



**NATIONAL OCCUPATIONAL STANDARD**

**PRECAST CONCRETE CURER  
LEVEL 3**

**REFERENCE CODE / 12UMS0248-3**

**OFFICIAL GAZETTE DATE - ISSUE / SEPTEMBER 15, 2012 – 28412  
(Repeated)**

<b>Occupation:</b>	<b>PRECAST CONCRETE CURER</b>
<b>Level:</b>	<b>3<sup>1</sup></b>
<b>Reference Code:</b>	<b>12UMS0248-3</b>
<b>Prepared by:</b>	<b>The Turkish Employers Association of Construction Industries (INTES)  Industries (INTES) Turkish Prefabrication Union</b>
<b>Verified by:</b>	<b>VQA Construction Sector Committee</b>
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<sup>1</sup> Occupational Qualification Level is determined as Level Three (3) in the octal (8) level matrix.

### TERMS, SYMBOLS AND ABBREVIATIONS

**STEAM BOILER:** Main elements of the system where steam is generated in the required quantity, pressure and specifications,

**STEAM CURING:** Dry or wet application in order to provide early strength to the poured concrete,

**FORM OF DAILY INSTRUCTIONS FOR PRODUCTION:** The document prepared by the production engineer and showing the products to be produced daily,

**ISCO:** International Standard Classification of Occupations,

**OHS:** Occupational Health & Safety

**BOILER WATER:** The water in the boiler prepared by adding chemicals, if required,

**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 arising from the work and effect the health and safety of the worker, and which are designed to suit such purpose,

**PERIODIC MAINTENANCE:** The maintenance carried out periodically,

**WATER SOFTENING:** Cationic resining for removing calcium and magnesium included in the raw water from water,

**RISK:** Probability of occurrence of a hazardous event and combination of results.

**FRESH CONCRETE:** Shapeable status of newly mixed concrete before hardening,

**HAZARD:** Potential of damage or injury likely to affect the worker or workplace and likely to exist in the workplace or to be caused externally,

**PRODUCTION HALL:** The place of production

**PRODUCTION MOULDS (MOULD):** The element, in which the concrete is poured, giving the necessary shape until the concrete reaches the necessary strength

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## 1. INTRODUCTION

National occupational standard titled Precast Concrete Curer (Level 3) was issued by the Turkish Employers Association of Construction Industries (İNTES) assigned as per the provisions of Vocational Qualifications Authority (VQA) 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 titled Precast Concrete Curer (Level 3) 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 the VQA Construction Sector Committee.

## **2. INTRODUCTION OF THE OCCUPATION**

### **2.1. Definition of the Occupation**

Precast Concrete Curer (Level 3) is the qualified person who makes the work organization related to his occupation, operates the steam boiler in the plants where precast elements are produced, applies the specified cure regime for curing of precast elements, carries out periodic maintenance of equipment he uses and participates in the activities required for professional development by taking environmental measures related to the Occupational Health and Safety and within the scope of quality systems.

### **2.2. Place of the Occupation in International Classification System**

ISCO 08: 7114 (Concrete placers, concrete finishers and related workers)

### **2.3. Regulations on Health, Safety and Environment**

Labor Law No. 4857

Social Security and General Health Insurance Law No.5510

Occupational Health and Safety Law No. 6331

Regulation on Heavy and Dangerous Works Regulation on Safety and Health Signs

By Law on the Health and Safety Conditions when using Business Equipment

Occupational Safety and Health Regulation

By Law on the Usage of Personal Protective Equipment in the Business Places

By Law on Occupational Health and Safety in Construction Works

By Law on Health and Safety in Construction Works

Regulation on Control of Hazardous Wastes Furthermore, it is essential to obey laws, statutory rules and regulations on occupational health and safety and environment; and to perform risk analysis regarding this issue.

### **2.4. Other legislation relating to the occupation**

TS 3440 Production Rules for Concretes to be effected by Water, Ground and Gases Having Hazardous Chemical Effects

TS 3648 Rules For Applying Steam Cure To The Prefabricated Concrete Elements Under Atmospheric Pressure

TS EN 13369 Precast Concrete Products – General Rules

TSE K 118 Precast Reinforced Concrete Construction Elements – Quality Management Systems

TS EN 13369 Precast Concrete Products – General Rules

Other Legislation Regarding the Occupation Public Servants Law No. 657

### **2.5. Working Environment and Conditions**

The working environment of the Precast Concrete Curer (Level 3) is generally dangerous, noisy, dusty, rather dirty, requiring well ventilation. He may be required to work outdoors as well as at the workshop. There are risks of accident and getting injured during performance of works and these require being taken of measures regarding occupational health and security.

### **2.6. Other Requirements Regarding the Occupation**

The Precast Concrete Curer (Level 3) must have a "Form of Initial Entrance and Periodical Medical Examination for Workers in Heavy and Dangerous Works" report.

### 3. OCCUPATIONAL PROFILE

#### 3.1. Duties, Tasks and Performance Criteria

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
A	Doing work organization (continues)	A.1	To take measures towards occupational health and safety	A.1.1	Has knowledge about risk factors in the work environment
				A.1.2	Uses necessary PPEs for occupational health and safety
				A.1.3	Informs the authorized person regarding the troubles, which could constitute problems
				A.1.4	Avoids behaviors, which could cause accident, pays attention to and complies with measures
				A.1.5	Ensures that only related persons are present at the worksite
				A.1.6	Keeps ready first aid kit and fire extinguisher
				A.1.7	Takes with the communication devices (wireless, telephone etc.)
				A.1.8	Does the necessary safety equipment control at the workplace according to the instructions of the work safety expert.
				A.1.9	Keeps the boiler room and its vicinity clean.
				A.1.10	Uses safety belts when working at high places and places where it is difficult to ensure stability
				A.1.11	Takes necessary measures against the danger of fire
				A.1.12	Provides keeping the dangerous materials at a safe place
				A.1.13	Appropriates materials of occupational health and safety and keeps in closed areas.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
A	Doing work organization	A.2	To take information regarding the work to be done	A.2.1	Takes information written or verbally from the related authorities regarding the work to be performed.
				A.2.2	Determines the program regarding the work
				A.2.3	Reports the daily works to the superiors
		A.3	To make pre-work preparations/controls	A.3.1	Uses and maintains available steam and heating boilers and their installations in accordance with the the work instructions.
				A.3.2	Controls any kind of materials and spare parts other than fuel required for operation of boilers and deriving steam and informs the authorities on order processing.
				A.3.3	Ensures that it's saved on steam hoses and supplies the missing hoses from the warehouse.
		A.4	To contribute decreasing of environmental risks	A.4.1	Does the necessary separation and classification for recycling of recyclable materials
				A.4.2	Separates dangerous and hazardous materials from other materials according to the instructions and ensures storages by taking necessary precautions.
		A.5	To apply technical procedures to ensure quality	A.5.1	Applies technical procedures to ensure quality according to the type of work
				A.5.2	Provides fulfillment of quality conditions during procedures.



Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
B	Operating the boiler	B.1	To generate steam	B.1.1	Ensures that fuel compatible with the boiler type is filled in the steam boiler.
				B.1.2	Determines the requirement by following up the fuel stock levels and informs such requirement to the authorities.
				B.1.3	Carries out water softening process as is stated in the boiler user's instructions.
		B.2	To ignite the boiler	B.2.1	Continuously controls the pressure levels for obtaining maximum efficiency with optimum ignition in the steam boilers.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
C	Carrying out the curing	C.1	To control the conformity of installations	C.1.1	Ignites the boiler according to the steam boiler usage and maintenance instructions at the start of shift; follows up and controls such ignition, water level and pressure.
		C.2	To place thermometer	C.2.1	Places adequate number of thermometers on the mould covered with cloth before starting the open circuit steam cure.
		C.3	To add additional substances	C.3.1	Follows up usage of boiler water admixture.
		C.4	To adjust curing time	C.4.1	Is informed of the ending time of manufacture of the products to be applied steam cure by the authority and controls whether the top of moulds are covered properly or not.
				C.4.2	Applies the steam cure in accordance with the cure regime prepared by the relevant departments.
				C.4.3	Records the results in the steam cure application report.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
D	Carrying out periodic maintenance and controls	D.1	To clean the boiler and boiler room	D.1.1	Brushes the fire tubes of steam boilers periodically and cleans the boiler room.
		D.2	To maintain the boiler and its piping	D.2.1	Carries out the maintenances stated in the boiler maintenance instructions.
				D.2.2	Arranges the steam installations in cases of placing new production moulds or removing used moulds for the facility's requirement.
				D.2.3	Controls the steam line between the production lines and reports the faults and steam leakages, if any.
				D.2.4	Ensures that the minor faults he detects during the maintenance are repaired.
		D.3	To inform the authorities on the maintenance and controls	D.3.1	Informs the authorities when he discovers any defect in the steam temperature to affect the quality.
				D.3.2	Follows up periodic technical maintenance controls of the boilers and informs the authorities to get the boilers controlled by the authorized service for the boilers of which maintenance period expired.
				D.3.3	Controls the stocks of fuel like coal, natural gas, fuel-oil and etc.; informs the authorized department periodically.

Duties		Tasks		Performance Criteria	
Code	Name	Code	Name	Code	Description
E	Taking part in the occupational development activities	E.1	Performing studies on personal occupational development.	E.1.1	Participates in the trainings related to his occupation and keeps the certificates he obtains.
				E.1.2	Follows up new technologies and developments related to his occupation.
				E.1.3	Shares his/her knowledge and experience with his/her colleagues.

### 3.2. Tools, Appliances and Equipment Used

1. Open end wrench
2. Types of pipe wrench
3. Pipe system
4. Nail puller
5. Personal protective equipment (helmet, protective glove, ear protectors, steel toe shoes, luminous vest, safety belt, dust glasses, dust mask, protective clothes and etc.)
6. Clamp
7. Mineral salt
8. Water Hose
9. Wire brush
10. Fuel
11. Fire Extinguisher
12. Floor brush
13. Softened water

### 3.3. Knowledge & Skills

1. Knowledge on emergency case
2. Knowledge on tools, apparatus and equipment
3. Basic first-aid knowledge
4. Knowledge on concrete material
5. Ability of working in a team or an organization
6. Knowledge on heat transfer
7. Knowledge on occupational health & safety
8. Knowledge on railway signs
9. Knowledge on the work site operation procedures
10. Knowledge on the boiler
11. Knowledge on use of user's guide, handbook and maintenance book
12. Knowledge on material technical data
13. Skill of estimating distance and weight
14. Knowledge on legal regulations regarding the occupation
15. Knowledge of vocational terms
16. Skill of organization
17. Skill of learning and being able to share what he learned
18. Skills of oral and written communication
19. Knowledge on standard materials
20. Knowledge on basic labor legislation
21. Knowledge on sanitary installations on the baseline level
22. Knowledge on fire fighting techniques and use of fire-extinguisher

### **3.4. Attitudes and Behaviours**

1. To be cold blooded and calm under emergency and stressful situation
2. To decide within the scope of his knowledge and experience
3. To use her/his time effectively and efficiently in accordance with work orders
4. To adopt regulations set forth in environmental, quality, and OHS legislation
5. To be open to change and to adapt to changing conditions
6. To be in harmony with the team
7. To take care of human relations
8. To have working discipline
9. To obey the working principles of the workplace
10. To pay attention to the usage of tools, appliances and equipments belonging to workplace
11. To pay attention to quality
12. To be willingful to improve himself/herself
13. To ensure his/her own safety and safety of other people
14. To have professional ethics
15. To be planned and organized
16. To be sensitive to issues of risk and hazard factors
17. To know his/her responsibilities and to fulfill the same
18. To learn instructions and guides and to comply them meticulously
19. To react effectively, rapidly and correctly within his area of work in cases of emergency
20. Taking care of cleanness, tidiness, and order of workplace
21. To share information effectively, openly and accurately in shift changes
22. To inform authorities properly and on time
23. To inform concerned people about the defects which are not under his/her authority

#### **4. TESTING, ASSESSMENT AND CERTIFICATION**

Testing and assessment for certification with respect to national qualifications based on Precast Concrete Curer (Level 3) 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 Vocational Qualification Authority, Testing and Certification Regulation.

## **ANNEX: Institutions participated in the Occupational Standard Preparation Process**

### **1. Professional Standards Team of Institution Preparing Professional Standard**

H.Necati ERSOY	İNTES – Secretary General
Dr. Aytekin AKAGÜN	İNTES – Civil Engineer MSC
Aslı KARATEKİN	İNTES – Project Manager
Sevil Buket ATAR	İNTES – Construction Technician

### **2. Technical Work Group Members**

Alper Uçar	Turkish Prefabrication Union – Civil Engineer
Dolunay Çapan	Afaprefabrik A.Ş. – Civil Engineer
İlker Sezan	Kam Ankara Beton San. Inc. – Civil Engineer
Kenan Çelik	Kam Ankara Beton San. Inc. –Physics Engineer
Orhan Manzak	Yapı Merkezi Prefabrikasyon A.Ş. – Senior Civil Engineer

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

Afaprefabrik Prefabrike Beton San. Tic.A. Ş.  
Ankara Chamber of Industry  
Ankara Chamber of Commerce  
Concrete Agent Manufacturers Union  
Bosphorus University school of Engineering, Department of Civil Engineering  
Directorate General of State Hydraulic Works, Department of Project and Civil Works  
Dokuz Eylül University, School of Engineering, Department of Civil Engineering  
Gazi University, Faculty of Technology  
Chamber of Civil Engineers, Ankara Branch  
İstanbul Technical University, Faculty of Civil Engineering, Department of Civil Engineering  
KAM Ankara Beton Sanayi A.Ş.  
Karadeniz (Blacksea) Technical University, School of Engineering, Department of Civil Engineering  
Foundation of Supporting Occupational Training and Small-Scale Industry  
Middle East Technical University, School of Engineering, Department of Civil Engineering  
Republic of Turkey Ministry of Public Works and Settlement, General Directorate of Construction  
Republic of Turkey Ministry of Labor & Social Security, Center For Labor & Social Security Training and Research, ÇASGEM  
Republic of Turkey Ministry of Labor and Social Security, General Directorate of Occupational Health and Safety  
Republic of Turkey Ministry of Labor & Social Security, Social Security Institution's Directorate of Construction and Property Affairs  
Republic of Turkey Turkish State Railways, TCDD – Directorate of Construction and Property Affairs  
Republic of Turkey Ministry of National Education, Directorate of Educational Research and Development  
Republic of Turkey Ministry of National Education, General Directorate of Apprenticeship and Non-Formal Education  
Republic of Turkey Ministry of National Education, General Directorate of Technical Education for Boys  
Republic of Turkey Ministry of Transportation, General Directorate of Highways  
Republic of Turkey Board of Higher Education (YOK)  
Turkish Accreditation Agency, TÜRKAK  
Association of Turkish Consulting Engineers and Architects- TMMMB



Turkish Cement Manufacturers' Association  
Confederation of Turkish Tradesmen and Craftsmen, TESK  
Turkish Ready Mixed Concrete Association  
Turkish Construction Contractors Union, TİM-SE  
Confederation of Turkish Trade Unions, TÜRK-İŞ  
Turkish Confederation of Employer Associations, TİSK  
Turkish Contractors Association, TMB  
Turkish Union of Chambers and Exchange Commodities, TOBB  
Turkish Prefabrication Union  
Turkish Official Sector of Construction Contractors Union, TÜRK-İNŞA  
Turkish Union of Road Construction and Building Workers, YOL-İŞ  
Yapı Merkezi Prefabrikasyon A.Ş.  
Federation of Building Products Manufacturers  
Yıldız Technical University, School of Engineering, Department of Civil Engineering

#### 4. Sector Committee Members and Experts

Mustafa DEMİR,	President	Turkish Confederation of Employer Associations
Ekrem DİRİER,	Vice President	Ministry of National Education
Ahmet Emin YİĞİT,	Member	Ministry of Environment and Urban Planning
Kemal AYDOĞAN,	Member	Ministry of Labor and Social Security
Abdülkadir YILMAZ,	Member	Ministry of Communication
Can BALKAYA,	Member	Board of Higher Education (YOK)
H.Necati ERSOY,	Member	Turkish Union of Chambers and Exchange Commodities (TOBB)
TOBB) Mustafa ARSLAN,	Member	Confederation of Turkish Tradesmen and Craftsmen (TESK)
Hacı ÜSTÜNDAL,	Member	HAK Trade Unions Confederation
Aylin RAMANLI,	Member	Occupational Qualification Authority
Firuzan SİLAHŞÖR,	Department Head	Occupational Qualification Authority
Sinan GERGİN,	Representative of Sector Committee (Administration for Disabled and Elderly People)	

#### 5. Executive Board

Bayram AKBAŞ,	President	Representative of Ministry of Labor and Social Security
Prof. Dr. Oğuz BORAT,	Vice President	Representative of Ministry of Education
Ass. Prof. Dr. Ömer AÇIKGÖZ,	Member	Representative Board of Higher Education
Prof. Dr. Yücel ALTUNBAŞAK,	Member	Representative of Professional Organizations
Dr. Osman YILDIZ,	Member	Representative of Confederation of Turkish Trade Unions)
Celal KOLOĞLU,	Member	Representative of Turkish Confederation of Employer Associations