

Phase (Thermodynamic system)

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A [Thermodynamic system](#) in a state of [thermodynamic equilibrium](#), represented by a [hemical substance](#) consisting of one ([pure substance](#)) or more ([mixture](#)) [chemical components](#) which:

- share the same space volume (not necessarily continuous, see below)
- share the same boundary (not necessarily continuous, see below) with other [phases](#)
- move with the same macroscopic velocity.

[Mechanically](#) it behaves like a properly defined [Continuum Body](#).

A [Phase](#) can be represented by a [Pure chemical substance](#) or by a [Mixture](#).

The contact between two [phases](#) provides the interface for exchanging of [chemical components](#) of each [phase](#) to reach a [thermodynamic equilibrium](#) specific to a given [temperature](#) and [pressure](#) and the [fluid composition](#).

The total mass of [chemical components](#) in all adjacent [phases](#) remain constant over time but at certain [temperature](#) and [pressure](#) values some [phases](#) may disappear (due to migration of their [chemical components](#) to the bordering [phases](#)).

[Phases](#) are not always continuous in space.

For example, [gas](#) bubbles are not connected to each other but may move at the same speed which is different to the hosting [liquid](#) speed and they do represent a separate [phase](#) with an inter-[phase](#) contact surface comprised of a sum of all bubbles' surfaces.

A very popular example of [phase](#) segregation is [water](#), [oil](#) and [gas](#) – all are moving at different speeds in [porous reservoir](#) or [wellbore](#) or [pipelines](#).

See also

[Natural Science](#) / [Physics](#) / [Thermodynamics](#) / [Thermodynamic system](#)

[[State of matter](#)] [[Pure substance](#)] [[Mixtures](#)] [[Fluid Mixtures](#)]

[[Thermodynamic equilibrium](#)] [[Vapour Liquid Equilibrium \(VLE\)](#)]

[[Phase Transition](#)] [[Phase Equilibrium](#)]