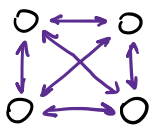
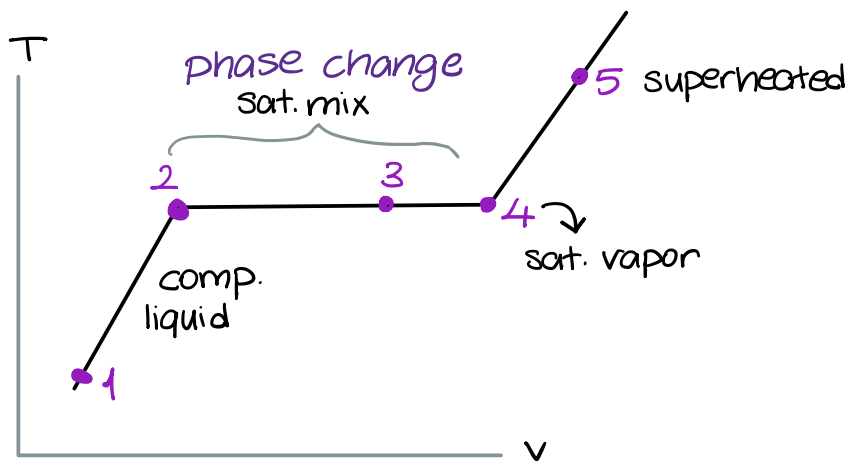
pure substances

28 Şubat 2025 Cuma 08:37



cohesive intermolecular forces



* air, N_2 are pure substances.

PHASES:

→ compressed liquid: not about to vaporize.

→ saturated liquid: about to vaporize.

→ saturated liquid-vapor mix.: liquid and vapor coexists in equilibrium.

→ saturated vapor: vapor about to condense.

→ superheated vapor: not about to condense.

→ temperature remains constant during phase change.

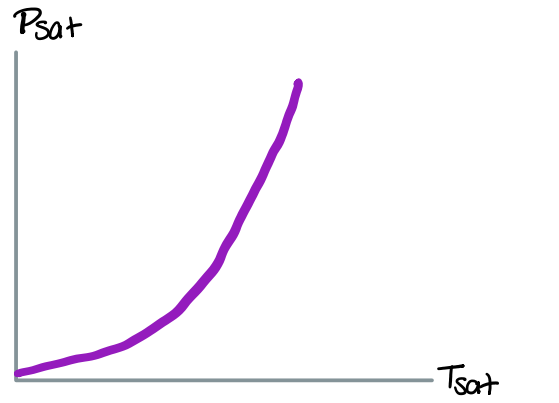
high pressure → makes liquid
↳ i.e. compressed

1 bar ≃ 1 atm
1 bar = 10^5 Pa
0.1 MPa ≃ 1 atm

saturation temperature: at a given pressure, temp. which the substance changes phase.

pressure ∝ T_{sat}

$P = 1$ atm, $T_{sat} = 100°C$
$P = 2$ atm, $T_{sat} > 100°C$
$P = 0.5$ atm, $T_{sat} < 100°C$



→ pressure increase faster.

saturation pressure: at a given temp., pressure which the substance changes phase.

temperature ∝ P_{sat}

$T = 100°C$, $P_{sat} = 1$ atm
$T = 150°C$, $P_{sat} > 1$ atm
$T = 50°C$, $P_{sat} < 1$ atm

latent heat: energy absorbed or released during phase change.