Automatic Osmotic Pressure Analyzer

OSMO STATION 2

OM-6070 | Osmotic pressure

Improved convenience and visibility with the touch panel, and all needs from clinical to R&D are met while maintaining the reliability of the data.

Automatic Osmotic Pressure Analyzer

OSMO STATION 2

OM-6070 | Osmotic pressure

Features

- Continuous measurement of up to 24 samples.
- Measurement in sample cups and sample tubes.
- Online application available through external output of data such as measurement results.
- Measurement with urine sample tubes available by using the optional turntable for urine sample tubes.

STAT Measurement

Can respond to emergency measurements

Interruption measurement is possible using STAT port

Evaluation of basic performance

Within-run reproducibility

	Serum		Standard solution		Urine	
	Low	High	Low	High	Low	High
MEAN (mOsm/kg)	283.1	316.7	298.4	999.2	534.9	1017.9
SD (mOsm/kg)	0.6	1.2	0.7	2.3	2.1	4.1
CV (%)	0.2	0.4	0.2	0.2	0.4	0.4

Between-run reproducibility

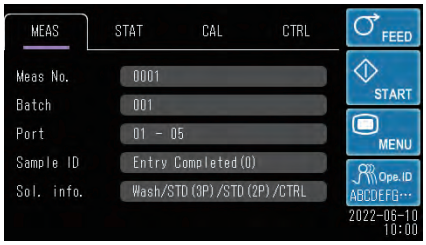
	Serum		Standard solution		Urine	
	Low	High	Low	High	Low	High
MEAN (mOsm/kg)	284.2	298.7	300.3	994.7	535.5	1015.5
SD (mOsm/kg)	0.2	0.5	1.0	2.1	2.0	3.1
CV (%)	0.1	0.2	0.3	0.2	0.4	0.3

Citations: "Basic Study of Osmotic Pressure Analyzer OSMO STATION 2 (OM-6070), Japanese Journal of Medicine and Pharmaceutical Science Vol. 80, No. 4, 2023", pp. 405-414

*Data were obtained in-house and are not to indicate the specifications of the product.

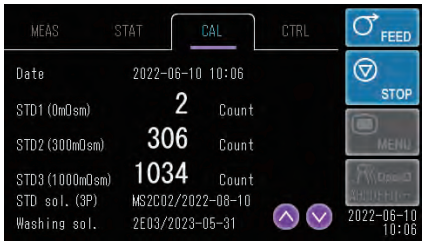
Improved usability with touch panel display

The touch panel display has improved functionality, such as simplified management of measurement and calibration results within the instrument. The touch panel enables intuitive operation and immediate confirmation of data.



Standby screen

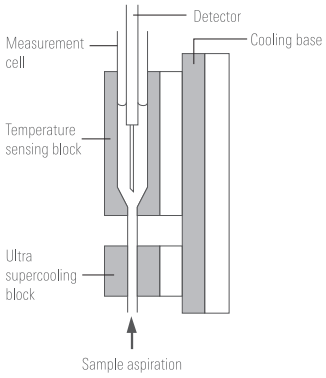
Measurement results screen



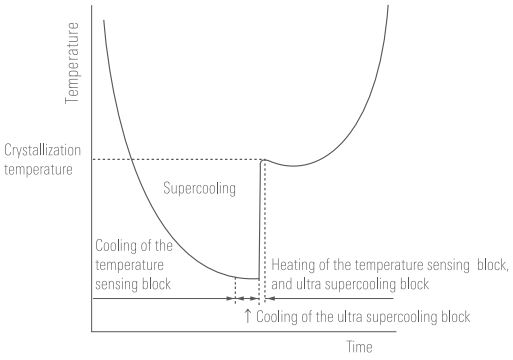
Calibration result screen

Employs the freezing-point depression method using ultra supercooling (USC)

Its unique measurement method enables a quiet and accurate measurement.



Conceptual diagram of the Measurement cell



The sample temperature during measurement

＜Principle of the freezing-point depression method＞

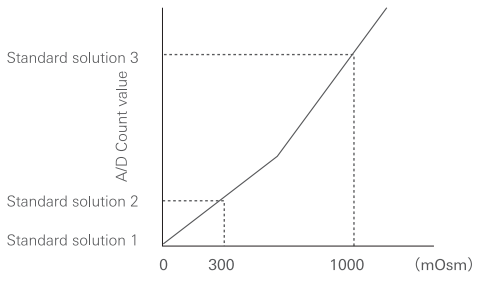
1. The sample aspirated by the nozzle is sent to the measurement cell.
2. By gradually cooling down the temperature sensing block, the sample remain its liquid state without freezing at the freezing point.
3. By cooling down the ultra supercooling block to below the freezing point, the sample freezes instantly to form ice crystals.
4. Measure the ice crystal formation temperature of the sample and calculate the osmotic pressure from the calibration curve obtained by calibration.
5. Heat the temperature sensing block and the ultra supercooling block, then the sample is melted.
6. Samples are discharged into waste fluid bottles.

- Due to its use of temperature changes in samples, there are few operating parts in the instrument and it is quiet.
- This is the measurement principle used for many years, and it has high accuracy.

Equipped with multiple calibration methods

3-point calibration

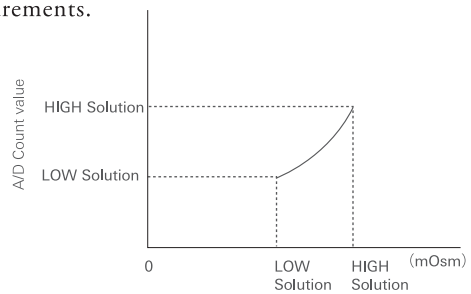
The calibration curve is created by measuring three standard solutions of “0 mOsm”, “300 mOsm” and “1,000 mOsm”, and using a polygonal line with three points obtained from the measurement results of each standard solution. This is used for the routine sample measurement or for wide-ranging measurements where the osmotic pressure of the sample is unknown, for example.



Calibration curve graph for 3-point calibration method

2-point calibration

Two types of standard solutions, any low solution (solution at the lower osmotic pressure limit of the measurement range) and high solution (solution at the upper osmotic pressure limit of the measurement range), are measured, and a calibration curve is created using a logarithmic curve connecting two points obtained from the measurement results of each standard solution. The measurement range can be set as desired, and the measurement range can also be narrowed, especially for conducting highly accurate measurements.



Calibration curve graph for 2-point calibration method

Specifications	
Measurement objects*1	Serum, plasma, and urine
Measurement items	Osmotic pressure of body fluid (osmotic pressure ratio)
Measurement principle	Freezing-point depression method using ultra supercooling
Measurement range*2	0 - 2000 mOsm (Switchable to “0 - 2500 mOsm)
Required sample volume	Sample cup: Minimum 200 μL Sample tube: Minimum 2 mL
Measurement time	2 to 3 minutes/sample
Number of samples installed*3	Maximum 24 samples (turntable), Maximum 10 samples (turntable for urine sample tubes)
Calibration method	3-point calibration (0, 300, 1000 mOsm: Polygonal line approximation), 2-point calibration (Any 2-point: Logarithmic curve approximation)
Memory capacity	500 measurement results
Display screen	4.3-inch color LCD with touch panel
Built-In printer	58-mm width thermal printer paper (24 digits)
External output	Compliant with RS232C, Ethernet (optional), USB (for data-output)
Measurement environment	Temperature: 10 - 30 °C; Humidity: 20 - 80 % RH (No condensation)
Power consumption	Maximum 160 VA
Power supply voltage	AC 100 – 240 V, 50/60 Hz
External dimensions	320 (W) x 460 (D) x 448 (H) mm
Weight	Main body: 22 kg, Turntable unit: 3 kg

This instrument conforms to EMC Standard JIS C 61326-2-6:2019.

*1: We cannot guarantee any errors in measurement results from samples other than serum, plasma, or urine. Also, since our instrument employs the freezing-point depression method as its measurement principle and uses sodium chloride solution as the calibration standard solution, there is a possibility that the measured values may deviate if samples with different liquid properties (viscosity, etc.) from those of the sodium chloride solution are measured.

*2: Please contact us about changing the measurement range.

*3: Turntable dedicated for urine sample tube is optional.

OSMO STATION Control Solution Set

Accuracy control is achieved effortlessly using a dedicated control solution.

No adjustment required

Liquid reagent that can be used as is

Excellent stability

Can be stored at room temperature for easy management

Dedicated reagent

Dedicated control of osmotic pressure analyzer helps in ISO certification

Legal manufacturer

ARKRAY FACTORY, INC.

1480 Koji, Konan-cho, Koka-shi, Shiga 520-3306, JAPAN

European representative

ARKRAY EUROPE, B.V.

Prof. J.H. Bavincklaan 2, 1183 AT Amstelveen, THE NETHERLANDS

https://www.arkray.eu/english/

ARKRAY GLOBAL BUSINESS, INC.

Yousuien-nai, 59 Gansuin-cho, Kamigyo-ku,

Kyoto 602-0008, JAPAN

TEL +81-75-662-8979 FAX +81-75-431-1202

*Designs and specifications may be changed without prior notice.

AG231221-OM6070-EN reviewed