

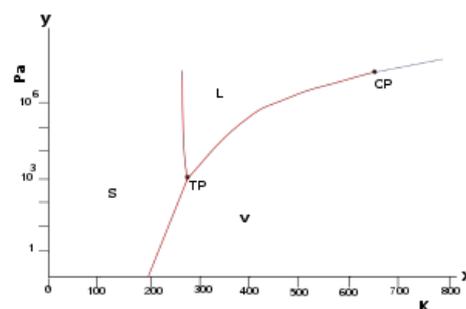
# Gibbs phase rule

A **dispersion system** is a system containing at least two phases or two components (one - the proportion is dispersed in the other - the environment). A two-phase dispersion system is **heterogeneous** because there are clear boundaries between the dispersion fractions in the dispersion medium. Conversely, a system consisting of two components in one phase is **homogeneous** (sugar dissolved in water) and its components are not optically distinguishable.

**Gibbs phase rule:  $f + v = s + 2$**

*s = number of components of the system, f = number of phases of the system, v = degrees of freedom (temperature, pressure)*

- The liquid and its vapor ( $s = 1, f = 2$ ) have one degree of freedom - only the pressure or only the temperature can be changed.
- If we want to change both temperature and pressure, there can only be one phase.
- If phase three is to be maintained in equilibrium, it will only happen at a given temperature and pressure ( $v = 0$ ) - at the so-called **triple point**.
  - For water, the triple point is 273.16 K<sup>[1]</sup> (0,01 °C) at a pressure of 610.6 Pa



Water phase diagram

## Links

### Source

- KUBATOVA, Senta. *Biofot* [online]. [cit. 2011-01-31]. <<https://uloz.to!/CM6zAi6z/biofot-doc>>.

### Reference

1.