CHAPTER: 02 – CHEMICAL REACTIONS AND EQUATIONS

PERIOD PLAN-03 : Making chemical equation more informative

Physical state, temperature difference, releasing gas

Interpretation a balanced chemical equation

Chemical equations – calculations – problems

Content Analysis	Class Room Environment	Teaching Learning Material
Making chemical equation more informative:(1) **Expressing physical state:** The physical state of the substance may be mentioned along with the chemical formula. Solids – (s) , liquids – (l), gases – (g) , precipitates – (↓), aqueous solutions – (aq).	**Conversation:** how to show physical states of substances in a chemical reaction. 1) Fe_2O_3 (s) + 2Al (s) → 2Fe (s) + Al_2O_3 (s) Δ 2) $2H_2$ (g) + O_2 (g) → $2H_2O$ (l) 3) H_2SO_4 (aq) + 2NaOH (aq)→Na_2SO_4 (aq) + $2H_2O$	Chart
Making chemical equation more informative:(2) **Expressing temperature difference:** In a chemical reaction if heat is liberated , it is called exothermic reaction. And if heat is gained , it is called endothermic reaction. Heat is represented with Q.	**Conversation:** how can we differ the chemical reaction in which heat is evolved or absorbed. C (s) + O_2 (g) → CO_2 (g) + Q (exothermic reaction) N_2 (g) + O_2 (g)→2NO (g) - Q (endothermic reaction)	
Making chemical equation more informative:(3) **Expressing the gas evolved:** If a gas is evolved in a chemical reaction, it is denoted with an upward arrow mark (↑) or (g)	Zn (s) + 2HCl (l) → $ZnCl_2$ (l) + H_2 (↑) Zn (s) + H_2SO_4 (aq) → $ZnSO_4$ (aq) + H_2 (↑)	Beaker Dil. HCl Zinc granules
Making chemical equation more informative:(4) **Expressing the gas evolved:** If a precipitate is formed in a chemical reaction, it is denoted with an downward arrow mark (↓)	$AgNO_3$ (aq) + NaCl (aq) → AgCl (↓) + $NaNO_3$(aq) Na_2SO_4(aq) + $BaCl_2$ (aq) → $BaSO_4$ (↓) + 2NaCl (aq)	Beaker-2 $AgNO_3$ NaCl water
Interpretation a balanced chemical equation: * A chemical reaction represents the reactants and products. * It gives the ratio of molecules of reactants and products. * The relative masses of reactants and products are known from the equation. * If the masses expressed in grams , it gives the molar ratios of reactants and products. * If gases are involved, then we calculate the molar mass and molar volume relations. * Using molar mass and avagadro's number we can calculate the number of atoms and molecules of different substances in equation.	**Explanation & Conversation :** The information from the chemical equation is explained in different ways. **Example:** Fe_2O_3 (s) + 2Al (s) → 2Fe (s) + Al_2O_3 (s) 1mol 2mol 2mol 1mol 160U 54U 112U 102U 80U 27U 56U 51U	Chart
Chemical equations – calculations – problems: These are mainly four types. 1) mass-mass relationship 2) mass-volume relationship 3) volume-volume relationship 4) mass-volume-no. of molecules relationship	**Conversation:** about solving problems. **Ex-1:** How much quantity of aluminium is used to get 1120Kg of iron? **Ex-2:** calculate the volume,mass and no.of molecules of hydrogen liberated when 230gm of sodium reacts with excess of water at S.T.P.	

NAGA MURTHY- 9441786635
Contact at : nagamurthysir@gmail.com
Visit at : nagamurthy.weebly.com