

C3 Periodic Table and Equations

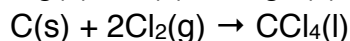
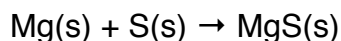
State symbols:

(s) means solid

(l) means liquid

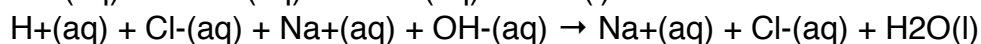
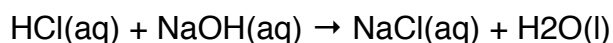
(g) means gas

(aq) means the substance was dissolved in water (aqueous)

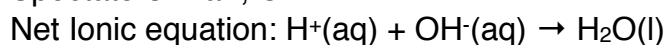


BRINCLHOF - diatomic elements

Bromine, Iodine, Nitrogen, Chlorine, Hydrogen, Oxygen, Fluorine (F₂)



Spectators: Na⁺, Cl⁻



MOLES(MOL) = MASS(G) ÷ MOLAR MASS(G/MOL)

One mole of any gas at room temperature and pressure occupies 24dm³.

Equal Mole = Equal Volume (all about ratio)

Mol * 24dm³ = volume

Reactivity of Group 1 metals: Li → Fr

Reactivity of Group 7 non-metals (halogens)

Group 1 metals with water

Metal + water → metal hydroxide + hydrogen

color of universal indicator: purple (strong alkaline)

Hydrogen test: the gas produces a squeaky pop when tested with a burning splint

They are very reactive, so they must be stored under oil to keep air and water away from them. They form alkaline solutions when they react with water (hydroxide), which is why they are called alkali metals.

The hydrogen ignites immediately during the reaction between potassium and water with the potassium producing a purple flame.

Lithium: fizzes steadily, gradually disappears (red flame)

Sodium: Fizzes rapidly, melts into a ball and disappears quickly (orange flame)

Potassium: Ignites with sparks and a purple flame, disappears very quickly

Melting point decreases down the group

The reactivity of group 1 elements increases down the group because, as it goes down the group the atoms get larger, the outer electrons get further from the nucleus, the attraction between the nucleus and outer electron gets weaker, so the electrons are more easily lost and react.

Alkali metals are stored in containers to keep them from reacting with oxygen.

Group 1 Metals with oxygen

Gets softer when it come in contact with oxygen

Lithium: red flame, flame gets brighter and burns more vigorously when it reacts with oxygen. grey product

Sodium: orange flame, white product

Potassium: purple flame

Halogen elements are simple molecules with two atoms joined together. -chlorine, bromine and iodine (DIATOMIC)

Reactivity of halogens: Iodine → Chlorine (more reactive, increase from the bottom to the top)

Because the lower the halogen is in group 7, the more shells the atoms have, the harder it is to gain an electron since they are so far away from the nucleus.

Chlorine: yellow → brown

Bromine: reddish brown → brown

Iodine: purple → brown

DARKER COLOR

Fluorine: gas at room temperature

Chlorine: gas at room temperature

Bromine: liquid at room temperature

Iodine: solid at room temperature

Melting point increases down the group (Iodine highest melting point)

halogens react with metals form halides

displacement: reactive element reacts with a less reactive element, it replaced the less reactive element

Noble gases:

- unreactive
- very stable because of their full outer shells
- non-metals
- colorless gases

usage:

| | | |
|-------------------|--|---|
| Helium: | -filling balloons -as a mixture with oxygen for divers | very light, non-flammable not very soluble, doesn't enter the blood stream even under high pressures |
| Neon: | -Neon light signs, lasers | Gives right color of light |
| Argon: | -filling household lamps -welding | stops filaments burning - provides an unreactive atmosphere |
| Krypton Xenon: | -filling low power lamps, lasers, specialized lamps eg. for light houses | helps good light output and is a poor conductor of heat |
| Radon | -radiotherapy | radioactive |

