

091405T4SLT

SCIENCE LABORATORY TECHNICIAN LEVEL 5

SLT/OS/SL/CR/03/5/A

Apply Chemistry Techniques

Nov/Dec 2024



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION
COUNCIL (TVET CDACC)**

PRACTICAL ASSESSMENT

OBSERV**CKLIST**

Candidate's name & Registration C			
Assessor's name & Registration Code			
Venue of Assessment			
Date of assessment			
Items to be evaluated: <i>Please award marks as appropriate. Give a brief comment on your observation.</i>	Marks available	Marks obtained	Comments
TASK I: PREPARE 250ML OF 0.05M Na₂C₂O₄ SOLUTION			
1. Wore PPEs (lab coat buttoned, closed shoes). <i>(Award ½ mark or zero for the PPE donned as per workplace procedures)</i>	1		
2. Cleaned volumetric glassware apparatus required for the task <i>(Award 2 marks for cleaning all glassware)</i>	1		

3. Prepared standard solution as per the Chemistry laboratory procedures: - Calculated the mass of sodium Oxalate required to prepare 0.05M solution (1.675g or 1.7g) - Weighed the solid as per weighing procedures (tared/ zeroed weighing balance before weighing) - Dissolved the solute in a small amount (less than 200ml) of distilled water in a beaker - Correctly transferred the solution to a 250ml volumetric flask - Rinsed the beaker and transferred the rinsate to the volumetric flask - Topped up volume to the mark distilled water - Labelled the solution correctly (0.05M Na₂C₂O₄) <i>(Award 1marks for each correctly done activity)</i>	4 2 2 2 2		
Sub-Total 1	18		
TASK II: USE 0.05M Na₂C₂O₄ TO DETERMINE THE MOLARITY OF POTASSIUM PERMANGANATE SOLUTION PROVIDED			
4. Titration - Rinsed burette & pipette with respective reagent - Filled burette with KMnO₄ and adjusted the volume - Pipetted sodium oxalate solution using pipette filler into a conical flask - Titrated oxalate solution against KMnO₄ until appearance of the first faint pink colour then heat the solution to 55 – 60 °C	2 2 2 2		

- Continued titration to accurate end point and recorded volume of KMnO_4 used (colour change: pink) - Repeated the titration procedure two more times - Presented the titration data in a table format - Calculated average titre of potassium permanganate used - Calculated moles oxalate ions in 25ml - Wrote a balanced ionic equation: $2\text{MnO}_4^- + 16\text{H}^+ + 5\text{C}_2\text{O}_4^{2-} \longrightarrow 2\text{Mn}^{2+} + 10\text{CO}_2 + 8\text{H}_2\text{O}$ - Calculated moles of MnO_4^- using mole ratio (2:5) - Calculated the molarity of potassium permanganate (0.02M or 0.02 mols/L) (Award 2 marks for each correctly activity)	2 2 2 2 2 2 2		
5. Cleaned all the apparatus and working station: - Washed volumetric glassware and returned apparatus to their respective stores - Disposed used reagents and gloves safely as per chemistry laboratory procedures - Wiped working bench/station clean. (award 2 marks for each correctly done activity)	½ ½ 1		
Sub-Total 2	26		

GRAND TOTAL	44		
ASSESSMENT OUTCOME			
The candidate was found to be: Competent ☐ Not yet competent ☐ <i>(Please tick as appropriate)</i> <i>(The candidate is competent if the candidate obtains at least 50%)</i>			
Feedback from candidate:			
Feedback to candidate:			
Candidate's Signature		Date	
_____		_____	
Assessor's Signature		e	
_____		_____	

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