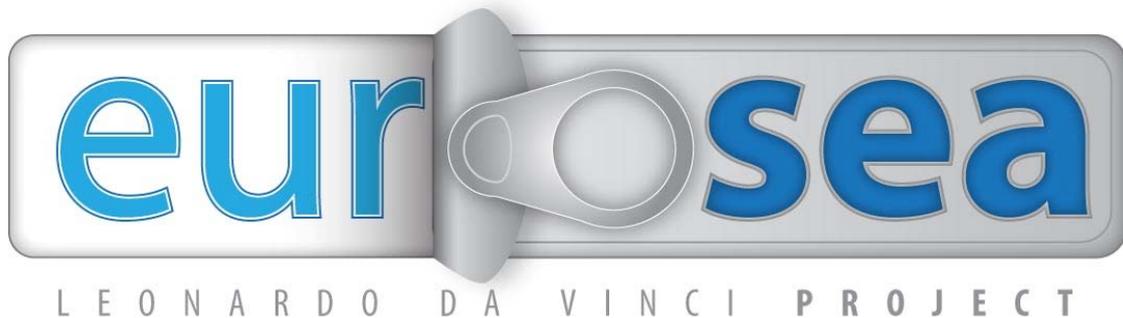


# Reference Tool for Professional Qualifications in the fish and seafood cannery sector – General Report



## EUROPEAN REFERENCE OF QUALIFICATIONS IN FISH AND SEAFOOD CANNERY SECTOR

## PARTNERS:

FEDERACIÓN AGROALIMENTARIA DE LA UNIÓN GENERAL DE TRABAJADORES - FTA-UGT- Spain

Gloria Serrano

e-mail: [gloriaserrano@fta.ugt.org](mailto:gloriaserrano@fta.ugt.org)

[www.ugtagroalimentaria.es](http://www.ugtagroalimentaria.es)

INSTITUTO DE FORMACIÓN INTEGRAL - IFI - Spain

Emilia Martín

e-mail: [e.martin@ifi.com.es](mailto:e.martin@ifi.com.es)

[www.ifionline.com](http://www.ifionline.com)

IDEC S.A. - Greece

Elias Kyrgiopoulos

e-mail: [info@idec.gr](mailto:info@idec.gr)

[www.idec.gr](http://www.idec.gr)

ASSOCIAZIONE SINTESI - Italy

Chiara Ajovalasit

e-mail: [c.ajovalasit@associazionesintesi.it](mailto:c.ajovalasit@associazionesintesi.it)

[www.associazionesintesi.it](http://www.associazionesintesi.it)

ASOCIACIÓN NACIONAL DE FABRICANTES DE CONSERVAS DE PESCADOS Y MARISCOS - ANFACO-CECOPECA - Spain

Gonzalo Ojea

e-mail: [ojea@anfaco.es](mailto:ojea@anfaco.es)

[www.anfaco.es](http://www.anfaco.es)

TRIFORMA OY - Finlandia

Tiina Koivuniemi

e-mail: [tiina.koivuniemi@triforma.fi](mailto:tiina.koivuniemi@triforma.fi)

[www.triforma.fi](http://www.triforma.fi)

UNIVERSIDADE CATÓLICA PORTUGUESA - ESCOLA SUPERIOR DE BIOTECNOLOGIA - Portugal

Raquel Moreira

e-mail: [rmmoreira@esb.ucp.pt](mailto:rmmoreira@esb.ucp.pt)

[www.esb.ucp.pt](http://www.esb.ucp.pt)

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

# INDEX

|    |  |    |
|----|--|----|
| 1. | <b>Introduction</b>  | 1  |
|    | 1.1. Development process of the project  | 1  |
|    | 1.2. Structure of the Tool   | 2  |
|    | 1.3. Applicability of the Reference Tool   | 3  |
| 2. | <b>Qualification Reference for the Fish Canning Operator</b>   | 3  |
|    | 2.1. General description and final occupations   | 3  |
|    | 2.2 Key activities for the occupation of fish canning operator   | 4  |
|    | 2.3. Learning outcomes description for each activity   | 5  |
|    | 2.4. Level of the Qualification Reference  | 14 |
|    | 2.5. Recommended training in order to obtain the Qualification Reference and possibility of achieving Competence Units through labour training | 14 |
| 3. | <b>Qualification Reference for the Seamer Mechanic</b>   | 17 |
|    | 3.1. General description and final occupations   | 17 |
|    | 3.2 Key activities for the occupation of seamer mechanic   | 17 |
|    | 3.3. Learning outcomes description for each activity   | 17 |
|    | 3.4. Level of the Qualification Reference  | 20 |
|    | 3.5. Recommended training in order to obtain the Qualification Reference and possibility of achieving Competence units through labour training | 20 |

# 1. INTRODUCTION

## 1.1. Development process of the project

EUROSEA project aims to increase the competitiveness of the fish and seafood cannery companies through the improvement of the professional qualifications of their workers and, at the same time, to make these companies more competent in the European market.

This project carried out several steps to elaborate their main product, a European Reference Tool for Professional Qualifications in the fish and seafood cannery sector:

- First, this sector was studied: socio-economical, labour and training situation, changes in the production procedures, etc.
- Second, the existing professional profiles in the sector and the related training offer were characterized.
- Third, two key professional profiles were identified in the sector: fish canning operator and seamer mechanic.

The professional profile of fish canning operator was chosen because it is the most representative profession in the sector, whereas seamer mechanic was selected due to be considered as the most specific and required job in the sector.

Throughout the entire project, partners had the collaboration of the stakeholders of the sector: training providers and professionals of the vocational and educational training system; representatives of entrepreneurs associations; representatives of Trade Unions; members of qualifications bodies; representatives of public authorities/bodies; managers and human resources technicians of companies of the sector.

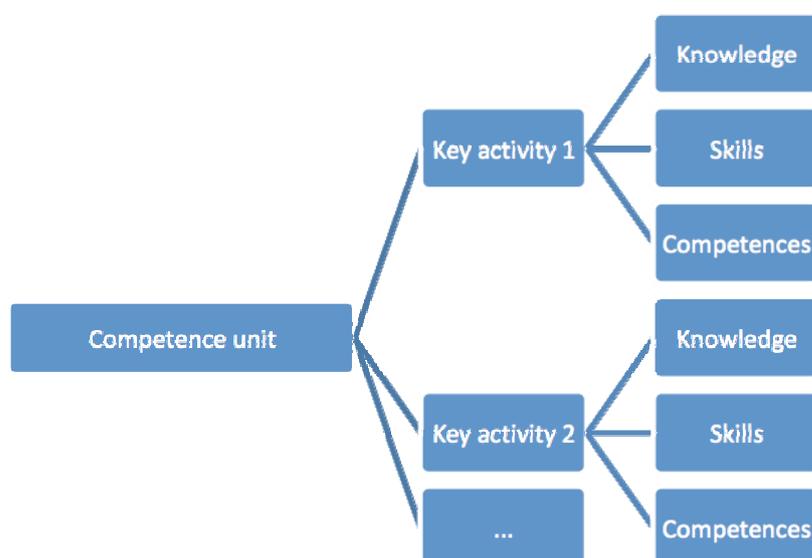
They were asked to collaborate through the fulfilment of inquiries, regarding the former two steps, and by participating in meetings, regarding the last

step. Furthermore, they were invited to evaluate the created Reference Tool, so that it could be adequately corrected with the valuable suggestions provided. Therefore, from the general discussion and comparison of ideas of each partner National stakeholders – which represent an added value to the evaluation work, it was possible to extract and draw out important recommendations on the Tool, which were included in this final document.

## 1.2. Structure of the Tool

For the elaboration of this tool it was undertaken a definition of the qualifications references in the National Qualifications Systems and/or National Educational Systems.

The structure of the European Reference Tool is the description of these two qualifications. Each qualification will have one or more Competence Units, and each competence unit is described as follows:



The European Reference Tool also includes information regarding the training proposed or recommended (as part of the qualifications described in the working groups) by experts involved in EUROSEA project.

### 1.3. Applicability of the Reference Tool

This European Reference Tool for Professional Qualifications intends to:

- Bring closer the vocational training system to the companies in this sector, as well to the workers, encouraging the training inside them.
- Increase the competitiveness of these companies, having more qualified staff and improving their productivity and quality.
- Improve the qualifications of the workers, as they are motivated to participate in training activities in their countries or in other partner country, to complete their qualifications and to obtain the formal certification, the official recognition in each country.

The stakeholders of the sector (professional organizations, training providers, trade-unions, National Institutes of Qualifications, the Educational and Vocational Training Systems - ECVET, etc) should take advantage of this European Reference tool of Qualifications, as it was developed at European level. Also, the different levels of qualifications in each country were compared and translated into the levels of the European Qualification Framework.

Furthermore, this tool could be useful to a better compatibility between the different vocational education and training systems in place across Europe and their qualifications, the main aim of ECVET.

## **2. QUALIFICATION REFERENCE FOR THE FISH CANNING OPERATOR**

### **2.1. General description and final occupations**

The Fish Canning operator is the professional capable of executing autonomously and/or under supervision, the necessary tasks related with handling, preparation and canning of fish and seafood. These tasks are closely and transversally related with food safety, HACCP systems, traceability of products and health and safety at work, including labour risk prevention concepts, which are of utmost importance, as the European Regulation outlined that food operators right through the food chain will bear primary responsibility for food safety.

In general, knowledge identified are from elementary level, although specialized to the specific qualification of fish canning operator.

Possible final occupations include fish canning operator, fish processing manufacturer, other fish transforming units, fish gutting and cleaning manufacturer, filling and sealing controller or operator, operator for the preservation of fish (fish smoker, fish packer, cooker of canned fish, fish dryer, brine preparatory, fish salter).

From the abovementioned occupations, the processing of fish in food industry, either in canning sector or other areas such as freezing, is the utmost important.

## 2.2.Key activities for the occupation of fish canning operator:

In accordance with EQF, key activities should be grouped and described by the required number of Competence Units. Therefore, two Competence Units are proposed:

### **Competence Unit 1. Preparation of fish and seafood for industrial use according to the quality and food safety rules**

This Competence Unit aggregates all the activities carried out from the reception of fish until its cooking and cooling, including good hygienic practices and HACCP.

*Key activities:*

- K1.** Apply good hygienic practices and HACCP (Hazard Analysis and Critical Control Point) procedures in the workplace during the whole processing
- K2.** Apply methodology and techniques for receiving, handling and sorting of fish products
- K3.** Apply methodology and techniques for cutting and cleaning of fish products
- K4.** Perform pre-treatment to fish products, according to specific protocols (brining, sauces)
- K5.** Conditioning fish and seafood for cooking and subsequent cooling
- K6.** Perform the collection, classification and delivery of wastes
- K7.** Take protective measures to ensure safety in work conditions of their competence

### **Competence Unit 2. Processing of canned fish and seafood products**

This Competence Unit concerns the procedures performed from the filling of cans until their preparation for sterilization.

*Key activities:*

**K1.** Operate the equipment and apply quality management techniques

**K2.** Carry out and control the filling, creation of partial vacuum, sealing and washing of cans and containers, preparing them for sterilization

## 2.3. Learning outcomes for each activity

### **Competence Unit 1. Preparation of fish and seafood for industrial use according to the quality and food safety rules**

**Key activity K1:** Apply good hygienic practices and HACCP (Hazard Analysis and Critical Control Point) procedures in the workplace during the whole processing

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>  |
|---|---|--|
| 1.1.a. Regulatory clothing and full equipment for work.<br>1.1.b. Restrictions on use of personal objects or substances and their effect on food.<br>1.1.c. Cleaning and maintenance of work equipment. | 1.1.a. Remove personal items that can cause food contamination.<br>1.1.b. Use personal protective clothing and equipment to maintain food hygiene.<br>1.1.c. Keep equipment in good state of cleanliness and conservation.<br>1.1.d Store the equipment in the right place and under safe conditions. | 1.1. Autonomously, remove personal items that may affect the food, select and implement the work clothing and equipment required for preventing contamination, cleaning them properly and renewing when necessary. |
| 1.2.a. Cleanliness and personal hygiene required for food handling.<br>1.2.b. Personal hygiene techniques.  | 1.2.a. Apply techniques for personal hygiene.<br>1.2.b. Maintain cleanliness and personal hygiene requirements.   | 1.2. In an autonomous way, apply the appropriate techniques of personal hygiene, daily and whenever necessary  |
| 1.3.a. Diseases and infections transmissible through food.<br>1.3.b. Procedures in case of detecting diseases or injuries.  | 1.3.a. Identify the major diseases and foodborne infections.<br>1.3.b. Follow the established procedures in case of detection of disease or injury.   | 1.3. Notify the person in charge if diseases or injuries occur, staying at home or attending the company medical service, depending on the degree of affliction.   |
| 1.4 Habits and practices that may adversely affect food products.   | 1.4 Apply habits, gestures or practices that avoid the projection of germs.   | 1.4. Autonomously, respect the prohibitions of malpractice in certain areas (smoking, eating, drinking, etc.).   |

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>  |
|--|---|--|
| 1.5.a. Basic legislation on food hygiene.<br>1.5.b. Procedures in case of observing failures to comply with the law.                             | 1.5.a. Verify compliance with existing legislation on food hygiene.<br>1.5.b. Reporting any shortcomings found, following the procedure.          | 1.5. Review compliance with existing legislation on food hygiene according to the regulation.<br><br>Notify persons in charge if deficiencies are found.                 |
| 1.6.a. Effect of ambient conditions in production hygiene.<br>1.6.b. Light, temperature, ventilation and humidity conditions set for production. | 1.6. Verify that the environmental conditions of light, temperature, ventilation and humidity are suitable to allow hygienic production.          | 1.6. Autonomously, monitor environmental work conditions.<br><br>Notify persons in charge if environmental conditions for working are observed inadequate.               |
| 1.7. Requirements of surfaces in contact with food to prevent contamination thereof.   | 1.7. Verify that all surfaces that come into contact with food retain its characteristics and properties.   | 1.7. Notify persons in charge when it is observed that contact surfaces lose their properties (waterproof, easy to wash, not emitting particles, limiting condensation). |
| 1.8. Systems for drainage, removal and disposal of liquids and gases in canneries.   | 1.8. Check drainage and extraction systems are in perfect working order.  | 1.8. Alert persons in charge when blockages or deficiencies are observed in drainage and extraction systems.   |
| 1.9. Risk of cross contamination between clean and dirty areas<br>1.9.b. Basics about food microbiology.   | 1.9. Check doors, windows and other openings are kept closed and / or with adequate protective devices to prevent contact or communication lines. | 1.9. Proceed autonomously to avoid communication channels between clean and dirty areas, or notify persons in charge for it.   |
| 1.10.a. Risks related to the presence of parasites, insects or other animals.<br>1.10.b. Application of insect and rodent control plans.         | 1.10. Check that the systems for control and prevention of parasites and transmitter animals are applied.   | 1.10. Alert persons in charge if the presence of parasites, insects or other animals is detected.  |

**Key activity K2:** Apply methodology and techniques for receiving, handling and sorting of fish products

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>   |
|---|---|---|
| 2.1.a. Changes in fishery products during defrosting.<br>2.1.b. Fundamentals of defrosting systems. | 2.1. Check that the defrosting process, for raw materials received frozen, is carried out using the appropriate parameters of temperature and time. | 2.1. Autonomously monitor the defrosting process in the specified time, warning persons in charge if deviations are observed. |

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>   |
|--|---|---|
| 2.2.a. Knowledge of most common species processed in canned fish industries, morphology of fish (skin, bones and viscera) and requirements for size.<br>2.2.b. Deterioration of quality in fishery products, in terms of organoleptic assessment.<br>2.2.c. Knowledge of procedure for sampling (for laboratory analysis).<br>2.2.d. Knowledge of the requirements for handling of fish to minimize quality deterioration. | 2.2.a. Check if raw materials fit the required specifications of shape, size and quality, and that these remain within the levels set.<br>2.2.b. Ability to employ handling techniques to minimize quality deterioration and damage of raw fish | 2.2. Autonomously identify fishes in practice, monitor size and quality parameters to fit specifications, separating those that do not meet them.           |
| 2.3. Fishery products grading machinery.   | 2.3. Run manually or monitor the automated process of size grading of fish products, checking that it is done correctly and using suitable machinery.   | 2.3. In an autonomous way, carry out size grading or monitor that it has been made correctly.<br><br>Notify maintenance service if deviations are observed. |
| 2.4. Knowledge of temperature requirements for fish and procedure for temperature measurement  | 2.4. Measure temperature  | 2.4. Competence in measuring BBT temperature of fish  |

**Key activity K3:** Apply methodology and techniques for cutting and cleaning of fish products

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>  |
|---|---|--|
| 3.1. Knowledge of the type of knife suitable for a particular cutting operation, requirements for safe knife handling, maintenance and storage. | 3.1.a. Ability to select and employ the appropriate type of knife, depending on the cutting operation.<br>3.1.b. Ability to perform maintenance requirements on knives. | 3.1. Competence to select, handle and store knives safely. |

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>  |
|---|---|--|
| 3.2.a. Manual heading and gutting of fishery products.<br>3.2.b. Fish products heading and gutting machines.                | 3.2. Carry out heading and gutting manually, or feed and monitor performance of automated equipment, checking that it is done correctly and using suitable machinery.                                     | 3.2. Autonomously, carry out or monitor that heading and gutting are made correctly.<br><br>Notify maintenance service if deviations are found.  |
| 3.3.a. Cleaning techniques (removal of inedible parts) in fishery products.<br>3.3.b Manual sectioning of fishery products. | 3.3. Carry out manually or feed equipment for cleaning, skinning, slicing, cutting and / or filleting of fish and shellfish, and monitor its automated performance, checking if is carried out correctly. | 3.3. In an autonomous way, carry out or monitor that cleaning and sectioning are made in accordance with programming and information received.<br><br>Notify maintenance service if deviations are observed. |
| 3.4. Extraction procedures of inedible parts in shellfish.  | 3.4. Carry out manually or monitor the automated process of cleaning, "trimming" and shelling of seafood, checking it is done according to specifications received.                                       | 3.4. Autonomously, carry out or monitor the cleaning of shellfish is done correctly.<br><br>Notify maintenance service if deviations are found.  |
| 3.5. Concept of traceability and its implementation in canning plants   | 3.5. Maintain control of traceability throughout the different stages of fish and seafood processing.   | 3.5. In an autonomous way, verify there are no breaks in the traceability chain.<br><br>Notify persons in charge if deviations are observed.   |

**Key activity K4:** Perform pre-treatment to fish products, according to specific protocols (brining, sauces)

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>  |
|--|---|--|
| 4.1. Characteristics of the most common ingredients for making sauces and brines.  | 4.1. Verify that ingredients such as oils, vinegars, seasonings, condiments and spices, are suitable for making sauces and brines.                              | 4.1. Notify persons in charge if deviations are detected in the characteristics of the ingredients used for making sauces.                 |
| 4.2.a. Characteristics of the most common sauces and brines used in the production of canned fish.<br>4.2.b. Elaboration of sauces, brines and dried | 4.2.a. Execution of the procedure to prepare dried salting, pickles, liquid medium, oil, according to the established formulation.<br>4.2.b. Verify that sauces | 4.2. According to the work orders received, prepare brines and liquid media (tomato sauce, American sauce, pickles...) in the preset room. |

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>   |
|--|---|---|
| salting.   | get their characteristic consistency, flavour and colour.   |   |
| 4.3.a. Implementation of treatment procedures for seafood preparation.<br>4.3.b. Application of the instruction manuals for treatment equipment. | 4.3.a. Carry out the treatment processes according to the conditions and procedures laid down.<br>4.3.b. Prepare, adjust and maintain in use the treatment equipment, according to the user's manuals and instructions, ensuring production.<br>4.3.c. Verify that the treatment parameters (time, temperature, concentration, dosage) are met. | 4.3. According to the work orders received, apply treatments following the guidelines established in the instructions, using the necessary equipment and monitoring its application.<br><br>Notify maintenance service when anomalies are detected in the operation of the equipment or the results of treatment. |

**Key activity K5:** Conditioning fish and seafood for cooking and subsequent cooling

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>  |
|--|---|--|
| 5.1. Basics about use of industrial equipment, and reading of parameters   | 5.1. Ability to operate canning machines/equipment within the set process procedures and parameters   | 5.1. Competence of monitoring signals or the measured organs of the equipment<br><br>Notify maintenance service when anomalies are detected in the operation of the equipment or the results of treatment. |
| 5.2.a. Effects of different methods of cooking in seafood.<br>5.2.b. Established guidelines for the disposal of the products to achieve adequate cooking process, in trays or in tins. | 5.2.a. Arrange the seafood on trays properly for the right development of the process.<br>5.2.b. Canning sardines or other specimens as established, or check its automated canning, for cooking. | 5.2. In an autonomous way, arrange seafood on trays or cans for cooking, in the right way.   |
| 5.3. Appropriate aspect of seafood after cooking.  | 5.3. Check that the cooking of seafood has been carried out correctly as set.   | 5.3. Autonomously, check the texture and appearance of the cooked (dehydrated) product to confirm that the process has been adequate.  |

| <b>Knowledge</b>                                  | <b>Skills</b>  | <b>Competence</b>   |
|---|--|---|
| 5.4. Appropriate aspect of seafood after cooling. | 5.4. Verify that cooling of seafood has been carried out correctly as set. | 5.4. In an autonomous way, check the texture and appearance of the cooled product (drained, removing condensate) to confirm that the process has been adequate. |

**Key activity K6:** Perform the collection classification and delivery of wastes

| <b>Knowledge</b>  | <b>Skills</b>  | <b>Competence</b>   |
|---|--|---|
| 6.1.a. Main waste generated in canned fish industries.<br>6.1.b. Procedures for classifying, handling and storage of waste. | 6.1.a. Make a separate collection of the different types of waste at each stage of the process, following established procedures for each type.<br>6.1.b. Store waste in the form and specific places set in the operation instructions. | 6.1. Autonomously, collect, sort, handle and store the waste generated in production processes, according to instructions and in compliance with legal norms. |

**Key activity K7:** Take protective measures to ensure safety in work conditions of their competence

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>   |
|--|---|---|
| 7.1. Personal Protective Equipment (PPE) required at each position or work area.               | 7.1. Completely and correctly use of personal protective equipment required for each job or work area.        | 7.1. Autonomously, use the required PPE for each job or work area.  |
| 7.2. Risk factors and situations in the operations in fish canning industries.                 | 7.2. Keep the work area free of elements that might be dangerous or difficult the performance of other work.  | 7.2. In an autonomous way, monitor the absence and / or proceed to remove items that might be dangerous in the execution of work.                                     |
| 7.3. Operation of safety devices on machines and equipment used during canned fish processing. | 7.3. Verify the existence and functioning of safety devices on machines and equipment used during operations. | 7.3. Autonomously, monitor the functioning of safety devices on machines and work equipment.<br><br>Notify person in charge when anomalies are detected in operation. |

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>  |
|--|---|--|
| 7.4. Preventive and protective measures in canned fish processing.         | 7.4. Handle products taking the appropriate protective measures in each case. | 7.4. Autonomously, carry out the work always considering preventive and protective measures set.                                   |
| 7.5.a Work environmental conditions established in canned fish processing. | 7.5. Check the environmental conditions during canned fish processing.        | 7.5. In an autonomous manner, monitor environmental conditions of work, notifying the person in charge if deviations are detected. |

### **Competence Unit 2. Processing of canned fish and seafood products**

*Key activities:*

**Key activity K1.** Operate the equipment and apply quality management techniques

| <b>Knowledge</b>   | <b>Skills</b>  | <b>Competence</b>   |
|--|--|---|
| 1.1.a. Application of the instruction manuals for the production equipment.<br>1.1.b. Security rules and mechanisms established for production equipment.                | 1.1.a. Check, prepare and maintain in use the processing equipment, using the precise operating controls, according to the procedure manuals and instructions.<br>1.1.b. Respect the security rules and mechanisms established for production equipment. | 1.1. Keep in good use the production equipment, under secure conditions, following the guidelines set forth in the instructions, to ensure production.<br><br>Notify the maintenance service or correct detected breakdowns in the functioning of production equipment. |
| 1.2. Operation of safety devices on machines and equipment used during canned fish processing.   | 1.2. Verify the existence and functioning of safety devices on machines and equipment used during operations.  | 1.2. Autonomously, monitor the functioning of safety devices on machines and work equipment.<br><br>Notify person in charge when anomalies are detected in operation.   |
| 1.3.a. Effects of dirt on food handling.<br>1.3.b. Procedures for cleaning and disinfection of the different facilities and production equipment.<br>1.3.c. Handling and | 1.3.a. At the beginning and end of each day, shift or lot, check that production area and equipment are kept clean and in condition for use, recognizing sources of infection and dirt   | 1.3. Notify persons in charge about the presence of sources of infection and dirt accumulation points.<br><br>Apply cleaning orders following the established procedure regarding:  |

Leonardo da Vinci Project:  
ES/09/LLP-LdV/TOI/149103

|  |  |   |
|--|--|---|
| storage of cleaning products and supplies.<br>Risks of their use.<br>1.3.d. Basics about chemistry                                     | accumulation points.<br>1.3.b. Mark and isolate areas to be cleaned or disinfected.<br>1.3.c. Perform cleaning and disinfection procedures established in the orders or instructions for cleaning.<br>1.3.d. Store the products and equipment for cleaning and disinfection. | 1. Products to use and their dosage.<br>2. Operating conditions, time, temperature, pressure.<br>3. Preparation and control of equipment.<br>4. Checks to be made.<br><br>Store in their specific location cleaning products upon completion of operations, avoiding risks and confusion. |
| 1.4.a. Risks related to the presence of parasites, insects or other animals.<br>1.4.b. Application of insect and rodent control plans. | 1.4. Check that the systems for control and prevention of parasites and transmitter animals are applied.   | 1.4. Alert persons in charge if the presence of parasites, insects or other animals is detected.  |
| 1.5. Systems for drainage, removal and disposal of liquids and gases in canneries.   | 1.5. Check drainage and extraction systems are in perfect working order.   | 1.5. Alert persons in charge when blockages or deficiencies are observed in drainage and extraction systems.  |

**Key activity K2:** Carry out and control the filling, creation of partial vacuum, sealing and washing of cans and containers, preparing them for sterilization

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>   |
|---|---|---|
| 2.1.a. Manual or automated systems to feed packaging and products.<br>2.1.b. Sanitation of containers for use with food.                    | 2.1.a. Verify that cleaning of containers has been carried out to remove any dirt accumulated during storage.<br>2.1.b. Manually feed conveyors or check the automatic feeding of packaging and products. | 2.1. In an autonomous manner, check that containers ready to use are clean immediately before filling, notifying the person in charge if dirt is detected.<br><br>Depalletise and place containers on conveyors, or monitor the automatic process, alerting the person in charge if the belts are not transporting the product. |
| 2.2. Established guidelines for packaging of different fish and seafood products in various packaging formats used in the canning industry. | 2.2. Carry out filling and placement of seafood in cans manually, or check that it has been done with automated machinery, as specified.  | 2.2. Autonomously, fill packaging with product according to size, weight or number of units specified.<br><br>Monitor and weigh the   |

| Knowledge   | Skills  | Competence  |
|---|---|---|
|   |   | packed product, checking it has a good presentation and the stipulated weight, separating those not complying and notifying the person in charge.   |
| <p>2.3.a. Characteristics of the most common sauces and brines used in the production of canned fish.</p> <p>2.3.b. Importance of head space in canning. Application methods.</p> | <p>2.3.a. Monitor levels of liquid media in tanks, opening the valves following instructions from person in charge.</p> <p>2.3.b. Check the filling of containers with liquid medium in the dispensing machines, according to procedures.</p> <p>2.3.c. Verify that headspace has been created in filled containers before sealing, to prevent further alterations in canned products, according to procedures.</p> | <p>2.3. Autonomously, monitoring the addition of oil, brine, sauce... to the packaging, and the extraction of air to establish a partial vacuum in the headspace, as established, separating the non-compliant containers and notifying the person in charge.</p> <p>Check the remaining quantity of liquid medium, notifying the manager when it is below a established level.</p> |
| <p>2.4.a. Basic operation of can seamers.</p> <p>2.4.b. Sealing of containers and its importance in preserved products.</p>   | <p>2.4.a. Visually check that filled metal containers are closed by the method of double seam, to achieve a hermetic suture.</p> <p>2.4.b. Verify that seaming control is performed at regular intervals.</p>   | <p>2.4. In an autonomous manner, check that all containers are closed in the can seamers, informing maintenance staff if deviations are detected.</p> <p>Verify that closed containers are subjected to periodic inspection to assess the adequacy of their tightness.</p>  |
| <p>2.5.a. Basic systems for packaging coding.</p> <p>2.5.b. Concept of traceability and its implementation in canning plants.</p>   | <p>2.5. Check the presence of code identification on packaging (ink jet or perforated) to maintain control of traceability.</p>   | <p>2.5. Autonomously, monitoring the presence and legibility of the packaging coding, informing the person in charge if deviations are observed.</p>  |
| <p>2.6. Packaging washing machines.</p>   | <p>2.6. Check that washing of containers is performed after closure.</p>  | <p>2.6. In an autonomous manner, check that containers are washed, removing solids or liquids that could lead attached.</p>   |

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>   |
|---|---|---|
| 2.7.a. Systems for filling retort cages with containers in bulk or in palletized form.<br>2.7.b. Good handling practices of closed containers to ensure product safety. | 2.7. Upload manually or monitor the automated filling of retort cages, in the form and amount established, avoiding strikes that can cause defects in the sealing of the container. | 2.7. Autonomously carry out the filling of the retort cages or monitor the automated process, informing maintenance staff if there are jams or beatings on the packaging. |

## 2.4. Level of qualification

According to the requirements previously described, the qualification level suggested for the Qualification Reference of Fish Canning Operator is **3**, in accordance with the 8 levels of the European Qualification Framework (EQF).

## 2.5. Recommended training in order to obtain the Qualification Reference, and possibility of achieving Competence Units through labour training

In order to obtain the Qualification Reference for each of the Competence Units previously described, the respective training path is suggested:

| Learning module (LM)                                 | Duration (hours) |
|--|------------------|
| LM 1: Preparation and technology of fish and seafood | 150              |
| LM 2: Processing of canned fish                      | 120              |
| Total duration of formal learning training:          | 270              |

The previous education necessary to access the learning training described below would be only compulsory education, i.e., 9-10 years of school.

### **A) Learning Module LM 1: Preparation and technology of fish and seafood.**

Associated to: CU1. Preparation of fish and seafood for industrial use

Duration: 150 hours.

Content:

a) Theoretical subjects:

- Raw materials: fish and seafood.
- Muscular tissues.
- Auxiliary raw materials: water, ingredients (salt, vinegar, oil, spices...).
- Fish preparation operations.
- Operation of machinery for preparation and incorporation.
- Operations for development of composite products: brine, sauces.
- Technical and safety conditions in plants for fish and seafood preparation.
- Concept and standards of cleanliness.
- Alterations of food products.
- Environmental impact of food industry.
- Health and safety at work in fish and seafood processing industries.

b) Practical subjects:

- Development of cleaning operations.
- Operation of machinery (functional check, start/stop procedures, first level maintenance).
- Procedures on receipt of raw materials.
- Preparation of sauces.

## **B) Learning Module LM 2: Processing of canned fish**

Associated to: CU2. Processing of canned fish and seafood products

Duration: 120 hours.

Content:

a) Theoretical subjects:

- The fish canning industry.
- Manufacturing processes of canned products.
- Equipment for conservation treatment by sterilization.
- Food safety and hygiene in canned fish processing.
- Packaging machines: description, operation and first line maintenance

b) Practical subjects:

- Application of hygiene measures in different situations.
- Thermal treatment: selection and regulation of equipment, development and checking of operations, appliance of hygiene and security measures.

**Possibility of achieving Competence Units through labour training:**

According to the opinions of the experts participating in the working group organized within this Working Package, it should be possible to achieve recognition of the previously described Units of Competence through labour training, if it has a minimal duration of 6 months.

### 3. QUALIFICATION REFERENCE FOR THE SEAMER MECHANIC

#### 3.1. General description and final occupations

The seamer mechanic is a machine supervisor, capable of executing autonomously the necessary tasks related with the proper functioning of the seamers.

Possible final occupations include seamer mechanic in canneries (fish, meat vegetable products and other agro-food products), meat and fish packer by mechanical means, electromechanical technician or locksmith in different industries.

#### 3.2. Key activities for the occupation of seamer mechanic

##### **Competence Unit 1. Tuning, preparation, repair and maintenance of the seamer equipment**

*Key activities:*

**K1.** Tuning and verification of the functioning of the seamer

**K2.** Resolve anomalies and breakdowns of seamers

**K3.** Perform the maintenance operations in the seamer

**K4.** Apply protective measures to ensure safety in workplace

#### 3.3. Learning outcomes for each activity

**Key activity K1.** Tuning and verification of the functioning of the seamer

| <b>Knowledge</b>   | <b>Skills</b>  | <b>Competence</b>  |
|--|--|--|
| 1.a. Technical specifications of seamers and other equipment used in canning.<br>1.b. Knowledge of the | 1.a. Know how to do visual inspection of the seamers.<br>1.b. Adjust the elements of equipment, consulting the technical specifications to | 1.a. In an autonomous way, make adjustments in equipment according to technical documentation, using appropriate tools |

| <b>Knowledge</b>   | <b>Skills</b>   | <b>Competence</b>  |
|--|---|--|
| <p>main working tools (pliers, hammers, screw keys, etc).</p> <p>1.c. Technical procedures of adjustment and tuning of electromechanical systems.</p> <p>1.d. Adjust seamers to the various can formats.</p> <p>1.e. Technical procedures for controlling the operation of seamers and other equipment.</p> <p>1.f. Knowledge of the tuning oils for the seamer</p> <p>1.g. Technical aspects concerning the cans (materials, integrity tests)</p> | <p>bring them into operation.</p> <p>1.c. Put the equipment in working order according to production instructions, making changes in elements following technical procedures to adapt their functionality to the manufacturing conditions.</p> <p>1.d. Know how to do visual inspection of the unopened cans</p> <p>1.e. Adapt the seamers to the packaging format to be processed, according to production instructions.</p> <p>1.f. Check the right positioning of the can (for sensors), and the operation of equipment, carrying out controls or checking their results against seaming parameters.</p> <p>1.g. Verify the presence of partial vacuum in head space and double seam in closed containers.</p> | <p>and instruments.</p> <p>1.b. Autonomously, perform the adjustment of seamers to the packaging format on time, using appropriate tools and instruments.</p> <p>1.c. In an autonomous way, complete the control reports established by the internal regulations of the company with the required precision.</p> |

**Key activity K2. Resolve anomalies and breakdowns of seamers**

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>   |
|---|---|---|
| <p>2.a. Technical specifications of seamers and other equipment used in canning.</p> <p>2.b. Technical procedures for assembly and disassembly of seamers and canning equipment.</p> <p>2.c. Repair of electromechanical systems.</p> | <p>2.a. Locate and identify faults or anomalies in seamers and other equipment, diagnosing its source through technical documentation.</p> <p>2.b. Organize the intervention, interpreting technical documents, preparing the machines, equipment, tools and materials for the repair of electromechanical systems.</p> <p>2.c. Dismantle and remove parts and elements of equipment, consulting technical documents, to carry out repairs.</p> <p>2.d. Replacement or repair</p> | <p>2.a. Autonomously, identify faults using appropriate tools and instruments.</p> <p>2.b. Propose to the head of maintenance the appropriate corrective actions to return equipment to working condition.</p> <p>2.c. In an autonomous way, organize the repair work of electromechanical systems.</p> <p>2.d. Autonomously, use appropriate tools and instruments to remove, repair and assemble parts to return equipment to working order quickly and</p> |

| <b>Knowledge</b> | <b>Skills</b>   | <b>Competence</b> |
|------------------|---|-------------------|
|                  | deteriorated mechanical, electrical, pneumatic and hydraulic elements, using the technical documentation.<br>2.e. Assemble electromechanical components, consulting technical documents, to restore them in the systems to which they belong. | efficiently.      |

**Key activity K3.** Perform the maintenance operations in the seamer

| <b>Knowledge</b>   | <b>Skills</b>  | <b>Competence</b>   |
|--|--|---|
| 3.a. Technical specifications of seamers and other equipment used in canning.<br>3.b. Knowledge of the work tools.<br>3.c. Knowledge of the equipment parts more susceptible of abrasion (which need more attention).<br>3.d. Knowledge of corrosion treatments.<br>3.e. Technical procedures for checking and maintenance of seamers. | 3.a. Organize the execution of maintenance work at the frequency indicated in the technical requirements.<br>3.b. Conduct periodic inspection of seamers and other equipment, according to technical procedures, checking the control and regulation elements, the seaming systems, and levels of equipment. | 3.a. In an autonomous way, prepare equipment, tools and materials needed to make inspections in terms of efficiency and safety.<br>3.b. Autonomously, conduct checking of equipment using the appropriate tools and instruments to disassemble, clean, change, adjust and lubricate the different components. |

**Key activity K4.** Apply protective measures to ensure safety in workplace

| <b>Knowledge</b>  | <b>Skills</b>   | <b>Competence</b>  |
|---|---|--|
| 4.a Personal Protective Equipment (PPE) required for repair and maintenance of seamers and other equipment. | 4.a Adequately use of personal protective equipment required for repair and maintenance of seamers and other equipment. | 4.a. Autonomously, use the required PPE for work situations of their competence.             |
| 4.b. Operation of safety devices on machines and equipment used during canned fish processing.              | 4.b. Verify the existence and functioning of safety devices on machines and equipment used during operations.           | 4.b. Autonomously, monitor the functioning of safety devices on machines and work equipment. |

### 3.4. Level of qualification

According to the requirements previously described, the qualification level suggested for the Qualification Reference of Fish Canning Operator is **4**, in accordance with the 8 levels of the European Qualification Framework (EQF).

### 3.5. Recommended training in order to obtain the Qualification Reference, and possibility of achieving Competence Units through labour training

It is estimated that formal learning training necessary to obtain the Competence Unit of Tuning, preparation, repair and maintenance of the seamer equipment would have the following training modules and optimal duration:

| Learning module (LM)   | Duration (hours) |
|--|------------------|
| LM 1: Tuning and verification of seamers and other canning equipment.  | 100              |
| LM 2: Location and analysis of mechanical, electrical and hydro-pneumatic breakdowns in electromechanical systems. | 275              |
| LM 3: Repair of mechanical, electrical and hydro-pneumatic elements in seamers and other canning equipment.        | 500              |
| LM 4: Fundamentals of maintenance organization.  | 40               |
| Total duration of formal learning training   | 915              |

The previous education necessary to access the learning training described below would be Secondary school level, i.e., 11-12 years of school.

#### **A) Learning Module LM 1: Tuning and verification of seamers and other canning equipment.**

Duration: 100 hours.

Content:

- a) Theoretical subjects
  - Mechanics: mechanisms and transmission. Mechanical properties of materials.

- Electromagnetism: magnetic fields, AC and DC.
  - Circuit diagrams: components, symbols and interpretation.
  - ICT systems of production management and industrial controlling.
  - Tools for fitting and assembly of electromechanical systems.
  - Metrology, measurement of magnitudes and measurement equipment.
  - Quality control.
- b) Practical subjects
- Verification of the installation performance, testing and documenting the results.
  - Verification of operation of each functional block.
  - Verification of control and power wiring, checking insulation and continuity.
  - Application of measurement and control instruments, according to technical manuals, completing technical reports.

**B) Learning Module LM 2: Location and analysis of mechanical, electrical and hydro-pneumatic breakdowns in electromechanical systems.**

Duration: 275 hours.

Content:

a) MECHANICS

Theoretical subjects:

- Standard mechanical components. Faults, causes and solutions.
- Assembly and exploded drawings.
- Adjustments and allowances: Interference in the settings, selection and implementation.

Practical subjects:

- Planning of corrective actions for the systemic change of bearings in pumps, motors and other mechanisms.
- Use of equipment and instruments for detecting and locating anomalies in damaged mechanical elements. Interpretation of results.
- Calculation of time in repair operations.

b) ELECTRICITY

Theoretical subjects:

- Electrical components: classes and usefulness.
- Interpretation of drawings and wiring diagrams: symbols.
- Electrical magnitudes.
- Automation and PLCs.
- Common failures: causes and solutions.
- Techniques, tools and measuring devices used in the identification and analysis of electrical failures.
- Rules and complementary instructions of the Low Voltage Electrotechnical Regulation.
- Practical subjects: Testing of no-load and in charge electrical machines.
- Dismantle of machinery.
- Complete reports and technical documentation.

#### c) HYDROPNEUMATICS

Theoretical subjects:

- Hydraulic and Pneumatic components: faults, causes and solutions.
- Analysis of behaviour of a hydraulic and pneumatic circuit.
- Influence of fluids in faults.
- Instruments for fault location and diagnosis.

Practical subjects:

- Organize the corrective actions for systemic change of filters, condensate removal and analysis of contaminants from hydraulic fluids.

### **C) Learning Module LM 3: Repair of mechanical, electrical and hydro-pneumatic elements in seamers and other canning equipment.**

Duration: 500 hours.

Content:

#### a) MECHANICS

Theoretical subjects:

- Standard components.
- Mechanical physical properties.

- Interpretation of assembly drawings.
- ISO setting systems.
- Measuring and testing instruments.

Practical subjects:

- Utilization of hand tools and accessories used in disassembly, adjustment and assembly.
- Disassembly of mechanical equipment.
- Assembly of pieces using different types of union.
- Assembly and adjustment operations of mechanical systems.
- Lubrication.

## b) ELECTRICITY

Theoretical subjects:

- Fundamentals of electricity.
- Interpretation of drawings and wiring diagrams: symbols.
- Controls and signalling.
- Electric motors.
- Automation.
- Regulation systems of motors speed: frequency inverters.
- EU regulations for electrical equipment.

Practical subjects:

- Perform electrical automation schemes.
- Disassembly and assembly of engines and pumps, with or without automation.

## c) HYDROPNEUMATIC

Theoretical subjects:

- Pneumatic and hydraulic elements and components: pumps, motors, valves.
- Principles of oil hydraulic energy.
- Characteristics of oil hydraulic fluids.

Practical subjects:

- Perform hydraulic and pneumatic diagrams. Symbols.
- Measuring the parameters of flow, pressure and temperature.

- Preparation of compressed air systems: filters, lubricants.
- Generation, treatment and distribution of compressed air.
- Cutting and bending of pipes.
- Disassembly, repair, replace and assembly of components in pneumatic and hydraulic systems.

#### **D) Learning Module LM 4: Fundamentals of maintenance organization.**

Duration: 40 hours.

Content:

Theoretical subjects:

- Technological processes of intervention in maintenance and repair. Technical documentation.
- Failure analysis and palliative action plans.
- Quality in maintenance processes.
- Maintenance costs.
- Logistics and provisioning.
- The maintenance and repair workshop. Criteria for the preparation of the spare parts catalogue. Making projections of items to have in stock.
- Health and safety, environmental and labour legislation.
- Safety in equipment and facilities.

Practical subjects:

- Design / interpretation of a maintenance plans for seamers and other equipment and facilities.
- Preparation of standard registration forms of preventive maintenance. Document management in the company.

#### **Possibility of achieving Competence Units through labour training:**

It should be possible to achieve recognition of the described key activities from the Unit of Competence through labour training, if it has a minimal duration of 6 months.