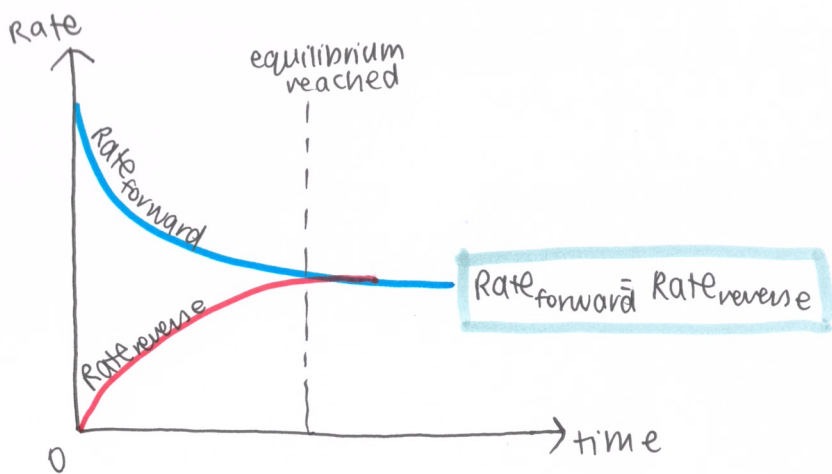


topic 7

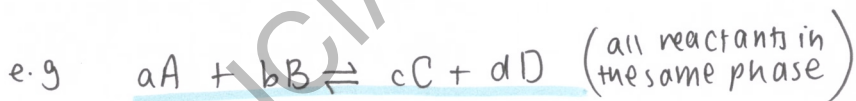
equilibrium

7.1 Equilibrium

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The equilibrium law describes how K_c can be determined for a particular chemical reaction.



$$K_c = \frac{[C]^c [D]^d}{[A]^a [B]^b}$$

[Products]
[reactants]

Note: $[] \rightarrow$ equil. conc. in mol/dm^3

K_c = equilibrium constant

- constant at particular temp.
- 'c' \rightarrow constant, expressed in terms of conc.

Kinetic Theory

The avg. kinetic energy of the particles in a gas is proportional to its temperature in Kelvin.

(for an ideal gas) AKEDT

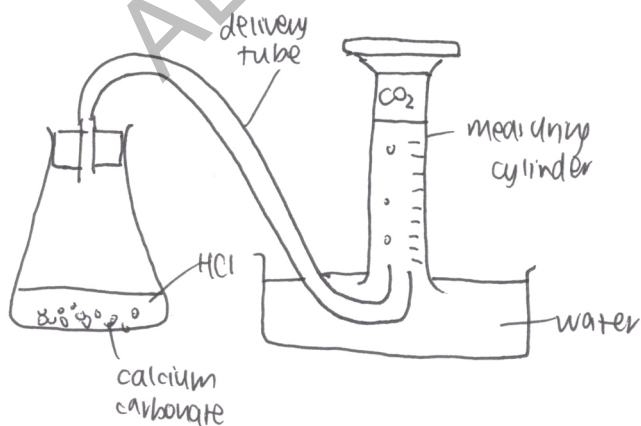
∴ a large ↑ in T is required for a ↑ avg. speed of the particles ⇒ ↑ collision frequency

Note: At the same temp, lighter particles travel faster than heavier ones

Rate Experiments



- ① measure rate at which CO_2 is produced
- ② measure rate at which mass decreases



topic 21

measurement
and
analysis

21.1 Spectroscopic identification
of organic compounds

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21-1 spectroscopic identification of organic compounds

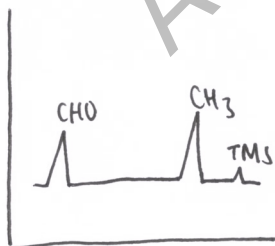
Structural identification of compounds involves several different analytical techniques, including:

- Infrared spectroscopy (IR)
- ^1H NMR spectroscopy
- Mass spectrometry (MS)

High Resolution Proton NMR

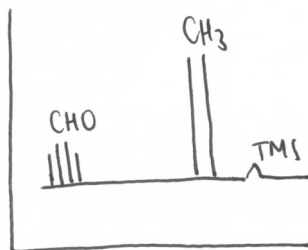
In a high resolution ^1H NMR spectrum, single peaks present in low resolution can split into further clusters of peaks.

Low resolution ^1H NMR



Chemical shift

High resolution ^1H NMR



Chemical shift