**What is vapor pressure?**

**Vapor pressure** is the pressure of gas particles above the surface of a liquid due to its evaporation. It increases with temperature.

**What is “boiling point”?**

The **boiling point** of a substance is the **temperature** at which the vapor pressure of a liquid equals the pressure surrounding the liquid (atmospheric pressure) and the liquid changes into a vapor.

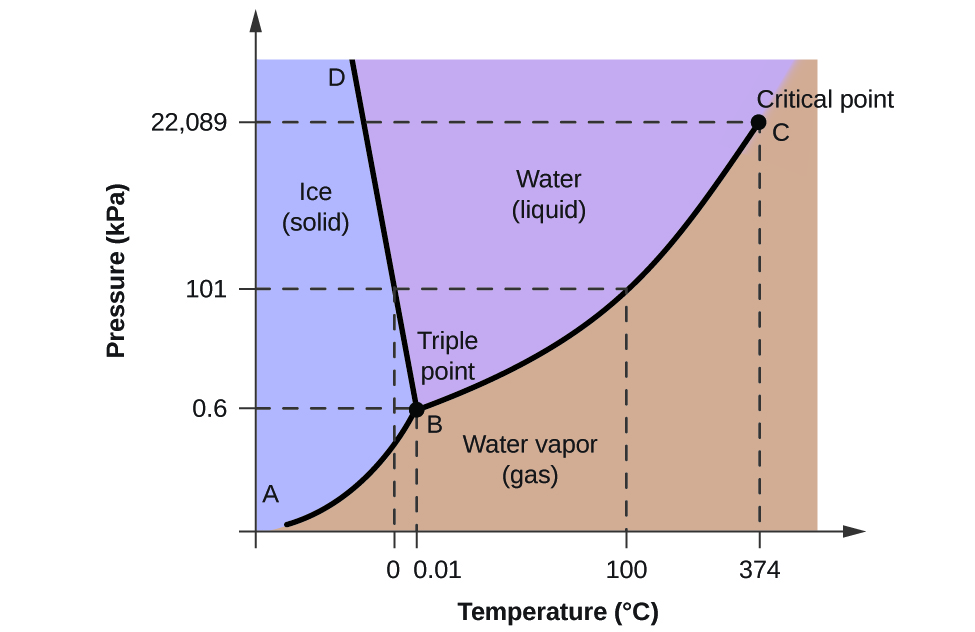
**What is “normal boiling point”?**

The **normal boiling point** of a substance is the **temperature** at which the liquid changes into a vapor at normal pressure (1 atm).

**[How can water boil at less than 100](https://www.google.com/search?q=vapor+pressure&rlz=1C1CHBF_enUS862US862&tbm=isch&source=iu&ictx=1&fir=wdcXc3Mw21R_wM%252CJcLksSkWqh1DeM%252C_&vet=1&usg=AI4_-kRpnXj82-sOL0_7ST29dKXTArEpdw&sa=X&ved=2ahUKEwjFqrvSk-LvAhWOTN8KHYzCAaMQ_h16BAgbEAE" \l "imgrc=wdcXc3Mw21R_wM)[o](https://www.google.com/search?q=vapor+pressure&rlz=1C1CHBF_enUS862US862&tbm=isch&source=iu&ictx=1&fir=wdcXc3Mw21R_wM%252CJcLksSkWqh1DeM%252C_&vet=1&usg=AI4_-kRpnXj82-sOL0_7ST29dKXTArEpdw&sa=X&ved=2ahUKEwjFqrvSk-LvAhWOTN8KHYzCAaMQ_h16BAgbEAE" \l "imgrc=wdcXc3Mw21R_wM)[C?](https://www.google.com/search?q=vapor+pressure&rlz=1C1CHBF_enUS862US862&tbm=isch&source=iu&ictx=1&fir=wdcXc3Mw21R_wM%252CJcLksSkWqh1DeM%252C_&vet=1&usg=AI4_-kRpnXj82-sOL0_7ST29dKXTArEpdw&sa=X&ved=2ahUKEwjFqrvSk-LvAhWOTN8KHYzCAaMQ_h16BAgbEAE" \l "imgrc=wdcXc3Mw21R_wM)**

[By decreasing the pressure around the water, you can cause water to boil at a lower temperature.](https://www.google.com/search?q=vapor+pressure&rlz=1C1CHBF_enUS862US862&tbm=isch&source=iu&ictx=1&fir=wdcXc3Mw21R_wM%252CJcLksSkWqh1DeM%252C_&vet=1&usg=AI4_-kRpnXj82-sOL0_7ST29dKXTArEpdw&sa=X&ved=2ahUKEwjFqrvSk-LvAhWOTN8KHYzCAaMQ_h16BAgbEAE" \l "imgrc=wdcXc3Mw21R_wM)

**Phase Change diagram (Pressure vs. Temperature)**



**Soluble** – The extent to which a substance can be dissolved in another substance.

**Solution** – A homogeneous mixture

**Solvent** – In a solution, the part that is “doing” the dissolving.

**Solute** - In a solution, the part that is “being” dissolved.

**Suspension** -  A heterogeneous mixture in which the solute particles do not dissolve, but get **suspended** throughout the bulk of the solvent. Example: muddy water

**Colloid** – Similar to a suspension, but with much smaller particle sizes that are not usually detectable to the naked eye. Examples: milk, mayonnaise, gelatin

**Tyndall Effect** - A [light scattering by particles](https://en.wikipedia.org/wiki/Light_scattering_by_particles) in a [colloid](https://en.wikipedia.org/wiki/Colloid) or in a very fine [suspension](https://en.wikipedia.org/wiki/Suspension_(chemistry)). Example: headlights through fog

**Electrolyte** - A substance that produces an electrically conducting solution when dissolved in a polar solvent, such as water. The dissolved **electrolyte**  separates into cations and anions, which disperse through the solvent. Example: NaCl

**Non-electrolyte** - A substance that does not exist in an ionic form in aqueous solution, but do dissolve. Example: Sugar

**Solution equilibrium** – A balance between dissolved and undissolved particles in a **saturated solution**.

**Saturated solution** -  A solution in which the maximum amount of solvent has been dissolved. Any more solute added will sit as crystals on the bottom of the container.

**Unsaturated solution**- A solution that contains less than the maximum amount of solute that is capable of being dissolved.

**Supersaturated solution**-  A solution that contains more than the maximum amount of solute that is capable of being dissolved at a given temperature. This can occur by allowing a warm saturated solution to slowly cool. The recrystallization of the excess dissolved solute in a **supersaturated solution** can be initiated by the addition of a tiny crystal of solute, called a seed crystal. This is how rock candy is made.

**Solubility** - The “measured” amount of a substance to dissolve in a specific amount of a solvent and form a solution. (See Concentration)

**Concentration** - The quantity of solute present in a given quantity of solution  **Concentrations** are usually expressed in terms of %, ppm or Molarity.

**Miscible** – the ability of a liquid to mix with another. Example: alcohol and water

**Immiscible** - the inability of a liquid to mix with another. Example: oil and water

**Hydration** – The process of combining with water in order to dissolve a substance.

**Solvated** – The process of combining with “any liquid” in order to dissolve a substance

**Heat of solution** - The change in heat associated with the dissolving a solute in a solvent.

**What are the 4 factors that affect the RATE of dissolving?**

* Temperature
* Surface area
* Agitation or stirring
* (and if it’s a gas) the pressure

**What is Henry’s law?**

The amount of a given gas that dissolves in a given type and volume of liquid is directly proportional to the partial **pressure** of that gas. Therefore, concentration of a a gas dissolved in water is directly proportional to the amount of pressure exerted on that gas.