

# EUROPASS CERTIFICATE SUPPLEMENT

## TITLE OF THE DIPLOMA (ES)

*Técnico en Planta Química*

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

*Technician in Chemical Plant*

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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 basic control operations in the processes aimed at obtaining and transforming chemical products, maintaining systems, equipment and auxiliary services in operation, monitoring the variables of the process to guarantee the quality of the product, complying with the rules on labour risk prevention, safety and environment.

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

### “Chemical Parameters”

The holder:

- Classifies chemicals products describing their properties, formulation and nomenclature.
- Prepares dispersed systems justifying the way dilutions are prepared with their properties, characteristics and concentration.
- Takes samples assessing their importance in the analysis of products.
- Measures physicochemical variables «in situ» identifying chemical products from their properties, with the aim of monitoring chemicals processes.

### “Unitary Operations in Chemical Plants”

The holder:

- Uses solid and fluid mixture and dosage equipment, justifying the order of incorporation of products.
- Uses equipment for mechanical separations relating the type of technique used with the characteristics of the solid particles.
- Operates equipment for diffusion separations relating the chosen technique with the characteristics of the product added to the process/feed.
- Uses equipment for the packaging and conditioning of finished products, justifying the importance for their identification, presentation and preservation.

### “Operations of Reaction in Chemical Plants”

The holder:

- Prepares the operations of chemical transformation recognising their main characteristics.
- Operates reactors establishing the conditions of raw materials, equipment, concentrations and conditions to carry out chemical reactions.
- Operates bioreactors relating the parameters of the operation with the effectiveness of the biological process.
- Integrates the operations of a chemical reaction in the process as a whole, interpreting diagrams of the chemical production process.

### “Industrial Chemical Processes Control”

The holder:

- Determines parameters that control the operations of the industrial process analysing the technical information associated with the same.
- Measures variables (pressure, level, volume, temperature) relating them with their measuring instruments in order to observe the progress of the process.
- Regulates the operations of an industrial process identifying the elements that constitute a loop control.
- Operates automatic valves justifying their influence in the control process.
- Operates Programmable Logic Controllers (PLC) recognising the function they carry out in the production process.

### **“Generation and Energy Transfer Operations in Chemical Processes”**

The holder:

- Operates boilers relating operation and control parameters with the properties of the vapour obtained.
- Operates furnaces relating operation and control parameters with the characteristics of the product.
- Operates heat exchangers relating energy balance with the principles of heat transmission.
- Operates vapour turbines analysing the relation between thermal energy and mechanical energy.
- Operates industrial refrigeration equipment assessing its importance for the requirements of the process and environmental impact.
- Obtains electric energy through cogeneration assessing its importance in the increase of energetic efficiency.
- Operates cooling towers analysing their function in the reduction of environmental impact.

### **“Transport of Materials in the Chemical Industry”**

The holder:

- Transports solids relating transport conditions with the characteristics of the product.
- Transports fluids characterising the construction elements of the transport installations.
- Operates pumps relating the different types with the needs of the process and the characteristics of the liquid.
- Operates compressors relating the different types with the gas to be pumped and the requirements of the process.
- Stores solids, liquids and gases relating their properties with storage conditions.

### **“Water Treatment”**

The holder:

- Supplies water to the industrial process relating its use with the types of water.
- Monitors the parameters of water intake and outlet during the process relating them with their use and destination.
- Deals with water intake relating the properties of the different types of water with their uses.
- Treats water outlet during the process relating treatments with its reuse and legal regulations.

### **“Principles of Electromechanical Maintenance”**

The holder:

- Identifies mechanical elements of equipment, machinery and installations describing their function and influence on the system as a whole.
- Recognises the elements that intervene in pneumatic installations analysing their function and influence on the system as a whole.
- Recognises the elements of hydraulic installations describing their function.
- Identifies the elements of electric installations describing their mission in the installation as a whole.
- Identifies electric machinery and the construction elements that intervene in the assembly of industrial equipment of the sector describing their function and applications.
- Applies first-level maintenance relating procedures used with the involved equipment and installations.

### **“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 job conditions and risk factors present in his/her labour setting.
- Participates in the development of a risk prevention plan in a small enterprise, identifying the responsibilities of all agents involved.
- Applies protection and prevention measures, analysing risk situations in the labour setting of the Technician in Chemical Plant.

### **“Business and Entrepreneurial Initiative”**

The holder:

- Recognises skills related to entrepreneurial initiative, analysing the requirements derived from 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 the 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:

- Prepares and tests chemical process materials following the normalised work procedures.
- Applies labour and ethic habits in his/her professional activity according to the characteristics of the job position and the procedures established by the company.
- Carries out operations of start-up, management and shut down of chemical plants relating the established sequence with the safety conditions of chemical processes.
- Performs control operations of chemical processes relating them with their optimisation.
- Carries out the first-level maintenance ensuring output and safety conditions of equipment.

### RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE DIPLOMA

The Technician in Chemical Plant works in companies of the chemical sector within the area of production, receipt, dispatch, arrangement, logistical supply, energy and auxiliary services, either in the elementary chemistry sub-sector or transformation chemistry.

The most relevant occupations or jobs are the following:

- Chief operator in chemical treatment facilities
- Operator of crushers, grinders and mixers of chemical substances
- Operator in facilities of chemical thermal treatment
- Operator of equipment for the filtering and separation of chemical substances
- Chemical distillation and reaction operator
- Oil and natural gas refineries operator
- Manager of machinery operators for the production of chemical products
- Operator in energy production and auxiliary operations facilities within chemical plants
- Operator of equipment for the filtering, separation and treatment of water
- Machinery operator for the production of ammunition and explosives
- Machinery operator for the production of photographic and cinematographic accessories
- Other operators in facilities of chemical products treatment
- Other machinery operators for the production of chemical products
- Operator of equipment for the production of fertilizers
- Operator in water treatment facilities
- Assistant operator in electric cogeneration facilities

### 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 178/2008, of 8 February, according to which the diploma of Technician in Chemical Plant 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

