

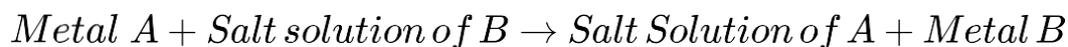
CHEMISTRY STUDY MATERIALS FOR CLASS 10

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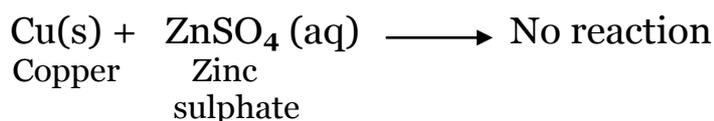
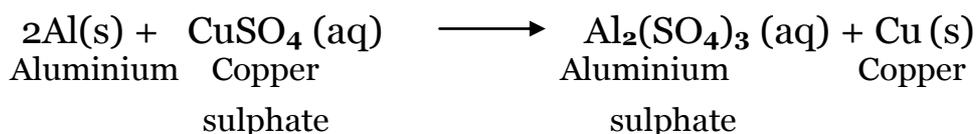
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Chapter- 3 (Metals and Non-metals- Revision Notes)

4. Reaction of metals with other metal salts:



More reactive metal	+	Salt solution of less reactive metal	→	Salt of more reactive metal	+	Less reactive metal
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Copper is less reactive than zinc, si copper does not displace zinc from zinc sulphate solution. i.e this reaction is not possible.

All metals are not equally reactive. Reactive metals can displace less reactive metals from their compounds in solution. This forms the basis of reactivity series of metals. Reactivity series is a list of metals arranged in order of their decreasing activities.

K	↓ Most Reactive Decreasing Reactivity Least Reactive	A Metal can displace all the metals from their compounds which are below or after it in this series.
Na		
Ca		
Mg		
Al		
Zn		
Fe		
Pb		
H		
Cu		
Hg		
Ag		
Au		

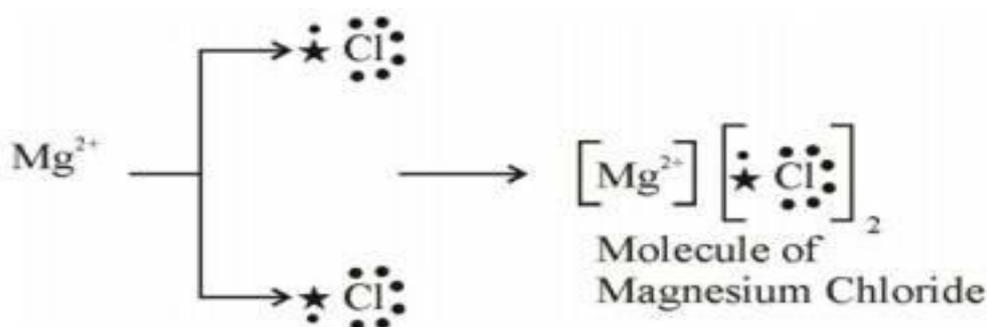
REACTION OF NON-METALS:

reaction with oxygen	non-metals form acidic oxides Eg: $C+O_2 \rightarrow CO_2$
reaction with water	Non-metals do not react with water because they cannot release electrons.
reaction with dilute acids	No reaction
reaction with salt solutions	A more reactive non-metal will displace less reactive non-metal from its salt solution.
reaction with chlorine	Chloride is formed. Eg; $H_2(g)+Cl_2 \rightarrow 2HCl$
reactions with hydrogen	Hydrides are formed. $H_2 + S(l) \rightarrow H_2S$

Reaction between Metals and Non-Metals

- Reactivity of elements can be understood as a tendency to attain a completely filled valence shell.
- Atom of metals can lose electrons from valence shells to form cations(+ve ions).
- Atom of non-metals gain electrons in valence shell to form anions (-ve ions).
- Oppositely charged ions attract each other and are held by strong electrostatic forces of attraction forming ionic compounds.

Formation of $MgCl_2$ $Mg \rightarrow Mg^{2+} + 2e^-$ 2,8. (Magnesium ion)



Properties of Ionic Compounds

- Are solid and mostly brittle.
- Have high melting and boiling points. More energy is required to break the strong inter-ionic attraction.
- Generally soluble in water and insoluble in kerosene, petrol.
- Conduct electricity in solution and in molten state. In both cases, free ions are formed and conduct electricity.
