

Osmometers

Vapor Pressure Osmometer K-7000



Osmometry made easy

The Vapor Pressure Osmometer K-7000 from KNAUER is an advanced instrument from one of the pioneers in the field of osmometry with 50 years experience. It stands out for its high performance, data quality, and reliability.

The Vapor Pressure Osmometer K-7000 is best suited for:

- Molecular weight determination up to 40000 g/mol
- Determination of total osmolalities of physiological fluids

The Vapor Pressure Osmometer measurement principle is based on vapor pressure reduction in solutions corresponding to Raoult's law. Two identical thermistors are located in a cell where the gas phase is saturated with solvent vapor. If both thermistors carry drops of pure solvent, the difference in potential between the two is zero. During measurement, one of the solvent droplets is replaced with a drop of solution (with reduced vapor pressure). Now solvent vapor will condense on the solution droplet and thus vapor pressure increases until it equals the pressure of the pure solvent droplet. The increasing pressure leads to a rising temperature of the solution are proportional. Thus, concentrations as well as molecular weights (if the concentration is known) can be determined.

The K-7000 requires only one set of thermistor probes to cover the entire temperature range between 20° and 130°C for all types of aqueous and organic solvents, minimizing set-up times.

The Vapor Pressure Osmometer K-7000 is easy to operate. In stand-alone mode all measurement results can be reviewed on the internal display. If desired, an analog signal of the measurement can be recorded.

KNAUER adds more value to the K-7000 with the external data evaluation software package EuroOsmo[®]. This option will enhance your productivity and make the evaluation of experimental results faster and easier.

The EuroOsmo® 7000 software can be used to control all measurement settings (e.g. temperature and detection time). Molecular weights and osmolalities are directly determined by the software from the measurement and calibration data.

HPLC · SMB · Osmometry



EuroOsmo® 7000 software



EuroOsmo® 7000 software offers powerful calibration features including automatic calculation of calibration graphs and graphic display of your calibration data. It allows automatic evaluation of your experimental data, automatic calculation of osmolality, and unknown molar mass, respectively. The graphic display is a valuable tool for observing the measurement profile.

Technical data

Molecular weight range	aqueous: up to 10000 g/mol; organic: 40–40000 g/mol		
Concentration range	1 x 10 ⁻³ – 15 molal		
Sensitivity	$y = 3.3 \times 10^{-5}$ mol/kg in toluene; 1.7×10^{-4} mol/kg in water		
Min. sample volume	approx. 10 µl (one drop)		
Sample capacity	up to 4 samples		
Test time	1.5–5 minutes per measurement		
Cell temperature range	20–130°C		
ΔT head thermostat	0-6°C		
Warm-up time	5–40°C, 0.5 h; 40–60°C, 1.0 h; 60–100°C, 1.5 h; 100–130°C, 2.0 h		
Syringes	1 ml, glass with Teflon [®] /stainless steel piston		
Min. cell solvent volume	20 ml		
Gain	1–256		
Output	RS-232 data connection to PC; 1 V analog signal for recorders		
Display	LCD, 2 lines, 24 characters each		
Power supply	90–260 V, 47–63 Hz, max. 60 VA		
Dimensions / Weight	160 x 182 x 340 mm (WxHxD) / 5.4 kg		

Ordering information

Order no.	Osmometer / Software	Order no.	Accessory
A3701	Vapor Pressure Osmometer K-7000	A3703	Universal thermistor probe (20–130°C)
	incl. thermistor probe	A0429-1	Pack of 10 vapor wicks
A3702	EuroOsmo [®] 7000 data acquisition software	Y1026	10 g benzil
		A0807	Glass beaker incl. mounting ring
		A0433	Syringe, 1000 µl, glass, with Teflon® and
			stainless steel piston, incl. needle with spring
		A0428	Syringe, 1000 µl, with glass piston
Technical data are subject to change without notice.		A0430	Pack of 12 needles and 6 springs

Visit www.knauer.net for details on complete HPLC systems, HPLC columns, and osmometers.

Wissenschaftliche Gerätebau Dr. Ing. Herbert Knauer GmbH Hegauer Weg 38 14163 Berlin, Germany



Phone: +49-(0)30-80 97 27-0 Telefax: +49-(0)30-8 01 50 10 E-Mail: info@knauer.net Internet: www.knauer.net Your local distributor:

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