# Skills Assessment: Solution Preparation

**Assessment event 2 of 2**

## Criteria

### Unit code, name and release number

MSL973014 - Prepare working solutions (1)

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

MSL30118 - Certificate III in Laboratory Skills (1)

MSL40118 - Certificate IV in Laboratory Techniques (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: 13/06/2019

Date modified: 11/11/2019

For queries, please contact:

Innovative Manufacturing Robotics and Science SkillsPoint

Hamilton Campus

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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 skills as would be required prepare solutions for work and also to check that stock solutions are suitable for use. |
| **Assessment Event number** | 2 of 2 |
| **Instructions for this assessment** | This is a skill based assessment and will be assessing you on your ability to demonstrate the skills required in the unit.  This assessment is in three parts:   1. Practical 2. Observation Checklist 3. Assessment Feedback   You will be required over time to be observed preparing 5 working solutions in your laboratory and monitoring the suitability of laboratory solutions for use. The assessment is open book and you should bring with you any information to assist you with the task.  Your Assessor will advise you of the solutions that you will need to prepare. This could include:   1. Preparation of a stock solution 2. Dilution of a stock solution 3. Preparation of a dye 4. Preparation of a solution from an initial solid mass 5. Preparation of a standard solution.   Monitoring solutions for suitability **could** include checking:   * Use-by-dates (if applicable) * Discoloration of solution * Evidence of biological growth * Turbidity * crystallisation   At each scheduled assessment date your assessor will provide you with the identity of the exact solution to be prepared and a number of solutions to check for suitability of use. The assessment criteria for each solution are the same.  The Assessor may ask clarifying questions at the end of the assessment. These and your responses will be recorded in the Assessment Checklist |
| **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 successfully complete this assessment you will be available at the arranged time to complete all the assessment criteria as outlined in the assessment instructions.  All parts of the observable task must be performed to a satisfactory level as indicated in the criteria section of the Observation Checklist.  All oral questions must be answered correctly to be deemed satisfactory in this assessment task; however, Assessors may ask questions to clarify understanding. |
| **What do I need to provide?** | Scientific calculator, pens, personal protective equipment (safety glasses, enclosed shoes, laboratory coat/overalls), class notes as reference. |
| **Due date/time allowed/venue** | 90 minutes for each solution preparation  Date TBA |
| **Assessment feedback, review or appeals** | Appeals are addressed in accordance with Every Student’s Guide to Assessment. |

## Specific task instructions

The instructions and the criteria in the tasks and activities below will be used by the assessor to determine whether the tasks and activities have been satisfactorily completed. Use these instructions and criteria to ensure you demonstrate the required skills and knowledge.

The assessment requires you over a number of sessions to:

* work safely
* prepare for the solution preparation
* complete the preparation for five solutions
* record information
* check laboratory solutions for deterioration
* make the area safe

Either the standard method will be available in your laboratory or your assessor will provide you with the standard method (SOP) to be followed, the Safety Data Sheet (SDS) will be available for all chemicals to be used. You are to complete the following table for each solution you prepare and submit this completed assessment along with the solutions you prepared to your assessor upon completion.

|  |  |  |
| --- | --- | --- |
| Number | Solution | Date: |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |

## Part 1: Practical

To complete this part of the assessment, you are required to participate in a practical demonstration of:

* safely preparing a solution
* validating the solution (if required)
* storing the solution correctly
* cleaning up your preparation area
* checking shelf solutions in your area for suitability of use
* recording results on the Laboratory Record

There must be five instances of the solution preparation over time.

These practicals must be observed by your assessor

Your responses will be used as part of the overall evidence requirements of the unit.

You should refer to the list of criteria in the Observation Checklist to understand what you need to demonstrate in this section of the assessment. This Checklist outlines the assessment criteria used to assess your performance.

Once completed you will need to submit this assessment and the tasks and activities you are required to complete to your assessor for marking.

**Preparation of solution (Solutions 1-5)**

For each solution the following is a general procedure. It is important that you follow the directions provided in the Standard Method (SOP) for the chosen solutions.

**Initial Preparation (Solutions 1-5)**

1. Ensure you wear PPE at all times. (The task will be stopped for any breach of safety requirements).
2. Obtain, from your assessor, the identity of the solution you are to prepare and record this in the Laboratory Record.
3. Determine the mass of solute or volume for dilution to complete the required preparation.
4. Record these calculations and the calculated value on the Laboratory Record.
5. Have your calculations checked and the value verified by your assessor before proceeding with the preparation.

 Do not continue until you have approval of the Assessor.

1. Obtain the Standard Method (SOP) for the allocated solution. Record the location of the procedure
2. Read and note (6 on Laboratory Record sheet) the information relating in particular to the PPE, hazards and storage of the chemical using either the Standard Method (SOP)or SDS or both.
3. Referring to the Standard Method (SOP) obtain all equipment required for the preparation and record on the Laboratory Record.
4. Obtain the correct grade of chemical as indicated by the Standard Method (SOP).

**Solution Preparation (Solutions 1-5)**

1. Prepare the solution following the Standard Method (SOP).
2. Transfer the solution to an appropriately labelled storage vessel.

**Finalisation (Solutions 1-5)**

1. Perform the validation check or visual check of the solution as required on Laboratory Record sheet.
2. Clean and tidy all work areas.
3. Ensure you dispose of waste materials, ensuring disposal is in accordance with the Standard Method (SOP).
4. Check stock solutions for suitability (noting use-by-dates, discoloration, cloudiness, precipitates, algae growth etc).
5. Action solution check if applicable.
6. Record all information following the laboratory protocols (including the Laboratory Record Sheet accompanying this document) and submit all paperwork to your Assessor.

|  |  |  |  |
| --- | --- | --- | --- |
| Laboratory Record  Solution Preparation 1 | | | |
| Date: | Analyst: | | Standard Method (SOP) Number/Name: |
| Solution to be prepared: | | Concentration to be prepared:  Dilution required Yes  No | |
| SDS information:  a. PPE  b. Spill Control  c. Disposal  d. Hazards  e. Other | | Calculation of mass to be taken from solid chemical or volume to be taken stock solution or dilution required  a.  b. Assessor verification | |
| Equipment and chemicals required for preparation and storage: | | Mass of chemical weighed OR volume of stock taken (dilution) | |
| Solution validation (if required) (Test) | | Standard Value  Solution value | |
| Shelf solutions check, note solutions requiring action | | Actions | |
| Waste disposal and collection arranged (if required) | |  | |
| Analyst signature: | | Trainer signature: | |
| Comments: | | | |
| **Laboratory Record**  **Solution Preparation 2** | | | |
| Date: | Analyst | | Standard Method (SOP) Number/Name |
| Solution to be prepared: | | Concentration to be prepared:  Dilution required Yes  No | |
| SDS information:  a. PPE  b. Spill Control  c. Disposal  d. Hazards  e. Other | | Calculation of mass to be taken from solid chemical or volume to be taken stock solution or dilution required  Assessor verification | |
| Equipment and chemicals required for preparation and storage: | | Mass of chemical weighed OR volume of stock taken (dilution) | |
| Solution validation (if required) (Test) | | Standard Value  Solution value | |
| Shelf solutions check, note solutions requiring action | | Actions | |
| Waste disposal and collection arranged (if required) | |  | |
| Analyst signature: | | Trainer signature: | |
| Comments: | | | |
| **Laboratory Record**  **Solution Preparation 3** | | | |
| Date: | Analyst: | | Standard Method (SOP) Number/Name: |
| Solution to be prepared: | | Concentration to be prepared:  Dilution required Yes  No | |
| SDS information:  a. PPE  b. Spill Control  c. Disposal  d. Hazards  e. Other | | Calculation of mass to be taken from solid chemical or volume to be taken stock solution or dilution required  a.  b. Assessor verification | |
| Equipment and chemicals required for preparation and storage: | | Mass of chemical weighed OR volume of stock taken (dilution) | |
| Solution validation (if required) (Test) | | Standard Value  Solution value | |
| Shelf solutions check, note solutions requiring action | | Actions | |
| Waste disposal and collection arranged (if required) | |  | |
| Analyst signature: | | Trainer signature: | |
| Comments: | | | |
| **Laboratory Record**  **Solution Preparation 4** | | | |
| Date: | Analyst | | Standard Method (SOP) Number/Name |
| Solution to be prepared: | | Concentration to be prepared:  Dilution required Yes  No | |
| SDS information:  a. PPE  b. Spill Control  c. Disposal  d. Hazards  e. Other | | Calculation of mass to be taken from solid chemical or volume to be taken stock solution or dilution required  a.  b. Assessor verification | |
| Equipment and chemicals required for preparation and storage: | | Mass of chemical weighed OR volume of stock taken (dilution) | |
| Solution validation (if required) (Test) | | Standard Value  Solution value | |
| Shelf solutions check, note solutions requiring action | | Actions | |
| Waste disposal and collection arranged (if required) | |  | |
| Analyst signature: | | Trainer signature: | |
| Comments: | | | |
| **Laboratory Record**  **Solution Preparation 5** | | | |
| Date: | Analyst | | Standard Method (SOP) Number/Name |
| Solution to be prepared: | | Concentration to be prepared:  Dilution required Yes  No | |
| SDS information:  a. PPE  b. Spill Control  c. Disposal  d. Hazards  e. Other | | Calculation of mass to be taken from solid chemical or volume to be taken stock solution or dilution required  a.  b. Assessor verification | |
| Equipment and chemicals required for preparation and storage: | | Mass of chemical weighed OR volume of stock taken (dilution) | |
| Solution validation (if required) (Test) | | Standard Value  Solution value | |
| Shelf solutions check, note solutions requiring action | | Actions | |
| Waste disposal and collection arranged (if required) | |  | |
| Analyst signature: | | Trainer signature: | |
| Comments: | | | |

## Part 4: Observation Checklist

The Observation Checklist will be used by your assessor to mark your performance in the practical task. Use this Checklist to understand what skills you need to demonstrate. The Checklist lists the assessment criteria used to determine whether you have successfully completed this assessment event. All the criteria must be met. Your demonstration will be used as part of the overall evidence requirements of the unit.

The assessor may ask questions while the demonstration is taking place or if appropriate directly after the task/activity has been completed. The questions and your responses will be recorded on your paperwork.

Table 2 Observation Checklist

| Step | Activity | Solution 1 | | Solution 2 | | Solution 3 | | Solution 4 | | Solution 5 | | Assessor Comments  (Describe the student’s ability in demonstrating the required skills and knowledge |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Date: |  | |  | |  | |  | |  | | The task will be stopped immediately if there is a breach of safety requirements |
|  |  | S | US | S | US | S | US | S | US | S | US |  |
|  | **Initial Preparation** |  |  |  |  |  |  |  |  |  |  |  |
|  | Student: |  |  |  |  |  |  |  |  |  |  |  |
| 1 | Wears correct PPE |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Identifies the solution to be prepared and notes on Laboratory Record |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Calculated the correct amount of material to be measured for the required concentration |  |  |  |  |  |  |  |  |  |  |  |
| 4 | Recorded mass (or volume) on Laboratory Record |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Checked the mass (or volume) for approval to continue |  |  |  |  |  |  |  |  |  |  |  |
| 6 | Obtained the Standard Method (SOP) for the preparation of the required solution |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Obtained the correct SDS and notes required information |  |  |  |  |  |  |  |  |  |  |  |
| 8 | Obtained the correct equipment |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Obtained the correct chemicals ensuring a minimum taken and correct grade |  |  |  |  |  |  |  |  |  |  |  |
|  | **Solution Preparation** |  |  |  |  |  |  |  |  |  |  |  |
|  | Student: |  |  |  |  |  |  |  |  |  |  |  |
| 10 | Prepared solution following the Standard Method (SOP) |  |  |  |  |  |  |  |  |  |  |  |
| 11 | Transferred to correctly labelled shelf container |  |  |  |  |  |  |  |  |  |  |  |
|  | **Finalisation** |  |  |  |  |  |  |  |  |  |  |  |
|  | Student: |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Validated solution if required according to Standard Method (SOP). Solutions returned to shelf in correct container with correct labelling |  |  |  |  |  |  |  |  |  |  |  |
| 13 | Cleaned work area |  |  |  |  |  |  |  |  |  |  |  |
| 14 | Safely disposed of wastes |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Checks stocks of working solutions |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Removes solutions that must be replaced to designated area |  |  |  |  |  |  |  |  |  |  |  |
| 17 | Records all solution information according to laboratory protocols |  |  |  |  |  |  |  |  |  |  |  |
|  | **Additional questions asked to clarify understanding (if required)** |  |  |  |  |  |  |  |  |  |  |  |
| Questions:  Student response:  Question:  Student Response: | | | | | | | | | | | | |

## Part 3: 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.***