# Metallic and Covalent Bonding Cheat Sheet

by sayuri_3 via cheatography.com/125176/cs/37938/

## properties of metals

| | |
|---|---|
| malleable and ductile | electrons are able to reposition themselves to maintain electrostatic bonds when put under pressure, preventing the material from splitting |
| lustre | electrons are good reflectors of photons |
| high melting and boiling point | metals are held together by strong non-directional electrostatic attraction, meaning a large amount of heat energy is required to deform the structure of the crystal lattice |
| electrical conductivity | free moving electrons can carry electricity across the material |
| heat conductivity | electrons aren't held in place firmly so can vibrate enough to pass and hold heat |

## balancing chemical equations

1. the number of atoms of an element should be the same on both sides of the equation (may require multiples of compounds)

2. all compounds should have no net charge (swap and drop)

## properties of cations

brittle, hard

low melting point

unable to conduct electricity solid

electrical conductivity in aqueous and molten states

## naming ionic compounds

| | |
|---|---|
| cation | when writing the name of an ionic compound the cation keeps its original name |
| anion | whereas the anion is reduced to its root and the suffix '-ide' is added |
| transition metals | transition metals are able to gain and lose a variation of electrons as required, therefore when written the charge should be included in brackets in roman numerals |

## precipitation reactions

1. reactants are two compound

2. being aqueous, the compounds are actually separated into ions

3. the reactants swap anions

4. solubility is determined by solubility table, one resulting compound must be a solid for it to qualify as a precipitate reaction

## polyatomic ions

| | |
|---|---|
| ammonium | $NH4^{+}$ |
| hydroxide | $OH^{-}$ |
| nitrate | $NO3^{-}$ |
| bicarbonate | $HCO3^{-}$ |
| carbonate | $CO3^{2-}$ |
| sulfate | $SO4^{2-}$ |
| phosphate | $PO4^{3-}$ |

## always soluble compounds

| soluble compounds | insoluble exceptions |
|---|---|
| Grp 1 ions | None |
| $NO3^{-}$ & $CH3COO^{-}$ | None |
| $Cl^{-}$, $Br^{-}$ & $I^{-}$ | $Ag^{+}$, $Pb^{2+}$ & $Hg^{+}$ |

By **sayuri_3**
cheatography.com/sayuri-3/

Not published yet.
Last updated 28th March, 2023.