

Instruction Sheet for the Candidate

Qualification	National Vocational Certificate in Metal Forming & Processing Level 5
Competency Standard	Perform Metallography of Metallic Materials
Purpose of Assessment	Formative Assessment
Candidate Details	Name _____ Registration/Roll Number _____
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within 04 Hrs. time frame (for practical demonstration & assessment):</p> <ul style="list-style-type: none"> • CU1. Prepare specimen for metallography • CU2. Demonstrate the working of metallurgical microscope
Time: 04 Hrs.	During a practical assessment, under observation by an assessor, you are required to
Minimum Evidence Required	<p>CU1. Prepare specimen for metallography</p> <p>P-1. Select the material to perform metallography</p> <p>P-2. Cut the specimen according to specifications</p> <p>P-3. Mount the specimen by ensuring flat level</p> <p>P-5. Perform Rough polishing of the specimen with round grinder</p> <p>P-6. Perform fine polishing of the specimen using emery paper from low mesh number to high mesh number</p> <p>P-7. use polishing cloth as final polishing step</p> <p>P-8. Etch the polished specimen using advised etchant</p> <p>P-9. Observe the work piece under metallurgical microscope</p> <p>CU2. Demonstrate the working of metallurgical microscope</p> <p>P-1. Prepare metallic specimen according to metallographic procedures</p> <p>P-2. Put the specimen on the mechanical stage of microscope</p> <p>P-3. Use plasticine to level its surface</p> <p>P-4. use various magnifications to observe microstructure of specimen</p> <p>P-5. throw light on the surface of metallic specimen to see its microstructures</p> <p>P-6. observe the light throwing procedure in the microscope</p> <p>P-7. inspect a bright refraction of the work piece through eye piece</p> <p>P-8. inspect the microstructure through eye piece</p> <p>P-9. record the results</p>

Self-Assessment Checklist

Candidate Name	
Registration No.	
Qualification	National Vocational Certificate in Metal Forming & Processing Level 5
Competency Standard	Perform Metallography of Metallic Materials
Purpose of Assessment	Formative Assessment
Assessment Task	<ul style="list-style-type: none"> • CU1. Prepare specimen for metallography • CU2. Demonstrate the working of metallurgical microscope

I can.....

Performance Criteria	Yes	No
P1. Select the material to perform metallography	<input type="checkbox"/>	<input type="checkbox"/>
P2. Cut the specimen according to specifications	<input type="checkbox"/>	<input type="checkbox"/>
P3. Mount the specimen by ensuring flat level	<input type="checkbox"/>	<input type="checkbox"/>
P4. Perform Rough polishing of the specimen with round grinder	<input type="checkbox"/>	<input type="checkbox"/>
P5. Perform fine polishing of the specimen using emery paper from low mesh number to high mesh number	<input type="checkbox"/>	<input type="checkbox"/>
P6. use polishing cloth as final polishing step	<input type="checkbox"/>	<input type="checkbox"/>
P7. Etch the polished specimen using advised etchant	<input type="checkbox"/>	<input type="checkbox"/>
P8. Observe the work piece under metallurgical microscope	<input type="checkbox"/>	<input type="checkbox"/>
P9. Prepare metallic specimen according to metallographic procedures	<input type="checkbox"/>	<input type="checkbox"/>
P10. Put the specimen on the mechanical stage of microscope	<input type="checkbox"/>	<input type="checkbox"/>
P11. Use plasticine to level its surface	<input type="checkbox"/>	<input type="checkbox"/>
P12. use various magnifications to observe microstructure of specimen	<input type="checkbox"/>	<input type="checkbox"/>
P13. throw light on the surface of metallic specimen to see its microstructures	<input type="checkbox"/>	<input type="checkbox"/>
P14. observe the light throwing procedure in the microscope	<input type="checkbox"/>	<input type="checkbox"/>
P15. inspect a bright refraction of the work piece through eye piece	<input type="checkbox"/>	<input type="checkbox"/>
P16. inspect the microstructure through eye piece	<input type="checkbox"/>	<input type="checkbox"/>

P17. record the results	<input type="text"/>	<input type="text"/>
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Candidate's Signature_____ Assessor's Signature_____

Date: _____

Assessors Judgment Guide

Qualification	National Vocational Certificate in Metal Forming & Processing Level 5
Competency Standard	Perform Metallography of Metallic Materials
Purpose of Assessment	Formative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Signature: _____
Assessment Outcome	COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> Name of the Assessor _____ Assessor's code: _____ Signature: _____

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							

Observation Checklist

Assessment Task	<ul style="list-style-type: none"> CU1. Prepare specimen for metallography CU2. Demonstrate the working of metallurgical microscope 		
During the practical assessment, candidate demonstrated the following:	Yes	No	Remarks
1. Select the material to perform metallography			
2. Cut the specimen according to specifications			
3. Mount the specimen by ensuring flat level			
4. Perform Rough polishing of the specimen with round grinder			
5. Perform fine polishing of the specimen using emery paper from low mesh number to high mesh number			
6. use polishing cloth as final polishing step			
7. Etch the polished specimen using advised etchant			
8. Observe the work piece under metallurgical microscope			
9. Prepare metallic specimen according to metallographic procedures			
10. Put the specimen on the mechanical stage of microscope			
11. Use plasticine to level its surface			
12. use various magnifications to observe microstructure of specimen			
13. throw light on the surface of metallic specimen to see its microstructures			
14. observe the light throwing procedure in the microscope			
15. inspect a bright refraction of the work piece through eye piece			
16. inspect the microstructure through eye piece			
17. record the results			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>	

Knowledge Assessment

Qualification	National Vocational Certificate in Metal Forming & Processing Level 5
Competency Standard	Perform Metallography of Metallic Materials
Purpose of Assessment	Formative Assessment
Candidate Details	Name: _____ Registration/Roll Number: _____ Candidate Signature: _____
Assessment Outcome	<div style="display: flex; justify-content: space-around; align-items: center;"> COMPETENT <input type="checkbox"/> NOT YET COMPETENT <input type="checkbox"/> </div> Name of the Assessor: _____ Assessor's code: _____ Signature of the Assessor: _____

Candidate's response is not required to be identical, but similar concepts and/or keywords must be used. Oral questioning may be used to clarify candidate understanding of topic and its application.

Questions (Candidate confidently answered questions correctly and demonstrated understanding of the topics and their application)		Satisfactory	Not Satisfactory
1.	What is the purpose for metallography?		
2.	What are the basic steps in Metallography?		
3.	What is microstructure of steel?		

4.	What is mounting in Metallography?		
5.	What are grain boundaries in metals?		
6.	What is microstructural analysis?		

Feedback to the Candidate	
Candidate's Signature _____ Assessor's Signature _____	