

- #Diamonds are very hard, graphite is soft and slippery
#Diamond has sp^3 with no π electrons, graphite has sp^2 hybridized like benzene with π electrons
#diamond has a melting point of 3930°C while graphite has 3000°C
#Diamond is tetrahedrally bonded in all directions while graphite is layer structure with fused rings
#Diamonds has a density of 3.51g/cm^3 while graphite is 2.22g/cm^3
- #Ionic hydrides: are formed when molecular H_2 react alkali and alkaline earth metals. These halides are solid with high melting point temperatures.
#Covalent hydrides: are formed with elements in groups IIA to VIIA. e.g HCl .
#Interstitial hydrides: are the non-stoichiometric hydrides usually formed with transitional metals like iron in this case the molecular hydrogen dissolves in metals only to be released on heating
- #Ionic Crystal's are hard, brittle, high MP and BP, conductors of heat and electricity, electrostatic e.g NaO
#covalent crystals are hard, high MP and BP, poor conductors of heat and electricity, covalent bond e.g SiO_2
#molecular Crystals: are soft, low MP & BP, poor conductors of heat and electricity, dipole interaction e.g Ar
metallic Crystal's: soft to hard, low to high MP & BP, good conductors or heat and electricity, metallic bonds e.g Na
- #Group 5 element have 5 valence electrons, group 6 elements have 6 electrons in their valence shell and group 7 elements have 7 valence electrons which shows similarities in each group
#elements in group 6 are more electro negative than the nitrogen group elements to their left but less electro negative than the halogen to their right
- #Normal oxides contain E-m bonds but no E-E bonds these bonds may be ionic or covalent e.g CaO . They are the most important and numerous classes.
#suboxides contain E-E bonds as well as R-O bonds but no O-O bonds e.g carbon suboxide
#Peroxides contain O-O bonds as well as R-O bonds but no E-E bonds e.g K_2O . The oxidation number of oxygen in peroxide is -1.
#Superoxide are related to peroxide. But contain the ion (O_2^-) in which oxygen has the oxidation number - $\frac{1}{2}$ it forms super oxides e.g KO_2
#Normal oxide is the most important class and is divided into sub classes: basic, acidic, atmospheric and neutral oxides depending on their behaviour with water aqueous acid and alkalis.