

Solubility diagram of two partially miscible liquids

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Principle

A number of different mixtures of phenol and water are prepared and heated until complete miscibility is achieved. As the mixtures cool, two-phase systems form at certain temperatures which are recognisable by the appearance of turbidity. Plotting separation temperatures against compositions of the mixtures gives the separation curve.

Benefits

- Good and reproducible results due to temperature control in the experiment.

Tasks

1. Plot the separation curve of the phenol / water binary system and prepare a temperature / mass fraction diagram.
2. Determine the critical separation point.

Learning objectives

- Binary system
- Miscibility gap
- Mixed phase
- Coexisting phase
- Raoult's law
- Critical dissolution temperature

Necessary accessories

- Precision balance 620g/0.001g

Scope of delivery

Immersion thermostat Alpha A, 230 V	08493-93	1
External circulation set for thermostat Alpha A	08493-02	1
Bath for thermostat, makrolon	08487-02	1
Rack for 20 test tubes, Makrolon	08487-03	1
Rubber hose	39282-00	3
Hose clip, diam. 8-16 mm, 1 pc.	40996-02	4
Burette with straight glass stopcock, 10 ml	47152-03	1
Burette clamp, roller mount., 2 pl.	37720-00	1
Retort stand, h = 750 mm	37694-00	1
Funnel, glass, top dia. 50 mm	34457-00	1
Test tubes, 16x16mm, 10 pcs	36301-03	1
Rubber stopper, without hole	39254-00	7
Beaker, Boro, high-form	46032-00	1
Wash bottle, plastic, 500 ml	33931-00	1
Spoon, special steel	33398-00	1
Pasteur pipettes, 250 pcs	36590-00	1
Rubber caps, 10 pcs	39275-03	1
Laboratory pen, waterproof, black	38711-00	1
Water, distilled 5 l	31246-81	1
Tubing connector, ID 6-10mm	47516-01	2