

Chapter 9 — Liquids and Solids

Michael Brodskiy

Instructor: Mr. Morgan

December 15, 2020

- Evaporation — When molecules escape the surface of a liquid
- What happens in a closed container:
 1. Evaporation
 2. Condensation
- When the rate of evaporation equals the rate of condensation, equilibrium is reached.
- Vapor Pressure — Pressure at equilibrium of a liquid, specific to a liquid, which is the max amount of molecules a vapor can hold. If there are not enough molecules, all are in vapor. If there are too many, liquid and vapor is mixed.
- At High Vapor Pressure — Weak forces, which means a lot of gas molecules, which means it is volatile (evaporates quickly)
- At Low Vapor Pressure — Forces are strong, resulting in few gas molecules, which means it is nonvolatile (evaporates slowly)
- As temperature goes up, vapor pressure goes up
- Boiling Point — A liquid boils when it reaches the temperature at which the vapor pressure is equal to the pressure above it
- Decreasing external pressure causes decrease in boiling point (don't cook pasta at Tahoe)
- Critical Temperature — A temperature above which the liquid phase can not exist
- Critical Pressure — The pressure that must be applied to cause condensation at the critical temperature
- A phase diagram looks as follows:
- On the line between gas and solid is sublimation

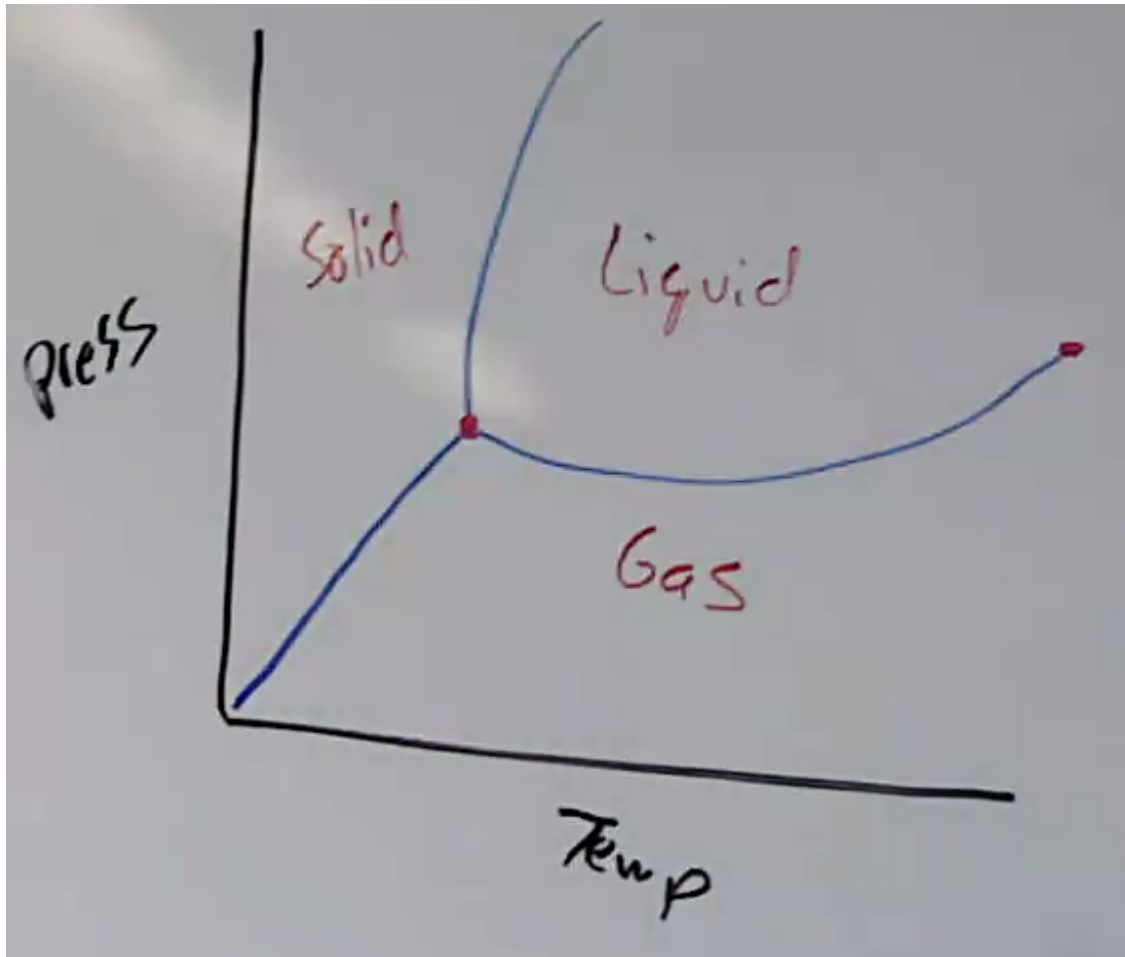


Figure 1: Phase Diagram Example

- Point in the middle is the triple point
- Between gas and liquid is boiling point line
- Melting/Freezing line is between solid and liquid