

Fractional distillation with the bubble tray column with CobraSMARTsense

Article no: P3031667



Principle

In countercurrent distillation (rectification) using a column, the rising vapour can enter into interactions with the condensate. In this manner, a fractional distillation, i.e. a distillation in several steps for the separation of substances with similar boiling points, can be performed in a single apparatus. If bubble tray columns are used condensate can be removed from the individual bubble trays.

Benefits

- Simplified implementation: all pre-settings already prepared
- Didactic gas chromatograph included
- Glass jacket system easily expandable
- Simultaneous temperature measurement at four points

Tasks

1. Investigate the mode of operation of a fractionating tower on a two-stage bubble tray column. Distil a mixture of three n-alkanes first with total reflux and then without any reflux.
2. Subsequently, examine and compare the initial mixture, the sump product, the head products and the condensates of both trays.

Learning objectives

- Bubble tray column
- Rectification
- Continuous and discontinuous distillation
- Vapour pressure
- Vaporisation
- Condensation
- Raoult's law

Necessary accessories

- Precision balance 620g/0.001g

Software included. Computer not provided.

Scope of delivery

Cobra SMARTsense Thermocouple - Sensor for measuring temperature -200 ... +1200 °C (Bluetooth + USB)	12938-01	4
Support rod, stainless steel, different lengths	02034-00	2
measureAPP - the free measurement software for all devices and operating systems	14581-61	1
Immersion probe NiCr-Ni, teflon, 300 °C	13615-05	4
Heating mantle f. roundbottom flask, 250ml	49542-93	1
Clamp for heating mantle	49557-01	1
Power regulator, 230 V, with phase controlled modulator	32286-93	1
Support base DEMO	02007-55	1
Support rod, stainless steel, different lengths	02034-00	2
Right angle boss-head clamp	37697-00	7
Universal clamp	37715-01	7
Bubble tray column, model, with 2 trays	35914-15	1
Round bottom flask, 250 ml, 2-neck, GL25/12, GL18/8	MAU- 27220005	1
Connecting tube,IGJ 19/26-GL25/12	35800-05	1
Column head, with stopcock, ST 19/26	35919-01	1
Dimroth condenser	MAU-26525500	1
Cooling jacket, GL 25/8	MAU- 27225000	1
Dropping funnel, 50 ml, GL 18	MAU-27222000	1
Connecting caps,10 pcs, GL18	41230-03	1
Gasket for GL18, 8mm hole, 10 pcs	41240-03	1
Teflon sleeve IGJ 19, 10 pcs	43616-00	1
Clamp f. ground joint,plastic,NS19	43614-00	2
Rubber hose	39282-00	10
Connecting tube,IGJ29/32-GL18/8	35678-02	1
Teflon sleeve IGJ 29, 10 pcs	43617-00	1

Funnel, glass, top dia. 50 mm	34457-00	1
Graduated cylinder, Borosilicate, 1000 ml	36629-00	1
Pasteur pipettes, 250 pcs	36590-00	1
Rubber caps, 10 pcs	39275-03	1
Snap-cap vials,d=24mm,h=52mm,10p.	33621-03	1
Beaker, Boro, high-form	46029-00	1
Glass rod, boro 3.3, l=200mm, d=5mm	40485-03	1
Laboratory pen, waterproof, black	38711-00	1
Boiling beads, 200 g	36937-20	1
Silicon grease Molykote, 50 g	31863-05	1
n-pentane 250 ml	31707-25	1
n-hexane,puriss. 100 ml	31369-10	1
n-heptane, extra pure 250 ml	31366-25	1
Beaker, boro, low-form	46053-00	1