Metallic

Tuesday, 30 January 2024 4:18 pm

Model of bonding
- Ionic
- Metal
- Covalent
    - Simple
    - Giant

Lattice structure - regular repeating pattern
(metal ion arranged in regular repeating pattern)

All the bonding is electrostatics
- Electrostatic - 2 opposite charge attract

Metallic
- Electron delocalized - electron become free to move around (the electron from outer shell) (from other note: delocalized means that the electron are not tied down to one specific atom)
    - Positive cation attract by the free electron and form regular arranged structure (lattice), electron is between cation and free to move around.
    - The metallic bond form between is cation and free moved electron which is due to electrostatic attraction between them.
- Generally - strong attraction (require more energy than ionic bonding to break the metallic bonding, which also indicate there stronger electrostatic attraction inside metallic compound than ionic)
    - Indicate high melting point

Metallic properties:
- Chemical properties
    - How the electron exchanged
- Physics properties
    - (Conduction is cause by movement of charge particle(particle can be electron or ion etc.)) which electron have to be move in free with the electrical field) - Metallic structure is good conductor
    - High melting point as strong attraction between cation and free electron
    - Insoluble in water - as the strong electrostatic attraction inside metallic compound, do not impact by the polar water molecule
    - More electron in metallic delocalized, higher melting point because electrostatic attraction is stronger (strength of bond change)
    - Malleability - good - even hit it, electron free move around, when force exerted the metal, the nuclei (electron and cation) shift, but the bond do not break.
        - Malleability - the quality of something that can be shaped into something else without breaking
    - Good ductile - they can be stretched into wire, as the electron free to move around, the nuclei shift when force exerted - stretched into shape without breaking.

Ionic - solid do not conduct electricity as no free charge particle, - conduct in water as it's anions can move freely.

Explain the conductivity

- Conductivity is cause by the movement of charge which electron have to be free to moved, as the electron is delocalized in metallic compound, they are free to move around, so its has good conductivity
- High melting point as the strong electrostatic attraction
- Insoluble in water as the strong electrostatic attraction which polar water molecule is not enough strong affect it.
- More electron delocalized, more electrostatic attraction ….
- Malleability - good, even hit it, as the electron free to move around, when force exerted to metal, the nuclei shift, but the bond do not break

Malleability - the quality of something that can be shape with out breaking

Conductivity is cause by the movement of charge, which electron have to be free move around with electrical field, in metallic compound the electron free to move around, which have good conductivity.

The metallic compound have good malleability because the electron are free to move around which when the force exerted on it, the nuclei shift instead of break.