NATIONAL OCCUPATIONAL STANDARD

JEWELER

LEVEL 4

REFERENCE CODE / 13UMS0385-4

OFFICIAL GAZETTE DATE-ISSUE / 26.12.2013 - 28863 (Repeated)

Occupation:	**JEWELER**
Level:	**4[I]**
Reference Code:	**13UMS0385-4**
Prepared by:	**Confederation of Turkish Tradesmen and Craftsmen (TESK)**
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Occupational Qualification Level is determined as Level Three (4) in the octal (8) level matrix.

TERMS, SYMBOLS AND ABBREVIATIONS

WHITENING: Whitening the silver by cleaning it in vitriol oil

HEMSTITCH: Removing the unwanted points on the patterns by opening holes and with the agency of fret saw

ALLOYING: Obtaining a different metal in terms of nature and appearance, by mixing a metal with another one

SHEET: Molded, ingot metal shaped as a plate

GRADE/KARAT HOUSE: The place in which the grades of the metals such as gold and silver etc. are detected

GRADE: An expression stating the amounts and rates of gold and silver in gold and silver alloys

BORAX: A chemical used to increase the surface heat of the metal and to avoid oxidation during the welding process

CIMAR: A technique of gold plating

POLISH: A polishing procedure performed by rolling polishing paste on a cloth, center of which is stripped and cut roundate and which cover a mill, connected to an engine, and printing the mark on a fabric or felt

BURR: Metal leaked from the holes, which are prepared as female and male, during the casting procedure

PAIR: A tool used to hold the objects such as very small and precious stones etc. without damaging them,

STAMP: Seal,

TARE: Deducting the weights of paper, cup or foreign materials from the total weight; while weighing the precious materials,

FRAME: A high frame, with female and male sides overlapped with a pin, to obtain the real casting from the model

PATTERN: All kinds of lines, shapes, ornament and coherence used in ornamentation,

CASTING SAND: Molding sand used in casting,

CASTING: Reproducing the real sample using a hardening material cast to the female mould

WASTE: Metal wasted when an art object is being completed,

SILVER PLATING: Plating a metal with silver using electrolytic dissociation method

MILL: Holes ordered from large to small, used to obtain wire from ingot metal,

FINE: Classification used by craftsmen for 24 grade gold and 1000 grade silver,

SOLDERING IRON: A stemmed, hammer shaped copper tool used to connect and solder two pieces

SCRAP: A work became unusable due to over-attrition,

ISCO: International Standard Classification of Occupation,

ISG (WHS): Occupational Health & Safety,

PEN MASTER: Master applying the technique called pen work using a pen

Source: Connecting, silver welding, soldering, riveting

JIG SAW: Fine thread cutter used in hemstitch work

PERSONAL PROTECTIVE EQUIPMENT (PPE): All kinds of tools, instruments, appliances and devices which are worn, put on or hold by the worker and which protect the worker from one or more hazards arise from the work and effect the health and safety of the worker, and which were designed to suit such purpose,

JEWELER: Artistic jeweler formed using several techniques and precious metals and stones

PLATE: A broad and thin object

NAILING: Placement of precious metals by coating with metal or by nailing onto metal,

WAX TREE: The tree on which the models are set,

WAX BOILER: The machine in which the wax is melted,

FURNACE: The place in which the metals such as gold and silver are melted within a pot,

POT: The cup which is made of high-heat resisting materials and in which minerals such as gold and silver, metal residues and metal alloys are melted,

PUL: İşlenmemiş plakayı,

DROSS: The fact that the particles, which fell to the ground by flitting or any other way, are with all kinds of trash between the grills on the floor of the workplace

RISK: Means probability of occurrence of a hazardous event and combination of results.

RISK ASSESSMENT: Activities carried out for detection of hazards present in or to be imported to the workplace, analyzing and grading factors causing such hazards to become risks and risks arising from the hazards and deciding on the control measures,

GRINDING: Radium polish, glazing on white metal, covering,

FINE SILVER: Refined silver in which no other material exists,

INGOT MOULD: The mould or cup used to cast the metal or welding alloy

BLOW PIPE: Flame-blowing device, which was designed for oxygen-acetylene supply and is equipped with hoses of both gases,

JEWEL: Ornaments made up precious metals and stones and pinned by people on their naked ankles, waist, nose, neck, ear and finger or on clothes

STONE: Hard and solid material, chemical and physical condition of which differ, and color of which is caused by the metals, salt and oxides in it,

DANGER: Potential of damage or injury likely to affect the worker or work place and likely to exist in the workplace or to be caused externally,

NAIL: Triangle, convex semi-circle shaped stone protective materials laid on the stone in order to avoid the stone seated to the stone seat to fall down and in order not to blemish and to spoil

GILT: Covering the materials with precious metals using chemical techniques

TABLE OF CONTENTS

1. INTRODUCTION

National occupational standard for Key-Maker (Locksmith) (Level 4) was issued by the Confederation of Turkish Craftsman and Tradesman (TESK), assigned by Vocational Qualifications Authority (VQA) as per the provisions of Law No.5544 and "Bylaw on Drawing up National Occupational Standards" and "Regulation on the Establishment, Duties and Operation Procedures and Principles of the Sector Committees of Vocational Qualification Authority" introduced pursuant to the aforementioned Law.

National occupational Standard for Jeweler (Level 4) was assessed upon receiving the opinions of the related institutions and organizations in the sector, and approved by VQA Board of Directors upon examination of VQA Metal Sector Committee.

2. INTRODUCTION OF THE OCCUPATION

2.1. Definition of the Occupation

Jeweler (Level 4) is a qualified person who works in line with the documents of environment protection legislation and quality management system and completes procedures taking the occupational health and safety measures, and has the knowledge and skill to produce jewelry with minimum waste, by taking initiative, and within a limited period of time, through the procedures such as (gold, silver, platinum, copper and zinc) melting, casting, welding and shaping.

Place of the Occupation in International Classification System

ISCO 08: 7313 (Those who perform jewelry and precious metal object production works)

2.2. Regulations on Health, Safety and Environment

Environmental Law No. 2872
Labor Law No. 4857
Social Security and General Health Insurance Law No.5510
Law No. 6331 on Occupational Health and Security
Bylaw on the General Principles of Waste Management
By Law on the Principles and Procedures of Occupational Health and Safety Trainings of Employees
Regulation on Preventing the Personnel from the Hazards of the Explosive Environments
Regulation on Protection of Employees from Vibration-related Risks
Bylaw on the Works of Carrying by Hand
By Law on the Safety and Health Markings
By Law on Preparation, Completion and Cleaning Works
By Law on the Health and Safety Conditions when Working with Business Equipment
Bylaw on Occupational Health and Safety
Occupational Safety and Health Regulation
By Law on the Health and Safety Measures to be Taken in Business Place Buildings and Extensions
By Law on the Safety and Health Measures in the Works with Chemical Substances
By Law on the Usage of Personal Protective Equipment in the Business Places
Bylaw on the Control of Hazardous Wastes
Bylaw on the Control of Pollution Caused by Hazardous Substances in and around Aquatic Environment

And, it is essential to obey laws, rules and regulations on occupational health and safety and environment; and to perform risk analysis regarding this issue.

2.3. Other Legislation Related to the Occupation

Tradesmen and Craftsmen Occupational Organization Law No.5362

Law of the Union of Chambers and Commodity Exchanges of Turkey and Chambers and Exchange Commodities No.5174
Vocational Training Law No.3308

And it is essential to obey other current legislations, laws, statutory rules and by-laws.

2.4. Working Environment and Conditions

Jeweler (Level 4) works in ventilated and well illuminated closed areas. Negative conditions of the work environment may be the health problems likely to arise as a result of sitting for long periods and health risks likely to be faced due to the exhalation of the chemicals. There are some risks of accident, injury as well as muscular and skeleton-related diseases which require occupational health and safety measures to be taken during the operation. In cases where the risks cannot be fully eliminated s/he wears proper personal protective equipment provided by the employer.

2.5. Other Requirements Regarding the Occupation

The Jeweler (Level 4) is subject to health surveillance as per Article 15 of OHS Law Nr. 6331.

3. OCCUPATIONAL PROFILE

3.1. Duties, Tasks and Performance Criteria

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Title**	**Code**	**Description**
A	To apply occupational health and safety, fire and emergency rules	**A.1**	To apply legal and workplace rules of occupational health and safety	**A.1.1**	Learns related norms by attending the trainings on occupational health and safety organized by the establishment or other institutions.
				A.1.2	Wears work-clothes and uses personal protective equipment suitable for the work.
				A.1.3	Keeps OHS protection and response equipments properly and in operative state.
				A.1.4	Ensures the security of the workplace and personnel by placing proper warning signs and plates in line with the instructions and keeping the same during the operation.
				A.1.5	Makes sure that inflammable and combustible materials are kept safe.
		A.2	To reduce the risk factors	**A.2.1**	Contributes to risk determination and evaluation studies.
				A.2.2	Attends to the studies conducted to evaluate the risk factors and obtains information and skills for reducing the same.
		A.3	To apply emergency procedures under dangerous situations	**A.3.1**	Contributes to the studies of taking measures to determine the dangerous situations and remove them without wasting time.
				A.3.2	Informs his/her chiefs and authorities or other relevant institutions, when required, about the dangerous situations not likely to be eliminated instantly.
				A.3.4	Applies emergency procedures related to the machine and operation performed.
		A.4	To apply emergency exit procedures	**A.4.1**	Applies exit or escape procedures under emergency situations.
				A.4.2	Participates in the periodical studies and practices conducted to share emergency exit and escape experiences with the concerned people and co-workers.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
B	To work in accordance with the environment protection legislation	**B.1**	To apply environment protection standards and methods	**B.1.1**	Participates in the studies carried out to correctly determine the environmental effects of the operations conducted.
				B.1.2	Obtains attitudes and behaviors on protecting the environment by attending to the periodical trainings on the requirements and practices of environment protection.
				B.1.3	Observes the environmental effects during the work processes and takes part in the studies of prevention from hazardous results.
		B.2	To contribute to the reduction of environmental risks	**B.2.1**	Perform the necessary separation and classification procedure for the recovery of the recyclable materials.
				B.2.2	Separates the dangerous and hazardous materials from the other materials in line with the instructions given, and stores them temporarily upon taking necessary measures.
				B.2.3	Uses personal protective equipment during the operation and in the preparation phase, and makes sure that other personnel use the same.
				B.2.4	Keeps the appropriate appliances, materials and equipment to be used against spilt and leakages available.
		B.3	To consume the establishment resources economically	**B.3.1**	Uses establishment resources economically and efficiently.
				B.3.2	Participates in the determination and planning studies to use the establishment resources less and efficiently.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
C	To work according to quality management system documents	**C.1**	To keep the quality of the operations conducted under control	**C.1.1**	Checks whether the tools, appliances and materials comply with the standards, learns and teaches how to use them.
				C.1.2	Makes sure that quality requirements are applied according to the instructions on the operation forms, and checks the same.
				C.1.3	Checks the quality of the operations on the basis of operation.
				C.1.4	Fills the quality reports related to the operation.
				C.1.5	Informs the authorized persons, in accordance with the establishment procedures, about the errors and malfunctions detected by himself/herself during the activities, and coordinates them to be removed in cooperation with the related units.
		C.2	To participate in the studies conducted to avoid the errors and malfunctions detected in the procedures	**C.2.1**	Listens, evaluates and solves the complaints and recommendations of junior and senior personnel.
				C.2.2	Takes all necessary measures and conducts trainings and control operations to analyze the recommendations and complaints detected in the customer survey form from his/her junior personnel and related units, and to ensure customer satisfaction.
				C.2.3	Regularly shares the success status in the survey forms from the customers with his/her team.
				C.2.4	Conducts all necessary trainings and control operations to ensure customer satisfaction.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
D	To organize the work (continues)	**D.1**	To clean the work environment	**D.1.1**	Cleans the work environment using machine, hand and cleaning materials, in line with the hygienic measures.
				D.1.2	Organizes the work environment to make it a comfortable work place.
		D.2	To maintain the machines, tools and appliances to be used	**D.2.1**	Perform basic maintenance and repair procedures in accordance with the instructions.
				D.2.2	Informs the relevant persons about extensive malfunctions.
		D.3	To wear work clothes and to make sure that the personnel wear the same	**D.3.1**	Chooses the work cloth appropriate for the nature of the operation and provisions of the applicable regulations.
				D.3.2	Checks whether the clothes are clean and appropriate.
				D.3.3	Wears and makes sure that other personnel wear the clothes according to the utilization.
		D.4	To check tools, appliances and materials in the inventory and workplace	**D.4.1**	Checks the quantity, quality and usability of the materials in the inventory or workplace, according to the work to be done.
				D.4.2	Informs those concerned about the missing materials detected, in terms of type, quantity etc.
				D.4.3	Checks the materials supplied, in terms of type, quantity, date of usage and purchase order.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
D	To organize the work	**D.5**	To make sure that the materials supplied are kept under suitable conditions and in appropriate places.	**D.5.1**	Classifies the materials to be kept according to the storage conditions.
				D.5.2	Places the classified materials to the spots appropriate for the storage conditions.
				D.5.3	Arranges the materials to be placed in the workplace, ensuring a comfortable working environment and without damaging them.
		D.6	To divide the works between junior personnel	**D.6.1**	Divides the work between the junior personnel, according to their characteristics and capacities, and the features of the work.
				D.6.2	Explains the work to be done to the junior personnel .
		D.7	To check the works done by the junior personnel	**D.7.1**	Follows up whether the works assigned to his/her junior personnel are done ensuring the intended quality, and in time.
				D.7.2	Detects the errors and deficiencies, if any, and provide feedback.
				D.7.3	Makes sure that the errors and deficiencies are remedied.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
E	To melt the metal (continues)	**E.1**	To check scrap metal	**E.1.1**	Checks the scrap metal using a proper method.
				E.1.2	Detects the potential foreign substances.
				E.1.3	Removes the foreign substances such as stones, glazes and screw in the scrap material, manually or using a tool.
				E.1.4	Removes the foreign substances, which cannot be removed manually or using a tool, using chemicals.
		E.2	To adjust the color of the product according to the order	**E.2.1**	Determines the grade of the gold according to the order.
				E.2.2	Determines the additives required to obtain the intended color.
				E.2.3	Determines the quantity of the additives to encolor the product.
		E.3	To place the metal to the pot	**E.3.1**	Chooses the pot according to the grade.
				E.3.2	Checks whether there are any fractures or holes likely to lead to leakage.
				E.3.3	Cleans the residuals in the pot, using proper methods and tools.
				E.3.4	Scales down the bigger pieces to fit the pot.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
E	To melt the metal	**E.4**	To melt the metal in the furnace	**E.4.1**	Places the pot in the furnace avoiding any overturn.
				E.4.2	Adjusts the required degree of temperature of the furnace.
		E.5	To prepare wire and sheet ingot mould	**E.5.1**	Adjust the height of sheet ingot mold, according to the intended size.
				E.5.2	Heats the ingot mould until it is too hot to be touched.
				E5.3	Lubricates the heated ingot mould with oil or bee wax.
		E.6	To cast the melted materials to wire or sheet ingot mould	**E.6.1**	Stirs the melted materials using a iron bar or carbon.
				E.6.2	Holds the pot using a fire iron and casts the melted metal in the wire or sheet ingot mould.
		E.7	To send the melted alloy / metal to analysis	**E.7.1**	Sends the metal to analysis as a whole or by sampling for grade confirmation.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
F	To prepare the weld (continues)	**F.1**	To determine the metal alloy appropriate for welding	**F.1.1**	Detects the intended welding grade.
				F.1.2	Detects the materials (cadmium, copper, silver, zinc) to be mixed with the alloy according to the intended welding grade.
		F.2	To obtain the intended grade for alloy	**F.2.1**	According to the intended welding grade, determines the quantities of the materials to be added to the alloy, calculating the required formulas.
				F.2.2	Prepares the alloy according to the intended welding grade and the quantity of the materials determined.
		F.3	To place the alloy in the welding pot	**F.3.1**	Checks the pot for holes and fractures, and checks whether there are any foreign substances in the pot.
				F.3.2	Removes the residuals in the pot, using a hard headed tool.
				F.3.3	Scales down the bigger pieces to fit the pot.
		F.4	To melt the alloy	**F.4.1**	Places the pot in the furnace avoiding any overturn.
				F.4.2	Adjusts the required degree of temperature of the furnace.
				F.4.3	Places the materials on the pot starting from those fusion points of which are higher.
		F.5	To cast the alloy to ingot mould	**F.5.1**	Stirs the melting alloy using proper methods.
				F.5.2	Holds the pot using a fire iron in a stable manner, and casts the alloy to the ingot mould.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
F	To prepare the weld	**F.6**	Rolling the alloy in cylinder	**F.6.1**	Adjusts the cylinder according to the thickness of the alloy.
				F.6.2	Rolls the alloy in the direction of the cylinder (upright).
				F.6.3	Heats the alloy periodically (to avoid cracking).
				F.6.4	Obtain the intended fineness of the alloy.
		F.7	To riffle the dust welding alloy manually	**F.7.1**	Connects the alloy to the cramp ensuring that the upper part is stable.
				F.7.2	Riffles the alloy in a directional manner, using the riffle, fineness of which is proper.
				F.7.3	Magnetize the riffled alloy to remove the foreign substances.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
G	To prepare the metal for the process via casting (continues)	**G.1**	To prepare the mould, in which casting is to be performed	**G.1.1**	Makes sure that the model mould is prepared, according to the order.
				G.1.2	Boils the base/root to ensure that it can be removed as a mould.
				G.1.3	Shuts the model mould in the rubber press and obtains the real rubber mould.
				G.1.4	Takes the model out of the real rubber mould using proper sharp tool without causing any damage to the bridges or the sore points of the model.
		G.2	To prepare wax for the mould	**G.2.1**	Melts the wax after adjusting the heat of the wax boiler according to the hardness of the wax.
				G.2.2	Adjusts the heat and the air of the wax boiler according to the model.
				G.2.3	Compresses or pumps the melted wax in the rubber moldings.
		G.3	To set the models on the wax tree	**G.3.1**	The base/root is placed to a frame plastic (shoe hole) in an upright position.
				G.3.2	Checks the compactness of the root/base.
				G.3.3	Pierces the base/root leaving spaces to avoid any contact between soldering iron and models.
				G.3.4	Sets the models while the pierced holes are warm.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
G	To prepare the metal for the process via casting (continues)	**G.4**	Plastering (framing) the mould	**G.4.1**	Enswathes the frame (using a gazette, paper, packaging tape etc.).
				G.4.2	Places the enswathed frame to the shoe (hole) of the wax tree.
				G.4.3	Prepares the plaster by mixing it (manually or using a drill) according to the size of the frame and obtains a homogeneous alloy.
				G.4.4	Deflates the plaster in vacuum boiler.
				G.4.5	Casts the plaster to the frame avoiding any contact between the models on the base/root tree and the frame.
				G.4.6	Places the plaster to the vacuum boiler to deflate the frame and fill the gaps with the via vibration.
		G.5	To put the mould (frame) into the oven	**G.50.1**	Removes the winding (paper, plaster etc.) and the shoe when the plaster freezes.
				G.50.2	Cleans the bottom and top of the frame by rubbing.
				G.5.3	Places the frames in the oven neatly.
				G.50.4	Heats the oven.
		G.6	To cast the metal to the mould (frame)	**G.6.1**	Takes the frame out using a fire iron etc.
				G.6.2	Fixes the hot frame taken out from the oven by placing it on the lid of the vacuum boiler.
				G.6.3	Places the fixed frame in the vacuum boiler.
				G.6.4	Casts the metal, melted in the pot, to the fixed frame.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
G	To prepare the metal for the process via casting	**G.7**	To clean the plaster of the mould	**G.7.1**	Separates the un-glowed frame from plaster and metal under cold water (blows).
				G.7.2	Separates the plaster and metal from each other using pressurized water.
				G.7.3	Cleans the plaster on the wax tree using (diluted) abietic acid.
		G.8	To remove the models from the wax tree	**G.8.1**	Heats the wax tree using torch.
				G.8.2	Whitens the wax tree using chemical substance (diluted sulphuric acid).
				G.8.3	Dries the wax tree (using a hair drier, air etc. or in an oven).
				G.8.4	Separates the models from the wax tree using tools such as scissors etc. without causing damage on the model.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
H	To shape the pieces cut (To be continued)	**H.1**	To thin the sheet	**H.1.1**	Determines the microns according to the work to be done.
				H.1.2	Heats the sheet and wire periodically and acquire the intended micron (density).
				H.1.3	Flattens the wire, which acquired the intended micron, using cylinder.
				H.1.4	Waxes the heated wire with a film-thin bee wax.
		H.2	To engrave the sheet	**H.2.1**	Prepares or supplies the pattern to be engraved according to the dimensions, taking the order into consideration.
				H.2.2	Attaches the pattern upon checking whether there are any deformation on the sheet.
				H.2.3	Drills the hemstitched areas to be engraved according to the pattern, using proper method and tool.
				H.2.4	Performs the hemstitch operation on the areas drilled on the pattern, using proper method and tool.
		H.3	Shaping and patterning the sheet in the pres	**H.3.1**	Connects the steel mould to the press and cuts the sheet according to the mould.
				H.3.2	Places the cut sheet to the tank of the mould.
				H.3.3	Starts the press and takes the models.
				H.3.4	Bends two same-sized wired by turning the dynamo (table, hand wheel) in the direction required by the model.
				H.3.5	Heats the bended wire periodically, according to the requirements.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
H	To shape the pieces cut	**H.4**	To bend the wire	**H.4.1**	Bends two wires in equal thickness (dynamo, table, hand wheel) towards direction required by the model.
				H.4.2	Heats the bent wire periodically, according to the requirements.
		H.5	To weave	**H.5.1**	Weaves or shapes more than two wires according to the pattern, by pulling them manually and without leaving any space.
				H.5.2	Heats the wires periodically, according to the requirements.
		H.6	To shape the wire and sheet	**H.6.1**	Cuts the wire according to the model.
				H.6.2	Shapes the wire according to the model, using hand tools.
				H.6.3	Shapes the sheet according to the model, using an appropriate method.
		H.7	To produce joining rings	**H.7.1**	Tightly wraps the heated wire pieces to the measurement wire.
				H.7.2	Cuts the wire separated from the measurement wire, on one side.
				H.7.3	Connects the rings, one side of each is cut, with each other or other products.
		H.8	Setting the shaped pieces	**H.8.1**	According to the model, sets the pieces, taken out from the press or bended, on the fire brick to weld them, upon sinking them to borax.
		H.9	To weld the pieces	**H.9.1**	Welds the junction points of the pieces, set according to the model or connected to each other, with the welding alloy prepared.
		H.10	To level the product	**H.10.1**	Removes the burrs in the welded area on the product, using a file.
				H.10.2	Cleans the required areas on the product using fine emery.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
I	To perform the last operations on the product (continues)	**I.1**	Whitening the product	**I.1.1**	Heats the finished product with torch and leaves the heated product to get cool.
				I.1.2	Whitens the finished product using chemicals (nitric acid, hydrochloric acid, etc).
		I.2	To wash the product	**I.2.1**	Washes the whitened product using detergent water and wire brush.
				I.2.2	Washes the product whitened with chemicals, using drum.
				I.2.3	Adds the seal and patent of the establishment on an appropriate and legible point of the product.
		I.3	To color the product	**I.3.1**	Ensures the intended color using hydrochloric acid, and gild on the finished product (whitened and washed).
		I.4	To polish the product	**I.4.1**	Applies the polish upon letting the polishing brush absorb the polish.
				I.4.2	Applies polish using a polishing brush to luster the finished product and to avoid dullness and marks resulted from the riffle and emery.
		I.5	To dry the product	**I.5.1**	Washes the polished product with detergent hot water.
				I.5.2	Dries the washed product with a drying machine without touching.
				I.5.3	Adds the seal and patent of the establishment on an appropriate and legible point of the product.
		I.6	To perform pen work on the product	**I.6.1**	Detects the area on which pen work is to be performed.
				I.6.2	Applies the pattern manually or using a machine, according to the model, without slipping the pen.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
I	To perform the final operations on the product	**I.7**	To apply grinding	**I.7.1**	Detects the area on which grinding procedure is to be applied.
				I.7.2	Changes the color of the product, totally or partially, according to the model, using chemicals.
		I.8	To apply glazing	**I.8.1**	Detects, according to the model, the area on which glazing procedure is to be applied.
				I.8.2	Prepares the glaze in desired color for use.
				I.8.3	Places the colored glazes on the glazing areas.
				I.8.4	Cooks glazed product at appropriate temperature. (in case of hot glaze)
				I.8.5	Whitens glazed product by using acid.
		I.9	To nail stone	**I.9.1**	Opens stone seats on the required points on the model using milling machine.
				I.9.2	Checks the color and the size of the stone, and whether there are any crack or fracture on it.
				I.9.3	Holds the stone through the agency of bee wax or pair, and places it to its seat.
				I.9.4	Lays the seat edges on the stone with a steel pen and without breaking the stone or leaving any space.
		I.10	To perform the last quality control procedure on the product	**I.10.1**	Checks whether there are any patent, and seal, cracked and broken parts, welding defect, color, polish, grinding spillage, glazing defect, nailing defect etc. before sending the product to be scaled.
				I.10.2	Weighs the product by means of calibrated scales.
		I.11	To package the product	**I.11.1**	Cleans the product using wash-leather, cloth etc.
				I.11.2	Places the product in appropriate gelatin bags.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
J	To conduct procedures on avoiding waste	**J.1**	To offer trainings for the workers on working without waste	**J.1.1**	Detects the training needs of the workers about working without waste by observing and checking.
				J.1.2	Informs those who need training on working without waste.
				J.1.3	Controls the workers for working without waste.
		J.2	To make sure that the workers wear the work clothes, in order to ensure working without waste	**J.2.1**	Checks whether the workers wear waste-preventive work clothes before starting the work.
				J.2.2	Warns those who do not wear the work clothes and makes sure that each personnel wears them.
		J.3	Firesiz çalışmayı sağlamak için çalışma ortamını kontrol etmek	**J.3.1**	Checks the grid deficiencies, aged drawer cases, broken drawers, pen room, pen bell-glass etc.to avoid any waste.
		J.4	To make sure that the pot is cleaned, in order to avoid waste	**J.4.1**	Checks whether there are any crack or fracture on the pot.
				J.4.2	Peels of the production residues on the pot, and cleans.
		J.5	To adjust the furnace in order to avoid waste	**J.5.1**	Adjusts the heat according to the metal/alloy during the melting process to avoid waste.
		J.6	To detect the reason of over-waste	**J.6.1**	Detects the phrases/places in which waste arise, by following the production process when the waste is excessive.
		J.7	To make suggestions to the employer/chief regarding working without waste	**J.7.1**	Makes preventive suggestions to the employer/chief according to the detected waste causes.
		J.8	To make sure that the dross collected periodically.	**J.8.1**	Makes sure that the dusts and burrs in the workplace floor and the grids are collected periodically.
				J.8.2	Keeps the collected dusts and burrs (dross) in a closed cup or bag in the workplace.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
C	Maintain and repair the tools, appliances and equipment used	**K.1**	To check the status of sets, machines and tools	**K.1.1**	Periodically checks the machines, sets and tools for being active, inactive and rusty etc.
				K.1.2	To clean the machines, sets and tools
				K.1.3	(After the production process) Periodically lubricates the cleaned machines and sets using lubricator, cotton waste, cotton etc.
		K.2	To perform the basic repairing procedures on machines and sets	**K.2.1**	Whets the blunted heads of scissors and pens.
				K.2.2	Flattens the tops of the pairs using file and emery.
				K.2.3	Replaces the parts of the machines and sets, which cannot be repaired.
		K.3	To check the scales settings	**K.3.1**	Zeroizes the scales.
				K.3.2	Ensures that the scales are positioned properly, using the water level.
				K.3.3	Places the scales in a glass bell to ensure that the scales are not effected by the environmental conditions.
		K.4	To adjust the machines and sets	**K.4.1**	Checks the settings of the machines and the sets.
				K.4.2	Detects whether there are any deviations such as de-calibration.
				K.4.3	Adjusts the settings of the machines and sets according to the standard settings.
		K.5	To have the malfunctions, which cannot be repaired, are removed	**K.5.1**	Informs the employer/service about the malfunctions that cannot be repaired.

Duties		Actions		Performance Criteria	
Code	**Title**	**Code**	**Code**	**Title**	**Code**
L	To attend to professional development activities	**L0.1**	Performing studies on personal occupational development.	**L.1.1**	Attends the trainings on the basic features of machines, workbenches and devices; and keeps the certificates s/he obtains.
				L.1.2	Follows up the emerging technologies and developments in the field of jewelry.
		L0.2	To offer vocational trainings for junior personnel and other personnel	**L.2.1**	Conveys his/her knowledge and experiences to his/her-workers.
				L.2.2	Gives information and applies trainings on jewelry-related procedures, within a limited level.

3.2. Tools, Appliances and Equipment Used

1. Gypsum
2. Ammonia
3. Acids
4. Fire brick
5. Bee wax
6. Sharpening stone
7. Borax
8. Dye
9. Press
10. Polishing brushes
11. Polishing machine
12. Polishes
13. Wheel
14. Steel hand pens
15. Pair
16. Stamping machine
17. Frame fire iron
18. Sealing wax
19. Casting wax
20. Adjusting irons
21. Adjusting/enlargement machines
22. File set
23. Electricity welding machine
24. Melting spoon
25. Melting furnace
26. Brushing machine
27. Furnace
28. Leakage preventive work clothes
29. Milling machine
30. Milling machine heads
31. Mills
32. Countersink set
33. Steam engine
34. Pen machine
35. Additives
36. Rubber
37. Welding stone
38. Jig saw
39. Guide - screw plate
40. Precious and semi-precious stones
41. Personal Protective Equipment (work cloth, ear protector, mask, gloves, glasses etc.)
42. Caliper

43. Drying machine
44. Drying chip
45. Sulphur
46. Laser set
47. LPG tube
48. Magnifying lens
49. Mandrels
50. Fire iron
51. Mat machine
52. Drills and drill heads
53. Loophole machine
54. Cramps
55. Touch stone
56. Micrometer
57. Mine
58. Model spoon
59. Lubricating oil
60. Wax boiler
61. Bistoury
62. Salammoniac
63. Anvil
64. Polishing paper
65. Compass
66. Crucible
67. Crucible tongs
68. Press
69. Press mold
70. Rasp
71. Revetman
72. Ingot mould
73. Heating and welding torch
74. Wire, primer paint and model cylinder
75. Basic hand tools
76. Scales
77. Hammer
78. Lathe
79. Vacuum pump
80. Vibrator
81. Vulcanized mold
82. Vulcanized press
83. Gilding machine
84. Washing machine
85. Sandpaper

3.3. Knowledge & Skills

1. Knowledge on emergency case
2. Knowledge on tools, apparatus and equipment
3. Basic first aid knowledge
4. Knowledge on environmental protection methods
5. Drawing skill
6. Ability of working in a team or an organization
7. Manual skill
8. Skill of hand-eye coordination
9. Knowledge on Occupational Health and Safety Precautions
10. Workplace working procedures information
11. Knowledge on precious metals
12. Knowledge on precious and semi-precious stones
13. Knowledge on metal (gold, silver and other mines used in jewelry) alloy and alloy application
14. Knowledge on legal regulations regarding the occupation
15. Knowledge on occupational mathematics
16. Knowledge on occupational and technological advancements
17. Knowledge of vocational terms
18. Skill of learning and being able to share what he learned
19. Oral and written communication skills
20. Knowledge on basic labor legislation
21. Skill of using the time well.

3.4. Attitudes and Behaviors

1. To be cold blooded in emergency and stressful situations
2. Informing superiors properly and in time
3. Perform tests and application in detecting malfunctions
4. Using her/his time effectively and efficiently in accordance with work orders
5. Adopting environmental, quality and OHS rules
6. Sharing experience with associates
7. To be careful and rigorous
8. Having a good aesthetical perspective
9. To stop the equipment when necessary and under emergency situations
10. Having working discipline
11. Obeying the working principles of the workplace
12. Paying attention to the usage of tools, appliances and equipments belonging to workplace
13. Ensuring his/her own safety and safety of other people
14. To be willingful to improve himself/herself
15. Carefully protecting the materials and instruments which are required to be protected
16. Having professional ethics
17. To be open to research for occupational development
18. Being planned and organized

19. Knowing his/her responsibilities and fulfilling the same
20. Taking care of cleanness, tidiness, and order of workplace
21. Informing the people concerned about the situations which are not under his/her authority

4. TESTING, ASSESSMENT AND CERTIFICATION

Testing and assessment for certification with respect to national qualifications based on Jeweler (Level 4) occupational Standard shall be held in written and/or oral forms, theoretically and practically, in testing and assessment centers where required conditions are met.

Testing and assessment method and practice principles shall be detailed with national qualifications to be drawn up pursuant to this occupational standard. Activities regarding testing, assessment and certification shall be conducted within the framework of the Vocational Qualification, Testing and Certification Regulation published in the Official Gazette dd. 30.12.2008 and nr. 27096.

Note: This part shall not be published in the Official Gazette. It will be published in VQA website only.

ANNEX: Institutions participated in the Occupational Standard Preparation Process

1.Professional Standards Team of Institution Preparing Professional Standard

Nuran SENAR, TESK – Deputy general Secretary

Zehra KAYA, TESK– Training & Planning Manager

Ayfer TOPKAYA, TESK- Assistan Training & Planning Specialist

2.Technical Work Group Members

Hüsnü ÜNLÜ, Burcu Gümüş- Jeweler
Hüseyin DENİZ, Beygold Kuyumculuk – Jeweler
Yusuf ASAR, Arma Gümüş – Jeweler
Nihat İŞÇİ, Nihat Gold – Jeweler
Celal KILIÇ, Kılıç Kuyumculuk- Jeweler
Abdulvahap TOPRAK, Toprak Gold- Jeweler
İshak SİNCAR, Kardeşler Kuyumculuk- Jeweler
Mustafa AKBAHARER, Mars Gümüş

3.People, Institutions, and Organizations Asked for Opinion:

Ankara Chamber of Industry

Ankara Chamber of Commerce

Altınbaş Kuyumculuk (Altınbaş Jewellery)

Atasay Kuyumculuk (Atasay Jewellery)

Western Anatolia Jewelry Union

United Metal Workers' Union

Çelik İş Trade Union

Aegean Region Chamber of Industry (EBSO)

Eagean Union of Key-Makers and Locksmiths

Unions of Chambers of Merchants and Craftsmen

Favori Kuyumculuk (Favori Jewellery)

Gazi University Technical Faculty of Education, Metal Department

Gaziantep Association of Key-Makers, Locksmiths and Ironworkers

Goldaş Kuyumculuk (Goldaş Jewellery)

Gülaylar Kuyumculuk (Gülaylar Jewellery)

Hak-İş Trade Union Confederation

The Ministry of Interior (General Directorate of Local Administrations)

Istanbul Association of Key-Makers, Locksmiths and Ironworkers

Istanbul Beneficial Association for Protecting Jewelers and Goldsmiths

Istanbul Exporters' Unions for Mines and Metals

İstanbul Chamber of Commerce

Kayseri Association of Goldsmiths and Jewelers

Small and Medium Industry Development and Supporting Administration (KOSGEB)

Midas Kuyumculuk (Midas Jewellery)

Rize Association of Jewelers

Sakarya Union of Key-Makers and Locksmiths

REPUBLIC OF TURKEY Ministry of Labor and Social Security

REPUBLIC OF TURKEY Ministry of National Education (General Directorate for Apprenticeship and Non-Formal Education)

REPUBLIC OF TURKEY Ministry of National Education (General Directorate of Technical Education for Boys)

REPUBLIC OF TURKEY Ministry of National Education (General Directorate of Technical Education for Girls)

REPUBLIC OF TURKEY Ministry of National Education (General Directorate of Trade and Tourism Education)

Ministry of National Education

REPUBLIC OF TURKEY Ministry of Health

Tekirdağ Association of Goldsmiths and Jewelers

Union of Chambers of Turkish Engineers and Architects (TMMOB), Chamber of Metallurgical Engineers

Association of Watchmakers (TUSAD)

Turkish Metal Union

Turkish Aluminum Industrialists Association

Turkish Iron and Steel Manufacturers Association

Turkish Confederation of Revolutionary Trade Unions

Turkish Exporters Assembly

Turkish Statistics Institution

Turkish Labor Institution

Turkish Confederation of Trade Unions

Turkish Confederation of Employer Associations

Turkish Metal Industrialists Union

Turkish Union of Chambers and Exchange Commodities -TOBB

Board of Higher Education (YOK)

4. Sector Committee Members and Experts

Prof. Dr. Süleyman TEKELİ,	President (Board of Higher Education)
Şeref ÜNVER,	Vice President (Ministry of Education)
Yunus KISA,	Member (Ministry of Labor and Social Security)
Dr. Mete CANKAYA,	Ministry of Science Industry and Technology
Muhsin ŞAŞMAZ,	Member (Ministry of Transportation)
Çağatay KESTİR,	Member (Ministry of Energy and Natural Resources)
Serpil ÇİMEN,	Turkish Union of Chambers and Exchange Commodities - TOBB
Ahmet YARDIMCI,	Member (Confederation of Turkish Tradesman and Craftsmen)
Ahmet Turan ALNIAÇIK,	Member (Turkish Exporters Assembly)
Miray VURMAY,	Member (Turkish Confederation of Employer Associations)
Şahin SERİM,	Hak-İş Trade Union Confederation
Dr. Aykut ENGİN,	Turkish Confederation of Employer Associations
Hacı Ali EROĞLU,	Member (Occupational Qualification Authority)
Firuzan SİLAHŞÖR,	Head of Department (Vocational Qualifications Authority)
Fatma GÖKMEN,	Representative of Sector Committee (General Directorate of the Services for Disabled and Elderly)

5. VQA Executive Board

Bayram AKBAŞ,	President (Repr.of Ministry of Labor and social Security)
Doç. Dr. Ömer AÇIKGÖZ,	Vice President (Ministry of Education)
Prof. Dr. Mahmut ÖZER,	Member (Board of Higher Education)
Bendevi PALANDÖKEN,	Member (Professional Associations)
Dr. Osman YILDIZ,	Member (Trade Unions Confederations)
Mustafa DEMİR,	Member (Employer Unions Confederations)

