GAS CHROMATOGRAPHY

- Sample injected
- vaporised as it is injected (@ least 50°C higher than b.p of sample)
- carried along by inert gas. (mobile phase)
- Column is usually inert solid support with liquid adsorbed onto it.
- A sample goes through column different rates.
- different types of detector: non selective: detects all except carrier gas
  selective: detects range of compounds with common properties
  specific: specific compound.

Type: flame ionisation detector

- gases leave column and mixed with H_2 and air and burnt.
- Compounds burnt in flame produce ions + electrons.
- Using a large electrical potential applied to tip of burner and collector electrode above flame. the current produced is measured.

Pros: robust, easy to use + can measure mass displayed on computer.

Cons: destroys sample. does not measure concentrations.

HPLC High performance Liquid chromatography.

- ~~solvent~~ solvent (pushed through by high pressure (up to 400 atms).
- column packing material very small! (large surface area) - better separation.
- two types Normal phase HPLC: • tiny silica particles with non polar solvent.
  • ∴ polar stuff in column longer than non polar molecules
  Reversed phase HPLC: More common.
  • modified silica to make it non polar. (they stick long chain hydrocarbons) (8-18 C)
  • polar solvent such as water + methanol used.
  • there will be strong attraction between polar molecules + solvent therefore spend less time in column (quick!)

Column chromatography

- solid phase (alumina or $CaCO_3$)
- solute sample added to top.
- solvent added.
- separation!!
- Michael Tswett (1902) separated pigments.

retention time: time taken to travel through column, from injection to max peak height!

- retention times depend on - pressure used, nature of stationary phase (molecular size) composition of solvent, temp of column.

need careful control of conditions! to measure

- detected by UV absorption - more absorbed, greater conc. solvent also absorbs UV but in different parts!