# Project Assessment

**Assessment event 2 of 3**

## Criteria

### Unit code, name and release number

MSL974017 - Prepare, standardise and use solutions (1)

### Qualification/Course code, name and release number

MSL40118 - Certificate IV in Laboratory Techniques (1)

MSL50118 – Diploma in Laboratory Technology (1)

\*\*Amend the qualification box before distributing to the student. The information here should only contain the qualification the student is enrolled in.\*\*

## Student details

### Student number

### Student name

## Assessment Declaration

* This assessment is my original work and no part of it has been copied from any other source except where due acknowledgement is made.
* No part of this assessment has been written for me by any other person except where such collaboration has been authorised by the assessor concerned.
* I understand that plagiarism is the presentation of the work, idea or creation of another person as though it is my own. Plagiarism occurs when the origin of the material used is not appropriately cited. No part of this assessment is plagiarised.

### Student signature and Date

Version: 1.0

Date created: 28/08/2019

Date modified: 10/12/2019

For queries, please contact:

Innovative Manufacturing, Robotics and Science SkillsPoint

Hamilton Campus

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RTO Provider Number 90003 | CRICOS Provider Code: 00591E

This assessment can be found in the: [Learning Bank](https://share.tafensw.edu.au/share/access/searching.do?doc=%3Cxml%2F%3E&in=P7ac4831b-430a-4b8d-8b56-f7b32ed5b9cf&q=&type=standard&sort=rank&dr=AFTER)

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## Assessment instructions

Table 1 Assessment instructions

| Assessment details | Instructions |
| --- | --- |
| **Assessment overview** | The objective of this assessment is to assess your knowledge and performance as would be required to:   * Prepare Solutions * Standardise and use volumetric solutions * Calculate and record data * Monitor the quality of laboratory solutions * Maintain a safe work environment |
| **Assessment Event number** | 2 of 3 |
| **Instructions for this assessment** | This is a project based assessment and will be assessing you on your knowledge and performance of the unit.  This assessment is in 3 parts and includes an Assessment Feedback form:   1. Research Report (Templates 1- 4) 2. Assessment Checklist 3. Assessment Feedback   You are required to research and report on the preparation, standardisation and use of 3 laboratory solutions. You should document your findings in Templates 1-3. You are also to research the criteria that could be used to monitor the quality of laboratory solutions and respond to general questions. You should document this in Template 4  The details of the research and the report templates are located in Part 1 of this Assessment. |
| **Submission instructions** | On completion of this assessment, you are required to upload it or hand it to your assessor for marking.  Ensure you have written your name at the bottom of each page of this assessment.  It is important that you keep a copy of all electronic and hardcopy assessments submitted to TAFE and complete the assessment declaration when submitting the assessment. |
| **What do I need to do to achieve a satisfactory result?** | To achieve a satisfactory result for this assessment all questions must be answered correctly. |
| **What do I need to provide?** | Calculator, pens |
| **What the assessor will provide?** | Solutions as indicated in *Instructions for the trainer and assessor* above |
| **Due date and time allowed** | To be submitted three weeks prior to the first Skills Assessment |
| **Assessment feedback, review or appeals** | In accordance with the TAFE NSW policy *Manage Assessment Appeals,* all students have the right to appeal an assessment decision in relation to how the assessment was conducted and the outcome of the assessment. Appeals must be lodged within **14 working days** of the formal notification of the result of the assessment.  If you would like to request a review of your results or if you have any concerns about your results, contact your Teacher or Head Teacher. If they are unavailable, contact the Student Administration Officer.  Contact your Head Teacher for the assessment appeals procedures at your college/campus. |

## Specific task instructions

The instructions and the criteria in the tasks and activities below will be used by the assessor to determine if you have satisfactorily completed this assessment event. Use these instructions as a guide to ensure you demonstrate the required knowledge.

## Part 1: Research Report

To complete this part of the assessment, you are to provide responses to each of the questions identified in the report templates.

Your task is to research three allocated standardisations and provide responses to questions related to monitoring of quality in the laboratory. You should consider the following criteria as to the application of the research to the Skills Assessment:

* At least one of the standardisations will be against a primary standard.
* At least one of the standardised solutions is to be used to determine the concentration of an analyte in an unknown sample solution.

Your responses can be up to 150 words for each section or part of a section.

Once completed you will need to submit this assessment to your assessor for marking.

**Brief:**

Your task is to research three allocated standardisations and provide responses to questions related to monitoring of quality in the laboratory. You should consider the following criteria as to the application of the research to the later Skills Assessment:

* At least one of the standardisations will be against a primary standard.
* At least one of the standardised solutions is to be used to determine the concentration of an analyte in an unknown sample solution.
* Monitoring of working solutions

Once completed you will need to submit this assessment to your assessor for marking

The solutions for standardisation are:

|  |
| --- |
| Solution |
| 1. 0.1 M hydrochloric acid prepared from 11.4 M HCl |
| 1. 0.1M sodium hydroxide prepared from AR NaOH pellets |
| 1. 0.01 M EDTA prepared from solid AR di-sodium EDTA salt |

Report 1 Standardisation

Solution to be standardised:

**Solution Preparation**

1. Identify and record the laboratory procedure title and identification number for the preparation of the solution.
2. Indicate how the solution should be prepared, labelled and stored. (Consider values for the preparation of 1 L of solution). (**Note:** you do not have to rewrite the method just provide a brief outline, you could provide a flowchart, maximum of 200 words).

**Standardisation**

1. Identify and record the laboratory procedure title and identification number for the standardisation of the solution.
2. Indicate all the chemicals required for the titration. (include the grade and the chemical formula)
3. List the equipment required for the titration.
4. Provide the equation for the reaction between the primary and secondary standard used in the standardisation.
5. Identify and record the method of determination of the endpoint &/or equivalence point.
6. Provide an example of results from this titration completed by you in the laboratory noting any outliers

**Calculations**

1. Provide examples of the calculations done to determine the standard value for either the secondary standard &/or the unknown sample. (These should have been verified by your Laboratory Supervisor).
2. Discuss the uncertainty in the actual reported result.

Report 2 Standardisation

Solution to be standardised:

**Solution Preparation**

1. Identify and record the laboratory procedure title and identification number for the preparation of the solution.
2. Indicate how the solution should be prepared, labelled and stored. (Consider values for the preparation of 1 L of solution). (**Note:** you do not have to rewrite the method just provide a brief outline, you could provide a flowchart, maximum of 200 words).

**Standardisation**

1. Identify and record the laboratory procedure title and identification number for the standardisation of the solution.
2. Indicate all the chemicals required for the titration. (include the grade and the chemical formula)
3. List the equipment required for the titration.
4. Provide the equation for the reaction between the primary and secondary standard used in the standardisation.
5. Identify and record the method of determination of the endpoint &/or equivalence point.
6. Provide an example of results from this titration completed by you in the laboratory noting any outliers

**Calculations**

1. Provide examples of the calculations done to determine the standard value for either the secondary standard &/or the unknown sample. (These should have been verified by your Laboratory Supervisor).
2. Discuss the uncertainty in the actual reported result.

Report 3 Standardisation

Solution to be standardised:

**Solution Preparation**

1. Identify and record the laboratory procedure title and identification number for the preparation of the solution.
2. Indicate how the solution should be prepared, labelled and stored. (Consider values for the preparation of 1 L of solution). (**Note:** you do not have to rewrite the method just provide a brief outline, you could provide a flowchart, maximum of 200 words).

**Standardisation**

1. Identify and record the laboratory procedure title and identification number for the standardisation of the solution.
2. Indicate all the chemicals required for the titration. (include the grade and the chemical formula)
3. List the equipment required for the titration.
4. Provide the equation for the reaction between the primary and secondary standard used in the standardisation.
5. Identify and record the method of determination of the endpoint &/or equivalence point.
6. Provide an example of results from this titration completed by you in the laboratory noting any outliers

**Calculations**

1. Provide examples of the calculations done to determine the standard value for either the secondary standard &/or the unknown sample. (These should have been verified by your Laboratory Supervisor).
2. Discuss the uncertainty in the actual reported result.

Report 4 Quality and Laboratory Procedures

**Monitoring quality and a safe work environment**

1. For laboratory stock solutions prepared, describe how you could determine if the solutions have deteriorated.
2. Describe the laboratory procedures for reporting on solution quality
3. Outline the laboratory procedures to ensure traceability and integrity of a sample from receipt through to reporting of the final value.
4. What is the laboratory procedure if data is to be modified? For a titration this is most likely removal of an outlier.
5. How are spills dealt with for the titration
6. Describe how environmental impacts such as generation of waste can be minimised during the titration process.
7. Explain each of these work practices as they relate to the laboratory you work in:
8. The use of PPE

1. Correctly labelling reagents and hazardous materials
2. The storage and handling of hazardous materials
3. Confidentiality of test results
4. Regular cleaning and/or decontamination of equipment and work areas.
5. Compliance with legal, ethical and WHS requirements

## Part 2 Assessment Checklist

The following checklist will be used by your assessor to mark your performance against the assessment criteria of your Research report. Use this checklist to understand what skills and/or knowledge you need to demonstrate in your submission/presentation. All the criteria described in the Assessment Checklist must be met. The assessor may ask questions while the submission/presentation is taking place or if appropriate directly after the task/activity has been submitted/completed.

| Report | Instructions | S | U/S | Assessor Comments |
| --- | --- | --- | --- | --- |
| **1** | Student has completed report |  |  |  |
| **2** | Student has completed report |  |  |  |
| **3** | Student has completed report |  |  |  |
| **4** | Student has completed report |  |  |  |

## Assessment Feedback

*NOTE: This section* ***must*** *have the assessor signature and student signature to complete the feedback.*

### Assessment outcome

Satisfactory

Unsatisfactory

### Assessor Feedback

Was the assessment event successfully completed?

If no, was the resubmission/re-assessment successfully completed?

Was reasonable adjustment in place for this assessment event?  
*If yes, ensure it is detailed on the assessment document.*

Comments:

### Assessor name, signature and date:

### Student acknowledgement of assessment outcome

Would you like to make any comments about this assessment?

### Student name, signature and date

***NOTE: Make sure you have written your name at the bottom of each page of your submission before attaching the cover sheet and submitting to your assessor for marking.***