Document Number: **SASoM/EQUIP/099.v2**

Title: **Vapor Pressure Osmometer model 5600**

Version: **v2**

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Effective from:	01/10/2021
Valid to:	01/10/2026

SOP History		
Number	Date	Reason for Change
v1	01/08/2016	Original
V2	01/10/2021	Update

1.0 Purpose –

The purpose of this SOP is to outline the principles of the routine use of the Vapor 5600 in Laboratory 248 at the St Andrews School of Medicine (SASoM).

2.0 Scope –

This SOP applies to routine use and maintenance of the Vapor 5600 within the SASoM.

3.0 Responsibilities –

It is the responsibility of all users of the Vapor 5600 within the SASoM to comply with this SOP.

4.0 Procedure –
Full details are found in the user manual located next to the Vapor 5600 – Please refer to these prior to use.

All users must be trained by a designated person before using the Instrument. Please contact Dr Javier Tello or Dr Samantha Pitt prior to first use.

A user log book can be found next to the machine, please complete as indicated.

General checks
1. Is desiccant blue? If not contact Dr Javier Tello or Dr Samantha Pitt.
2. Are standards getting low? Do new standards need to be ordered?
3. Verify that the contamination level is less than 10. If greater than 10, perform the automated thermocouple (TC) clean cycle (see calibration).
4. If automated TC clean is required check that the water reservoir is full (distilled water) and that the waste reservoir is empty.
5. If a manual TC clean required refer to manual or contact Dr Javier Tello or Dr Samantha Pitt. Following a manual clean ensure that the machine been left for at least 30 mins prior to use.

Operation
1. Turn on machine (switch at back) and printer (if needed) and verify that the initialisation process passes and no errors occur.
2. Allow the machine to reach temperature stability – Diamond will settle between the two central bars.
3. Read samples.
4. Turn off machine and printer after use.
5. Replace cover after use.

Loading samples
1. Press OPEN/Close key to bring sample holder under the pipettor guide.
2. Use the forceps provided (these must **NOT** be removed) to place a **single** sample disc in the central depression of the sample holder.
3. Use a clean tip and a clean disc for every sample.
4. Pipette sample onto disc.
5. Close tray.
6. Measurement should start automatically.
7. Clean sample holder immediately after measurement with a kimwipe.
8. Do not leave the sample holder out fpr long periods of time.

Calibration
1. Pipette 10 ul of Opti-Mole 290 mmol/kg standard onto the disc.
2. Take measurement.
3. Repeat 3 times.
4. Reading should be within ± 3 mmol/kg (287 to 293). If it is there is no need to calibrate. If reading is outside of this limit you will need to calibrate machine.
5. Press CALIBRATE key, add 290 mmol/kg standard – repeat as necessary.

6. Repeat steps 2-5 using an Opti-Mole 1000 mmol/kg. Reading should be within ± 5 mmol/kg (995 to 1005). If it is there is no need to calibrate. If reading is outside of this limit you will need to calibrate machine.
7. Repeat steps 2-5 using an Opti-Mole 100 mmol/kg. Reading should be within ± 2 mmol/kg (98 to 102). If it is there is no need to calibrate. If reading is outside of this limit you will need to calibrate machine.
8. Run sample.

A thermocouple (TC) contamination level reading automatically occurs whenever a calibration at 100 mmol/kg occurs. Record the contamination level in log book. If the displayed level is greater than 10 perform an automated TC clean. This function is fully automated and self-contained requiring no intervention from the operator except to maintain clean water in the supply reservoir, emptying the waste reservoir when filling the supply reservoir, and replacing the desiccant cartridge/filter as needed.

Check that the water reservoir is full (distilled water) and that the waste reservoir is empty.

Automated Clean

1. Always remove any sample from the sample holder before starting a clean cycle.
2. Press CLEAN to start the TC cleaning cycle.

If contamination problem persists perform a manual TC clean. Refer to the application/instruction manual for this operation. If you are in anyway unsure of how to proceed contact Dr Javier Tello or Dr Samantha Pitt as the TC head is extremely delicate, easily damaged and **VERY** expensive to replace. Washing solutions and Allen key for this operation can be found in the top draw of the cupboard to the left hand side of the machine.

Running samples

1. In **NORMAL MODE** run 290, then 1000, then 100 mmol/kg standards. If you need to calibrate follow instructions above.
2. Load sample and read.
3. Repeat 3 times.

General Cleaning

Automated cleaning is not required after every use. It possible to run 50-100 assays before cleaning becomes necessary, depending upon the type of sample solutions (may be more frequent for certain samples). As a guide washing should be completed at a minimum once a week (if machine has been used).

5.0 Personal protection –

Howie coat must be worn at all times.

6.0 Training –

All users must be trained by a designated person before using the Instrument. Please contact Dr Javier Tello or Dr Samantha Pitt prior to first use.

7.0 Related documents –

7.1 Vapor 5600 application manual (located next to machine)

7.2 Performance and Operation checklists – quick guides (located next to machine)

8.0 Approval and sign off –

Author:

Name: Dr Samantha J Pitt

Position: Principal Investigator (RSE Fellow)

Signature:  Date: 26/10/21

Management Approval:

Name: Peter Mullen

Position: SOP Administrator

Signature:  Date: 29/09/2021

QA release by:

Name: John O' Connor

Position: QA Manager

Signature:  Date: 29/09/2021

STANDARD OPERATING PROCEDURE

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

NAME	POSITION HELD	SIGNATURE	DATE