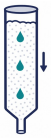
Chromatography and Tests Map

OCR A Level Chemistry A · 6.3.1 Chromatography and qualitative analysis

1 Two phases

6.3.1(a)

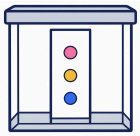
- **Stationary** phase stays put
- **Mobile** phase moves through it
- Separation: **solubility** v **retention**
- Polar compounds held by **silica**



2 Thin-layer chromatography

6.3.1(a)

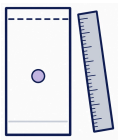
- Silica **on a plate**
- Solvent moves **up** the plate
- Pencil baseline; solvent below it; lid
- Colourless spots: **UV** or iodine

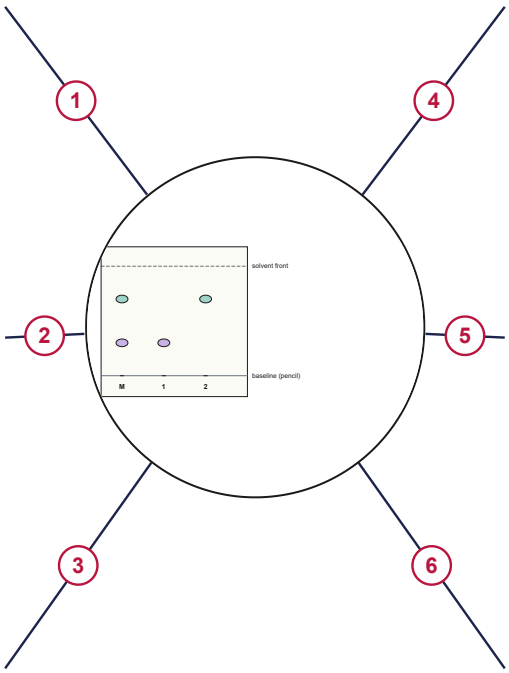


3 R_f values

6.3.1(b)

- R_f = **spot ÷ solvent front**
- Both from the **baseline**
- Compare with **standards**
- Same solvent; no units

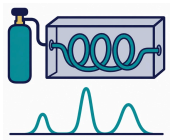




4 Gas chromatography

6.3.1(b)

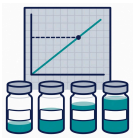
- Mobile: **inert gas**
- Stationary: **liquid or solid** on a support
- **Retention time**: injection to peak
- Peak **area** ∝ amount



5 Calibration curves

6.3.1(b)

- Run **standards** of known concentration
- Plot **peak area v concentration**
- Read off the **sample**
- Same conditions throughout



6 Test-tube tests

6.3.1(c)

- **Bromine water**: C=C
- **$AgNO_3$ in ethanol**: haloalkanes
- **Carbonate**: acids; phenols do not fizz
- 2,4-DNP, Tollens', dichromate



Tests for functional groups

reagent and positive result

Group	Reagent	Positive result
Alkene	bromine water	orange to colourless
Haloalkane	$AgNO_3$(aq) in ethanol, warm	white / cream / yellow ppt
Carbonyl	2,4-DNP	orange precipitate
Aldehyde	Tollens' reagent, warm	silver mirror
1°, 2° alcohol, aldehyde	acidified dichromate(VI), warm	orange to green
Carboxylic acid	Na_2CO_3(aq)	fizzes: CO_2

Worked examples

An R_f value

- spot 2.7 cm; front 6.0 cm
- 2.7 ÷ 6.0
- **R_f = 0.45**

Peak areas

- areas 24, 48, 8
- total 80
- **30%, 60%, 10%**

A calibration

- 0.10 → 40; 0.20 → 80
- sample area 100
- **0.25 mol dm^{-3}**

The tests return in 6.2.5 organic synthesis; NMR and IR confirm a structure in 6.3.2.

Online Learning System · onlinelearningsystem.net · © 2026 Online Learning System. All rights reserved. Not for redistribution.