

Standard Operating Procedure

SOP140

Title: USE AND MAINTENANCE OF GONOTEC OSMOMAT 030 CRYOSCOPIC OSMOMETER

Location: CBE Laboratory Unit H34

1. PURPOSE

This SOP describes the use of the Gonotec Osmomat 030 for analysis of liquids (routinely cell culture media) used within the CBE. Calibration and occasional maintenance duties are also described to ensure reliable operation of the equipment.

2. SCOPE

This SOP applies to the Gonotec Osmomat 030 Cryoscopic Osmometer located in H34.

3. RESPONSIBILITES

CBE Laboratory Users

- Shall have received appropriate instruction before using the Gonotec Osmomat 030 Cryoscopic Osmometer.
- Follow the procedure described in this SOP according to the manufacturer's operating instructions and safe working practices.
- Report any events that indicate non-conformance of malfunction and notify RP/LM

Responsible Person (RP)/Laboratory Manager (LM)

- Shall ensure that all laboratory personnel are given suitable information and instruction as to correct use and maintenance of the Gonotec Osmomat 030 Cryoscopic Osmometer.
- Investigate any problems, deviations, adverse effects of non-conformities.

4. EQUIPMENT AND MATERIALS

Osmomat 030 Cryoscopic Osmometer (Gonotec GmbH, Germany).
0.5 ml sample tubes
300 mOsm Calibration standard

5. PROCEDURE

Switch on

- Ensure an empty 0.5 ml sample tube is firmly attached to the cryoprobe
- Turn on using the power switch at the back of the machine
- The instrument will perform a starting protocol. Spont Crys and No Crys indicators will flash during this process.
- Once these indicators are stable, the instrument is ready for calibration.

Version 002

Effective Date: 6th July 2021

Review 6th July 2023

Written by: Andrew Picken	Reviewed by:	Approved by: C.Kavanagh
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Calibration

- Transfer 50µl of ddH₂O into a clean 0.5 ml sample tube, ensuring no air bubbles remain.
- Securely fasten the sample tube to the cryoprobe.
- Press the “zero” button.
- Push the vessel holder down into the measuring position (shown in the operator’s manual, page 24; Figure 7).
- After measurement, the display should read zero.
- Lift the vessel holder up and carefully remove the sample tube. Gently wipe clean the cryoprobe with ddH₂O wetted paper tissue and dry with paper tissue.
- Transfer 50µl of fresh 300 mOsm/kg calibration standard into a clean, dry sample tube, ensuring no air bubbles remain.
- Securely fasten the sample tube to the cryoprobe.
- Press the “CAL” key.
- Enter the osmolality of the standard by pressing the “CAL” button until 300 is displayed.
- Push the vessel holder down into the measuring position.
- The instrument is now calibrated. Clean the cryoprobe as before and check the calibration using a known standard (e.g. fresh 300 mOsm/kg or medium of a known osmolality).
- Readings should be ± 2 (0-400 mOsm/kg) or ± 0.5 % (400-1500 mOsm/kg).
- Record the expected value and the actual value on the log sheet. If the value is outside the acceptable range, repeat the calibration procedure or contact the Responsible Person.

Sample analysis

- Transfer 50µl of sample into a clean 0.5 ml sample tube, ensuring no air bubbles remain.
- Securely fasten the sample tube to the cryoprobe.
- Push the vessel holder down into the measuring position.
- Once the measurement is completed, lift the vessel holder up and carefully remove the sample tube. Gently wipe clean the cryoprobe with ddH₂O wetted paper tissue and dry with paper tissue.
- Repeat the process until each sample is analysed.
- Securely fasten a clean, empty 0.5 ml sample tube to the cryoprobe.
- Switch off the instrument using the power switch at the back of the machine.

Note: If multiple samples are to be analysed serially, they should be prepared immediately prior to use. If this is not possible, they must be capped until analysis is performed. If previously frozen samples are to be analysed, samples must be properly thawed and vortex mixed prior to analysis.

Maintenance

Daily

- Free movement of the vessel holder should be assessed.

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Monthly

- The position and movement of the initiator needle should be checked by pressing the motor button on the rear side of the device.
- Check (and adjust if necessary) the orientation of the thermistor probe using the adjustment tool provided.
- Check for corrosion of the cooling nipple on the top of the upper cooling system. If corrosion is observed, remove with fine grade sandpaper.
- In the event of any servicing that needs to be performed, a decontamination certificate should be completed and filed in the equipment file.

Note: Monthly maintenance activities should be recorded on the relevant log sheet on the door to H34.

6. DOCUMENTATION

The following records are outputs of this SOP & can be found on the CBE LEARN page

- QS009 : Decontamination certificate

These records will be filed in the Equipment File and stored in the CBE Office or otherwise archived for future review or retrieval.

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SOP Version History

Version Reviewed	Date Revised/ Reviewed	Revision Summary	New Version Number
1	6th July 2021 C.Kavanagh	Changed location of equipment to H34	2

Version 002

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