

# Assessment Evidence Guide

## For

“ ”

Level-4

**Module name**  
(Formative Assessment)

*8<sup>th</sup> -12<sup>th</sup> March 2021*



**National Vocational & Technical  
Training Commission**

<b>Title of Qualification:</b> Surface Coating Technician-I	CS Code:	Level: 4	Version: 01
<b>Competency Standard Title:</b>  <b>Perform Electrochemical Coating (Electroplating)</b>	<b>Assessment Date (DD/MM/YY):</b>  <b>Assessment Time:</b>		

Candidate Details	Name: .....  Registration/Roll Number:.....
Guidance for Candidate	<p><b>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration &amp; assessment):</b></p> <p><b>Assessment Task 1:</b> Candidate is required to: Perform cataloging, Polishing and Cleaning Operation</p> <p><b>Assessment Task 2:</b> Candidate is required to: Perform Solution Preparation and Set up Coating bath</p> <p><b>Assessment Task 3:</b> Candidate is required to: Perform Coating and Drying Operation</p> <p><b>And complete:</b></p> <ol style="list-style-type: none"> <li><b>1. Knowledge assessment test (Written or Oral)</b></li> <li><b>2. Portfolios at the time of assessment (if any)</b></li> </ol>
Minimum Evidence Required	<p><b>During a practical assessment, under observation by an assessor, you will complete:</b></p> <p><b>Assessment Task 1</b></p> <p><b>P1.</b> Perform proper documentation of the initial conditions of Specimen and recognize its identity.</p> <p><b>P2.</b> Adopt standard safety practice and procedure for handling.</p> <p><b>P3.</b> Prepare job layout according to process requirements</p> <p><b>P4.</b> Select of the abrasive blade depend upon material type.</p> <p><b>P5.</b> Grip the specimen in hands then place on abrasive wheel. Remove the sharp edges and corner of specimen.</p> <p><b>P6.</b> Select the set of emery or abrasive paper according to their grit size.</p> <p><b>P7.</b> Start grinding on paper from 60 to 1200 grit size. Use water during grinding operation.</p> <p><b>P8.</b> Rotate the specimen at 90 degree after short intervals in manual</p>

	<p>operation and continuously ground until the scratches from previous grinding direction are removed. Replace paper on requirement.</p> <p><b>P9.</b> Identify the Cleaning process as per requirement of standards.</p> <p><b>P10.</b> Select the specimen side or face, which will be coating.</p> <p><b>P11.</b> Prepare degreasing cleaning solution where steel is treated with solution which removes common dirt and oils.</p> <p><b>P12.</b> Place specimen in the solution for specific time then remove and rinsing with water.</p> <p><b>P13.</b> Prepare pickling solution where the surface rust and scales are removed by using alkaline or acidic solution.</p> <p><b>P14.</b> Place specimen in the solution for specific time then remove and rinsing with water.</p> <p><b>P15.</b> Remove the specimen from bath and ready for next step.</p>
	<p><b>Assessment Task 2</b></p> <p><b>P1.</b> Take glass beaker or polythene tank.</p> <p><b>P2.</b> Adopt standard safety practice and procedure for handling chemical process.</p> <p><b>P3.</b> Filled half with distil or deionized water.</p> <p><b>P4.</b> Add acid and metal salts into solution then mix it slowly and stir it.</p> <p><b>P5.</b> Add prepared solution in the bath of S.S.</p> <p><b>P6.</b> Adopt standard safety practice and procedure for handling process.</p> <p><b>P7.</b> Alternatively Arrange the Cu rods for anode and cathode system setup and insulate it.</p> <p><b>P8.</b> Hang the anode sheets or plates with hooks on anode bar of bath. ( Act as Anodes )</p> <p><b>P9.</b> Connect the plates to electric supply.</p> <p><b>P10.</b> Hang the cathode specimen with hooks on cathode bar of bath. ( Act as cathode )</p> <p><b>P11.</b> Connect the bar to electric supply.</p> <p><b>P12.</b> Arrange them in sequence and order don't touch each other.</p>

	<p><b>Assessment Task 3</b></p> <p><b>P1. Identify electroplating specifications.</b></p> <p><b>P2. Adopt standard safety practice and procedure for handling process.</b></p> <p><b>P3. Switch on rectifier and adjust required current density.</b></p> <p><b>P4. Allow coating deposition for specific time.</b></p> <p><b>P5. Bath temperature should be maintain from 20-25C.</b></p> <p><b>P6. Switch off rectifier and remove specimen.</b></p> <p><b>P7. Maintain the PH value of electrolyte as per requirement</b></p> <p><b>P8. Place specimen in the drying oven.</b></p> <p><b>P9. Set temperature the switch on oven.</b></p> <p><b>P10. Remove specimen after specific time for drying.</b></p> <hr/> <p><b>Portfolios required at the time of assessment (if any) for</b></p>
--	---

*Continued on following page*

**Assessors Judgment Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name: ..... Registration/Roll Number: ..... Candidate Signature: .....
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: ..... Assessor's code: ..... Signature of the Assessor: .....

Assessment Summary (to be filled by the assessor)							
Activity	Method					Result	
Nature of Activity	Written	Oral	Observation	Portfolio	Role Play	Competent	Not Yet Competent
Practical Skill Demonstration			✓				
Knowledge Assessment	✓	✓					
Other Requirement							

Each Assessment Task (with performance criteria)				
Assessment Task 1		Description of assessment task 1		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	Perform proper documentation of the initial conditions of Specimen and recognize its identity.			
	Adopt standard safety practice and procedure for handling.			
	Prepare job layout according to process requirements			
	Select of the abrasive blade depend upon material type.			
	Gripe the specimen in hands then place on abrasive wheel. Remove the sharp edges and corner of specimen.			
	Select the set of emery or abrasive paper according to their grit size.			
	Start grinding on paper from 60 to 1200 grit size. Use water during grinding operation.			
	Rotate the specimen at 90 degree after short intervals in manual operation and continuously ground until the scratches from previous grinding direction are removed. Replace paper on requirement.			
	Identify the Cleaning process as per requirement of standards.			
	Select the specimen side or face, which will be coating.			
	Prepare degreasing cleaning solution where steel is treated with solution which removes common dirt and oils.			
	Place specimen in the solution for specific			

	time then remove and rinsing with water.			
	Prepare pickling solution where the surface rust and scales are removed by using alkaline or acidic solution.			
	Place specimen in the solution for specific time then remove and rinsing with water.			
	Remove the specimen from bath and ready for next step.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 2		Description of assessment task 2		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	Take glass beaker or polythene tank.			
	Adopt standard safety practice and procedure for handling chemical process.			
	Filled half with distil or deionized water.			
	Add acid and metal salts into solution then mix it slowly and stir it.			
	Add prepared solution in the bath of S.S.			
	Adopt standard safety practice and procedure for handling process.			
	Alternatively Arrange the Cu rods for anode and cathode system setup and insulate it.			
	Hang the anode sheets or plates with hooks on anode bar of bath. ( Act as Anodes )			
	Connect the plates to electric supply.			
	Hang the cathode specimen with hooks on cathode bar of bath. ( Act as cathode )			
	Connect the bar to electric supply.			
	Arrange them in sequence and order don't touch each other.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		



Each Assessment Task (with performance criteria)				
<b>Assessment Task 3</b>		<b>Description of assessment task 3</b>		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	Identify electroplating specifications.			
	Adopt standard safety practice and procedure for handling process.			
	Switch on rectifier and adjust required current density.			
	Allow coating deposition for specific time.			
	Bath temperature should be maintain from 20-25C.			
	Switch off rectifier and remove specimen.			
	Maintain the PH value of electrolyte as per requirement			
	Place specimen in the drying oven.			
	Set temperature the switch on oven.			
	Remove specimen after specific time for drying.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

<b>Title of Qualification:</b> Surface Coating Technician-I	CS Code:	Level:	Version: 01
<b>Competency Standard Title:</b> <b>Conversion Coating (Anodizing)</b>	<b>Assessment Date (DD/MM/YY):</b>  <b>Assessment Time:</b> 30 min		

Guidance for Candidate	<b>To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.</b>
------------------------	--

**Assessors Guide** (to be completed by the Assessor and signed both by the assessor and the candidate after the assessment)

Candidate Details	Name:.....Registration/Roll Number: Candidate Signature: .....
Written Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor: .....Assessor's code: Signature of the Assessor: .....

<b>Title of Qualification:</b> Surface Coating Technician-I	CS Code:	Level:4	Version: 01
<b>Competency Standard Title:</b>  <b>Conversion Coating (Anodizing)</b>	<b>Assessment Date (DD/MM/YY):</b>  <b>Assessment Time:</b> 30 min		

#### WRITTEN ASSESSMENT

Question	Candidate's answer
Define purpose of Electroplating.	<ul style="list-style-type: none"> <li>• Surface Protection</li> <li>• Corrosion protection</li> <li>• Long life</li> </ul>
Why drying technique	<ul style="list-style-type: none"> <li>• Remove stain of water from surface</li> <li>•</li> </ul>
Define General coating thickness ranges	<ul style="list-style-type: none"> <li>• 100-1000 Micron</li> </ul>
Define cleaning types.	<ul style="list-style-type: none"> <li>• Chemical</li> <li>• Mechanical</li> </ul>
Define anodizing materials.	<ul style="list-style-type: none"> <li>• Mixture of Chemical Solution</li> <li>• Anode</li> <li>• Cathode</li> </ul>
Explain galvanizing time and temperatures.	<ul style="list-style-type: none"> <li>• 15-25 mins</li> <li>• 20-25C°</li> </ul>