BIOMEDICAL SYSTEMS

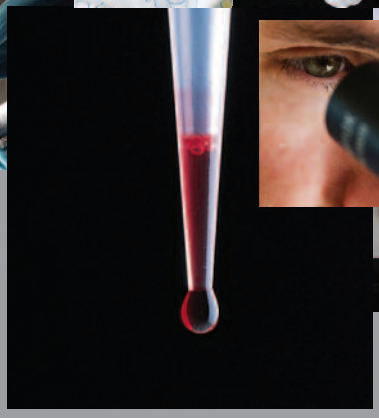
Vapro®

VAPOR PRESSURE OSMOMETER

Self Cleaning Thermocouple

The fundamental advantages of vapor pressure osmometry are now embodied in the most intelligent osmometer ever produced!

ELITechGroup
BIOMEDICAL SYSTEMS



Clinical Applications

Emergency Room

- Burn patients
- Trauma, head injury, and shock
- Coma
- Diabetic coma

Prognosis

- Serum osmolality and osmolal discriminant
- Renal function

Monitoring

- Stool analysis
- Body fluids
- Surgery
- ADH therapy
- Renal dialysis
- Post operative
- Burn therapy
- Insulin therapy
- Fetal maturity
- Hyper/hyponatremia
- I. V. therapy

Diagnosis

- Cystic Fibrosis diagnosis by osmolality assay of sweat
- Differential diagnosis of diabetes insipidus
- Differential diagnosis of polyuria or oliguria

Quality Assurance

- Blood bank assessment of residual glycerol in final cell suspensions
- Enteral & parenteral nutrition preparations
- Physiological infusion solutions
- Monitoring infant formulas
- Reagent and standard solutions

Research Applications

Vapro is the undisputed leader in research osmometry, with capability for any type of sample–fluids, viscous or tissue samples

- Veterinary medicine
- Botany
- Plant physiology
- Electron microscopy
- Genetic research
- Food and beverage processing
- Pharmacology
- Marine biology
- Cancer research
- Molecular weight determinations (0-10,000 g/mol)
- Tissue culture
- Ophthalmology
- Transplantation and embryology
- Chemical industry
- Soil physics
- Agriculture
- Toxicology
- Pharmaceutical manufacturing and research
- Cell biology

Start with the best

The Vapro osmometer brings unprecedented simplicity, convenience, and accuracy to the routine determination of osmolality to help meet the demands placed on today's clinical laboratory.

Auto-calibration, a self cleaning thermocouple, self-diagnostics, statistical analysis, and computer interface/printout capabilities make the Vapro osmometer a must for any busy laboratory. The small sample requirement allows you to assay hard-to-get or expensive samples using the superior characteristics of the vapor pressure method.

Why Vapor Pressure?

"Vapor pressure measurement is the fastest and easiest method of determining osmolality, and the thermodynamic limitations of vapor pressure osmometry are least restrictive. For these reasons, vapor pressure osmometry is the method of choice for most fluids in biology and medicine in which water is the solvent."[1]

The vapor pressure method determines osmolality at room temperature with the sample in natural equilibrium. This precludes cryoscopic artifacts due to high viscosity, suspended particles, or other conditions that can interfere with freezing point determinations, giving Vapro a much broader range of error-free applications.

The fundamental advantages of vapor pressure osmometry are now embodied in the most intelligent osmometer ever produced. Vapro® offers an intuitive approach that frees you from intensively "managing" an instrument.

1. *Sweeney T. E., and Beuchat, C. A., Limitations of methods of osmometry: measuring the osmolality of biological fluids. Am. J. Physiol. 264 (Regulatory Integrative Comp. Physiol. 33): R469-R480, 1993.*

Features

Menu Driven

Functions are selected from a simple and logical menu.

- Streamlined user interface for quick access to menu items and common functions.
- User-Selectable Measurement Modes: Single sample; Auto Repeat Mode for repeat measurements of the same sample; Averaging Mode for precision measurements; Delayed Start Mode for samples requiring longer equilibration times.
- Four user-selectable languages (English, French, German, Spanish).

Superb Accuracy

- Unsurpassed by any other method, error is less than 1% in the clinical range.

Self Cleaning

- Self-cleaning thermocouple reduces maintenance and improves performance.

Trouble-free Self Diagnostic Operation

- Few moving parts, no mechanical adjustments, no mechanical breakdowns.
- Automated circular sample slide and chamber locking operation, which places all the controls on the front panel.
- Built in clock records and displays a date code for each sample result.

Easy Calibration

- A push of a button automatically sets the calibration parameters.

Economical

- Low initial cost, no expensive proprietary supplies.

Vapro Lab Report Software

- Combines user-provided information with measurement results directly from the Vapro to produce a printable and saveable report (Windows format only).

Specifications

Vapro® Vapor Pressure Osmometer Model 5600

Sample Volume	10 µL nominal. Other accessory sample volumes: 2 µL using AC-063, 20 µL using AC-064 sample holder, and approximately 60 µL using AC-065 sample holder.
Measurement Range	Typically 20 to 3200 mmol/kg* (up to 3500 mmol/kg with extended range osmometer) @ 25 °C ambient.
Measurement Time	90 seconds.
Resolution	1 mmol/kg.
Repeatability	2 mmol/kg Standard Deviation.
Linearity	± 1% of reading over calibrated range (100 mmol/kg - 1000 mmol/kg) ± 5% < 100 mmol/kg and > 1000 mmol/kg up to 3200 mmol/kg ± 10% > 3200 mmol/kg for XR units while operating between 20 and 25 °C.
Calibration	Automatic using Opti-mole™ osmolality standards.
Readout	240 x 128 pixel backlit LCD.
Operating Temperature	This device has been designed for indoor use only between 15° and 37 °C with a maximum relative humidity of 85%. For use at elevations up to 2000 meters. (Instrument should be at stable temperature before calibrating.)
Storage Temperature	0 to 60 °C.
Serial Outputs	RS-232 (ASCII format). USB – Slave.
Electrical	
Line Voltage	100 to 240 Volts AC @ 50-60 Hz.
Power	40 Watts maximum.
Fuses	(2 required) 5 x 20 mm time-delay type T– 1 ampere at 250 Volts.
Size (H x W x D)	20 cm (8”) x 28 cm (11”) x 36 cm (14”)
Weight	6.8 kg (15 lbs.)

*mmol/kg is the Standard International (SI) unit of osmolality.

Underwriters Laboratories Listed, Electrical Equipment for Laboratory Use, UL 61010-1 (IEC 61010-1).

Buyer’s Specifications

The osmometer shall be a ELITech model 5600 or equivalent and shall operate on the vapor pressure depression principle. The osmometer shall be capable of routine osmolality determinations on sample volumes of 10 microliters and shall perform the measurement automatically once the chamber is sealed. The osmometer shall be capable of routine osmolality determinations on whole blood. The osmometer shall consume no more than 40 watts of electrical power and shall weigh less than 7 kg. The osmometer shall have an automated thermocouple cleaning cycle and not require any routine maintenance.

CE IVD

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Please contact your sales representative for product availability in your country.

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