

AP Chemistry
Thou Shalt Not Forget
Credit: Dan Reid

Properties of Liquids and Solids--IMF's

1. IMF's from weakest to strongest: London Dispersion, dipole-dipole, hydrogen bonding, ion-dipole.
2. All molecules contain LD forces, and this force gets stronger as the molecule is larger...Larger electron cloud = more LD = more polarizable.
3. All polar molecules contain dipole-dipole forces, and this force gets stronger as the molecule is more polar.
4. H-bonds are between a NOF in one compound to a hydrogen that's already bonded to a NOF in another compound.
5. Boiling point and melting point increase as IMF's increase.
6. Vapor pressure and volatility decrease as IMF's increase.
7. Molecular solids have low melting/boiling points, and they do not conduct electricity.
8. Ionic solids have high melting/boiling points, and don't conduct electricity as a solid, but DO conduct as a liquid or (aq).
9. SiO₂ (quartz) and diamonds (C) are covalent network solids, and they have very high boiling/melting points.
10. Metallic bonds are between metals, and they ALWAYS conduct electricity, and their hardness varies.
11. When a molecular solid melts or boils, it is the IMF's between the molecules that break, not the covalent bonds.
12. Interstitial alloys are made when a smaller atom fits into the gaps between the larger atoms of a metallic crystal. Substitutional alloys are made when the radii of the metals are similar in size and are substituted into the crystal lattice.