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

