

Boiling point elevation - Raoult's law

Article no: P3021001



Principle

The boiling point of a solution is always higher than that of the pure solvent. The dependence of the temperature difference (elevated boiling point) on the concentration of the solute can be determined using a suitable apparatus.

Benefits

- Simple presentation and execution by temperature meter 4-2
- Simultaneous display of current temperature and temperature difference
- Compact, easily transportable setup

Tasks

1. Measure the increase in the boiling point of water as a function of the concentration of table salt, urea and hydroquinone.
2. Investigate the relationship between the increase in boiling point and the number of pellets.
3. Determine the molar mass of the solute from the relationship between the increase in boiling point and the concentration.

Learning objectives

- Raoult's law
- Henry's law
- Ebullioscopic constants
- Chemical potential
- Gibbs-Helmholtz equation
- Concentration ratio
- Degree of dissociation

Necessary accessories

- Precision balance 620g/0.001g

Scope of delivery

Retort stand, h = 750 mm	37694-00	1
Right angle boss-head clamp	37697-00	3
Universal clamp	37715-01	3
Apparatus for elevation of boiling point	36820-00	1
Temperature meter digital, 4-2	13618-00	1
Immersion probe NiCr-Ni, teflon, 300 °C	13615-05	1
Round-bottom flask, 250 ml, GL 25	MAU-27220002	1
Beaker, Boro, high-form	46027-00	1
Gasket for GL25, 8mm hole, 10 pcs	41242-03	1
Silicone tubing, inner diameter 3 mm	39296-00	1
Mortar with pestle, 150 ml, porcelain	32604-00	3
Pinchcock, width 15 mm	43631-15	1
Microspoon, steel	33393-00	1
Wash bottle, plastic, 500 ml	33931-00	1
Pellet press for calorimeter	04403-04	1
Heating mantle f. roundbottom flask, 250ml	49542-93	1
Clamp for heating mantle	49557-01	1
Power regulator	32288-93	1
Weighing dishes, square shape, 84 x 84 x 24 mm, 500 pcs.	45019-50	1
Funnel, glass, top dia. 50 mm	34459-00	1
Pasteur pipettes, 250 pcs	36590-00	1
Rubber caps, 10 pcs	39275-03	1
Boiling beads, 200 g	36937-20	1
Sodium chloride, 500 g	30155-50	1
Urea, 250 g	30086-25	1
Hydroquinone 250 g	30089-25	1
Glycerol, 250 ml	30084-25	1

Water, distilled 5 l	31246-81	1
Universal power supply, 600mA 3/4.5/5/6/7.5/9/12V, incl. 9 adaptors	11078-99	1
