**Document Number:** **SASoM/EQUIP/082.v2**

**Title:** **SHIMADZU UV-1601 Spectrophotometer**

**Version:** **v2**

**Author:** **Laura Aitken**

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|---|---|
| Effective from: | 01/04/2019 |
| Valid to: | 31/03/2024 |

| **SOP History** | | |
|---|---|---|
| Number | Date | Reason for Change |
| v1 | 12/03/14 | Original |
| v2 | 01/04/19 | Update |
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## 1.0 Purpose –

The purpose of this SOP is to outline the principles of the routine use of the Shimadzu UV-1601 Spectrophotometer in Laboratory 248 at the St Andrews School of Medicine (SASoM).

## 2.0 Scope –

This SOP applies to routine use and maintenance of the Shimadzu UV-1601 Spectrophotometer within the SASoM.

## 3.0 Responsibilities –

It is the responsibility of all users of the Shimadzu UV-1601 Spectrophotometer within the SASoM to comply with this SOP.

## 4.0 Procedure –

If quick readings are required (for example for quickly measuring bacterial growth), the following method can be used:

Turn on only the Shimadzu UV-1601 Spectrophotometer (spec) and flip open the control panel monitor located on top of the instrument. Settings can then be adjusted using this control panel. There is no need to use the PC to control the instrument.

1. Select ‘photometric’ from the control panel
2. Chnge the OD to 600 nm using the key pad. 2)
3. Place appropriate blanks into the sample holders and zero the instrument.
4. After removing the blanks, the sample can be inserted and read automatically.

**Various other samples can also be read using the full method version below.**

1. Turn on the power of UV-Vis spectrophotometer.

2. Wait 5-7 minutes for heating the light source.

3. From the Configure drop-down menu, select Parameters.
    a. You may use the default parameters or
    b. Adjust Wavelength Range before starting the test. Wavelength range availability is between 200-1000 nm.
    c. Recording Range can be changed at any time. It is recommended to set ‘Scan Speed’ to fast and ‘Sample Interval’ to Auto.

4. Click OK

5. Click on Auto Zero and wait until it reads 0.000A in the photometer status window on the bottom right corner.

6. Insert any baseline sample cells and solvent as necessary, click on ‘Baseline’ once and wait until the equipment completes the baseline correction. Note: The spectrophotometer has two holders - the one on the inner side is the reference holder and the other one is the sample holder!. In order to obtain useful data for the desired sample, all background should be subtracted. If using a liquid sample with the PS or PMMA sample cells, the baseline of the sample cell and solvent should be taken (i.e. fill two sample cells with the same solvent and insert the cells into reference and sample holders) before putting the solute in the solvent.

7. Insert the sample into sample holder. Close the cover.

8. Click Start.

9. After each run, either save or discard the data. Note: Clicking Save will only save the file name. To save the data, go to file menu and select “Save”. Exporting data in the ASCII format.

10. From the file menu, select Data Translation.

11. Select ASCII Export.

12. Find the file for export. Then click OK.

13. Browse to adequate file and folder on PC.

14. Finally, transfer the file to a flash drive. Note: the ASCII format only includes numerical data for the X and Y axis of the Transmission or Absorption vs Wavelength plot.

15. Always fill out the log book.

**5.0 Personal protection –**
Howie coat must be worn at all times.

**6.0 Training –**
All users have to be trained before using the Instrument by a designated person.

**7.0 Related documents –**

7.1 http://www.geminibv.nl/labware/shimadzu-uv-1601-spectrofotometer/shimadzu-uv1601-manual.pdf

7.2 Risk Assessments: RA/GEN/030-Spectrophotometers.

**8.0 Approval and sign off –**

**Author:**

Name: Laura Aitken

Position: Postdoctoral Research Fellow

Signature: Date:

**Management Approval:**

Name: Peter Mullen

Position: Research Fellow

Signature: Date:

**QA release by:**

Name: Alex MacLellan

Position: QA Manager

Signature: Date:

# STANDARD OPERATING PROCEDURE

Please sign below to indicate you have read this S.O.P and understand the procedures involved.

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