

Assessment Evidence Guide

For

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Level-5

Chemical Assaying Technician
(Formative Assessment)

8th -12th March 2021



**National Vocational & Technical
Training Commission**

Title of Qualification: Chemical Assaying Technician	CS Code:	Level: 5	Version:
Competency Standard Title:	Assessment Date (DD/MM/YY):		
	Assessment Time:		

Candidate Details	Name: Registration/Roll Number:.....
Guidance for Candidate	<p>To meet this standard, you are required to complete the following within the given time frame (for practical demonstration & assessment):</p> <p>Assessment Task 1: Candidate is required to: Perform handheld XRF analysis</p> <p>Assessment Task 2: Candidate is required to: Perform optical emission spectroscopic analysis</p> <p>Assessment Task 3: Candidate is required to: Perform carbon and Sulphur detection analysis</p> <p>And complete:</p> <ol style="list-style-type: none"> 1. Knowledge assessment test (Written or Oral) 2. Portfolios at the time of assessment (if any)
Minimum Evidence Required	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 1</p> <ul style="list-style-type: none"> • Prepare the surface of the sample for analysis • Charge the external battery • Energize the XRF gun • Open the analytical software of the XRF gun • Clean calibration block with alcohol • Apply the lubricant on the calibration block • Place XRF gun on calibration block and perform calibration • Apply the lubricant on the surface of sample • Place the XRF gun on the sample surface • Press the XRF gun trigger to start analysis • Note, evaluate and print the results • Shut down the software and place the XRF gun at proper station.

	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 2</p> <ul style="list-style-type: none"> • Prepare the sample for the analysis • Energize the Optical Emission Spectrometer and warm up as per required time • Set the pressure of inert gas (Argon) • Switch ON the filter machine • Power ON the computer and open analytical software • Clean the electrode chamber and place calibration block in it. • Clamp the calibration block and start spark for specific time. • Note and compare the results with calibration certificate • Remove the calibration block and place at specific position • Place the sample in electrode chamber • Clamp the sample and start spark for specific time. • Note, evaluate and print the results • Shut down the software and switch off the machine. • Remove the sample and store as per requirements
	<p>During a practical assessment, under observation by an assessor, you will complete:</p> <p>Assessment Task 3</p> <ul style="list-style-type: none"> • Prepare the sample in the form of turnings for analysis. • Switch on the carbon sulfur detection machine. • Energize the catalyst up to proper temperature. • Connect the gases nozzles to gases supply (Oxygen & Nitrogen) • Place the calibration material in ceramic crucible. • Place the crucible on crucible stand. • Start the calibration by selecting calibration option • Note and compare the results with calibration certificate • Enter the sample ID and weight in software • Place the sample in ceramic crucible. • Place the crucible on crucible stand and start the analysis. • Note and print the results • Disconnect the gas supply and switch off the machine

	Portfolios required at the time of assessment (if any) for
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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
	Prepare the surface of the sample for analysis			
	Charge the external battery			
	Energize the XRF gun			
	Open the analytical software of the XRF gun			
	Clean calibration block with alcohol			
	Apply the lubricant on the calibration block			
	Place XRF gun on calibration block and perform calibration			
	Apply the lubricant on the surface of sample			
	Place the XRF gun on the sample surface			
	Press the XRF gun trigger to start analysis			
	Note, evaluate and print the results			
	Shut down the software and place the XRF gun at proper station.			
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
	Prepare the sample for the analysis			
	Energize the Optical Emission Spectrometer and warm up as per required time			
	Set the pressure of inert gas (Argon)			
	Switch ON the filter machine			
	Power ON the computer and open analytical software			
	Clean the electrode chamber and place calibration block in it.			
	Clamp the calibration block and start spark for specific time.			
	Note and compare the results with calibration certificate			
	Remove the calibration block and place at specific position			
	Place the sample in electrode chamber			
	Clamp the sample and start spark for specific time.			
	Note, evaluate and print the results			
	Shut down the software and switch off the machine.			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Assessment Task 3		Description of assessment task 3		
During the practical assessment, candidate demonstrated the following:		Yes	No	Remarks
	Prepare the sample in the form of turnings for analysis.			
	Switch on the carbon sulfur detection machine.			
	Energize the catalyst up to proper temperature.			
	Connect the gases nozzles to gases supply (Oxygen & Nitrogen)			
	Place the calibration material in ceramic crucible.			
	Place the crucible on crucible stand.			
	Start the calibration by selecting calibration option			
	Note and compare the results with calibration certificate			
	Enter the sample ID and weight in software			
	Place the sample in ceramic crucible.			
	Place the crucible on crucible stand and start the analysis.			
	Note and print the results			
	Disconnect the gas supply and switch off the machine			
Competent <input type="checkbox"/>		Not Yet Competent <input type="checkbox"/>		

Title of Qualification: Non-Destructive Testing Technician	CS Code:	Level: 5	Version: 01
Competency Standard Title: Perform dye penetrant, magnetic particle and Eddy current non-destructive techniques	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

Guidance for Candidate	To complete your assessment for this Competency Standard, you need to answer the questions on the following pages successfully.
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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:

Title of Qualification:	CS Code:	Level:	Version: 01
Competency Standard Title:	Assessment Date (DD/MM/YY): Assessment Time: 30 min		

WRITTEN ASSESSMENT

Question	Candidate's answer
1. What is the effect of carbon contents on steel?	Addition of carbon in steel increases hardness and strength. It also improves the hardenability. Addition of carbon increases brittleness and reduces weldability.
2. What is the effect of sulfur contents on steel?	Sulfur tends to reduce the weldability. Sulfur is the source of brittleness in steel. It is considered as an impurity in steel.
3. Define spectrum.	When electromagnetic radiation is passed through a prism or grating it is split up and forms a collection of lines representing different wavelengths, this is called spectrum.
4. What is the purpose of optical spectroscopy?	The main purpose of optical emission spectroscopy is to determine the elemental composition of variety of metallic materials.
5. Define ionization.	The process by which an atom or molecule is converted into electrically charged atoms or molecules by gaining or losing electrons.
6. How X-rays are produced?	These rays are produced due to the sudden deceleration of fast moving electrons when they collide and interact with target anode.
7. What are different properties of X-rays?	X rays are pure energy, no mass; they transfer energy in the form of photons. X rays can penetrate in various objects. X rays travel in straight line and do not carry an electric charge. X rays cause ionization. X rays cannot be seen, felt, tasted and smelled.
8. What are different uses of X-rays?	X rays are used to detect bone fractures, chest infections and some tumors. X-rays are also used to detect defects of manufactured components. These are also used in chemical analysis such as in XRF.