

## Osmomat 010 Advantages

- automatic calibration by switch
- no ice formation in the lower cooling system: reliable measurements even for long working periods
- measuring time approximately 1 min: valuable in case of serial measurements
- measurements and determination microprocessor controlled
- minimum sample volume: 50 $\mu$ L
- disposable plastic measuring vessels save time and costs
- automatic error detection and display
- optional measurement documentation by integrated matrix printer: date, time, sample number and measuring result are printed



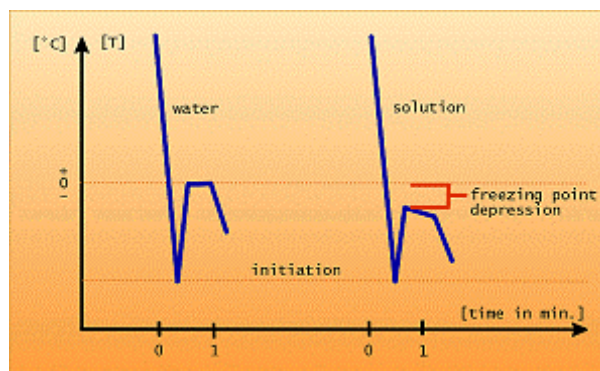
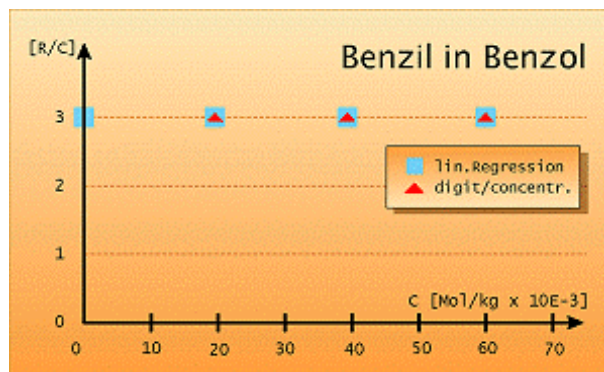
## Measurement Method

For the determination of the molar mass, the OSMOMAT 010 has to be calibrated first with the pure solvent and then with a solution with known molal concentration. It is then possible to adjust the zero point of the solvent with the range of  $-5^{\circ}\text{C}$  to  $10^{\circ}\text{C}$ . The cell constant can be obtained from the calibration measurement, which then is used in the determination of the molar mass calculation.

For the sample measurement, solutions of concentrations of about 5 to 140 g/kg solvent will be prepared depending on the expected molecular weight. For the determination of molar masses below 1000 g/mol, a single point measurement is normally sufficient. Nonpolar substances may behave in a non-linear fashion in respect to the ratio measured value/concentrations in the range of low molecular weights and at least 3 solutions with graded concentrations should be measured.

The values obtained in this way have to be treated by means of linear regression analysis.

The total osmolality of aqueous solutions is determined by comparative measurements of the freezing points of pure water and of solutions. Water has a freezing point of  $0^{\circ}\text{C}$ , a solution with saline concentration of 1 Osmol/kg has a freezing point of  $-1.858^{\circ}\text{C}$ .



## Specifications

Standard Set	
sample volume	50 $\mu$ L - 30 $\mu$ L
duration of measurement	approximately 1 minute
reproducibility	$< \pm 0.5\%$ resp. $< \pm 2$ digits (50 $\mu$ L)
display	4,5 digits
measuring range	up to approximately 3000 mOsmol / kg in benzene, approximately 4000 to 5000 Dalton
resolution	1 mOsmol / kg over the entire measuring range in benzene, approximately 3 digits / mMol/kg
resolution of the crystallisation	by means of automatic injection of ice crystals into the solution
cooling	by means of two separate peltier cooling systems with heat dissipation by air
ambient temperature	10°C up to 35°C
integrated printer	alphanumeric dot matrix printer for automatic printing of results, date, time and 4-digit-sample number
analog output	through standardized 5-pin socket, output voltage 1mV/digit for continuous recording of the temperature by potentiometer recorder
RS data output	standardized interface RS 232C (upon request our OSMOTERM software RS 232 for Windows '98/NT2000/XP is available)

## Applications

Routine measurements in medical applications as well as measurements in industry and research. The OSMOMAT 010 determines mol masses in benzene solutions and the total osmolality of aqueous solutions. Small sample volumes and short measuring times allow extreme measuring requirements and serial measurements.

SOME OF THE FIELDS OF APPLICATION OF THE OSMOMAT 010 ARE		
Oil industry	Electron microscopy	Intensive care laboratories
Invitro fertilization	Hemodialysis/Hemofiltration	Forensic medicine
Polymer characterisation	General medicine	Paediatrics
Urology	Veterinary medicine	Pharmacy
Routine and research	Clinical Laboratories	Gynaecology
Nephrology	Botany	Dispensaries etc.