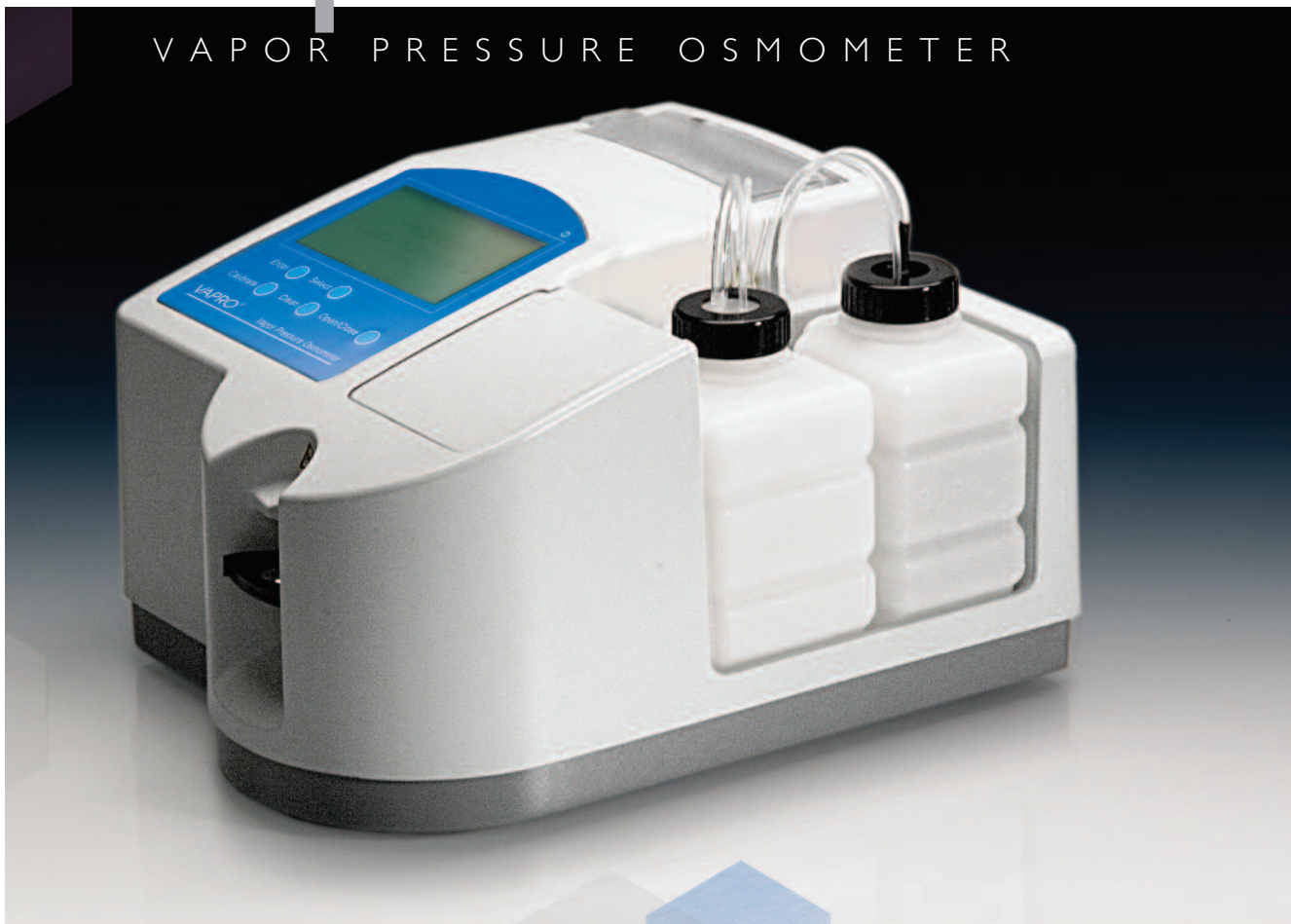




Vapro[®]

VAPOR PRESSURE OSMOMETER



Self Cleaning Thermocouple

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

Research Applications

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

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





NEW!

self-cleaning thermocouple

Vapro[®]

VAPOR PRESSURE OSMOMETER

Vapro is the latest vapor pressure osmometer from the undisputed leader in the field of research osmometry.

Unlike the cryogenic method, it handles samples of elevated viscosity and complex physical form. This provides biology researchers with data not previously obtainable, particularly in invertebrate physiology.

The noninvasive aspect of vapor pressure osmometry makes measuring osmolality not only feasible on fluid samples, but also on thin slices of plant and animal tissue. Such studies have been reported by Tornheim¹ (brain tissue) and Knepper² (kidney tissue). The instrument is also valuable for investigating multi-solvent solutions, whose properties are generally more complex than single solvent solutions, or when investigating biological and other fluid phenomena.³

Small sample size capability allows you to reliably assay samples as small as 2 μL ⁴ using special procedures. This is an important feature considering the high cost of certain samples.

The Vapro osmometer adds convenience to its other capabilities with a host of features to help you get more done with less fuss. The instrument is truly simple to operate, and its internal diagnostics alert you to the need for sensor cleaning. All functions of the instrument can be selected from a simple menu. With the new self-cleaning thermocouple, the Vapro is a *must* for your laboratory.

Please call us today for more information, a demonstration, or a quotation.

1. Tornheim, P.A. Use of a vapor pressure osmometer to measure brain osmolality. *J. Neuroscience Methods*, 3, 21(1980).

2. Knepper, M.A., Measurement of osmolality in kidney slices using vapor pressure osmometry. *Kidney International* 21, 653 (1982).

3. Draviam, E.J., Custer, E.M. and Schoen, I. Vapor pressure and freezing point osmolality measurements applied to a volatile screen. *Am. J. Clin. Path.*, 82, 6, 706 (1984).

4. Pensyl, C.D, Benjamin W.J. Vapor Pressure Osmometry: Minimum sample microvolumes *ACTA Ophthalmologica Scandinavica*. 1999: 77: 27-30.

Research Applications

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

Electrophysiology

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 μ L nominal. Other accessory sample volumes: 2 μ L using AC-063, 20 μ L using AC-064 sample holder, and approximately 60 μ L 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 | \pm 1% of reading over calibrated range (100 mmol/kg - 1000 mmol/kg) \pm 5% < 100 mmol/kg and > 1000 mmol/kg up to 3200 mmol/kg \pm 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.

Manufactured by:

ELITech Group Biomedical Systems

An Elitech Group Company

370 West 1700 South, Logan Utah 84321-8212 USA



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VAPRO.MAY14 - 19

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

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