

Separating different types of mixtures

E1: Determining the content of fat in peanuts

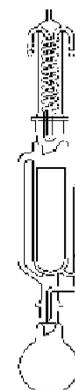
First crush a defined amount of peanuts or crisps in a mortar, fill the powder in an extraction thimble and determine the exact powder weight (weigh the empty extraction thimble, then the thimble plus powder and subtract!)

Then, fill the extraction thimble with the solvent benzene and extract for about 30 mins (remember to pre-heat the heating unit).

Finally, separate the solvent by distillation. Make a note of the boiling point, identify the density and the refraction index of the pure solvent.

After cooling, determine the exact weight of the oily residue.

Do not forget to enter all your results in your protocol.



E2: Separating a lipophilic mixture of colourants by thin-layer chromatography

First, put a drop of colourant mixture on the starting line with a capillary tube and then put the strip in the chromatography tank filled with the solvent dichloromethane. When separation is complete, determine the retention index of the separated pigments.

E3: Separating a lipophilic mixture of colourants by column chromatography

Load a column with aluminium oxide and the solvent dichloromethane. After the solvent has settled, apply about 1 ml of colourant mixture with a pipette.

It is very important that the column never runs dry during separation!

Collect the three components of the mixture in three beakers and hand them in at the end of the lesson.

Protocol

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name: _____

E1: Fat content

my sample of fatty food was: _____

extraction thimble + food _____ g
- empty extraction thimble _____ g
weighed portion of food _____ g

flask + oil _____ g
- empty flask _____ g
pure oil _____ g

My food sample contained: _____ % fat

solvent boiling point _____ °C
solvent density _____ g/cm³
solvent refraction index _____

E2: Thin-layer chromatography

Rf (red) _____

Rf (yellow) _____

Rf (blue) _____