

St. Xavier's School

Chemistry. Class 8

PHYSICAL AND CHEMICAL CHANGE

Date : 18/5/2020

Physical properties: properties that are associated with physical change, such as colour, odour, density, melting and boiling point etc.

Chemical properties: the properties associated with the chemical change and are determined by chemical reaction.

CHARACTERISTICS OF PHYSICAL CHANGE: (formula does not change)

1) temporary 2) change in physical properties 3) composition does not change 4) no new substances are formed 5) reversible change 6) energy change may or may not take place 7) no change in mass.

Examples:

Mixing of sugar and water

Melting of substance (butter, wax)

Electromagnetism

Sublimation (iodine, ammonium chloride, camphor ,dry ice ,naphthalene)

Expansion and contraction

CHARACTERISTICS OF CHEMICAL CHANGE: (formula change takes place)

1) permanent 2) new substance formed 3) change in chemical properties 4) change in composition 5) energy change must take place 6) changes in Mass 7) it is reversible change.

Examples:

Burning of anything

Rusting of iron

Ripening of fruits

Butter turning rancid

Cooking vegetables

Germination of seeds

CHEMICAL REACTION:

When two or more substance undergoes a chemical change with involvement of energy to form a new substance .

first part of the reaction is called reactant while the second part is called the product .

For example: hydrogen +Oxygen to form water.Here hydrogen and oxygen are reactant while water is product .

CONDITIONS FOR A CHEMICAL CHANGE:

Reactant should be in close contact with proper state(Solid, liquid,gas).

Energy involvement should be there (heat.light, electric...).

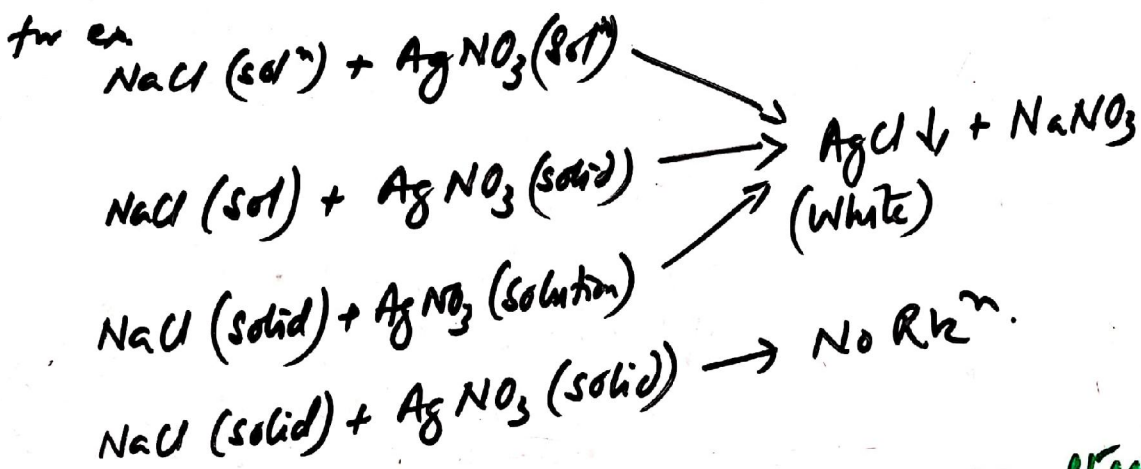
catalyst/promoter/activator may be required.

Proper concentration should be there(dilute/concentrate).

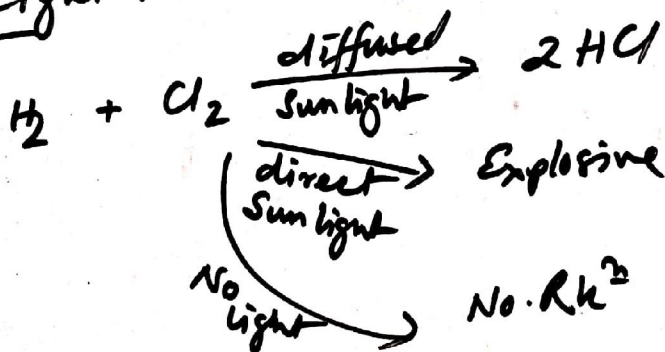
H.W (write the exercise in your copy).

VIII Conditions for a Chemical Change.

The state of the reactants.

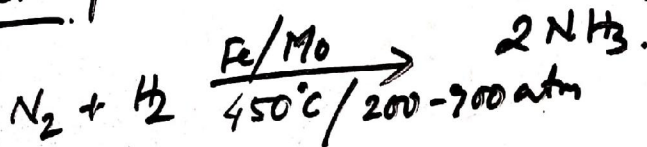


Light :-



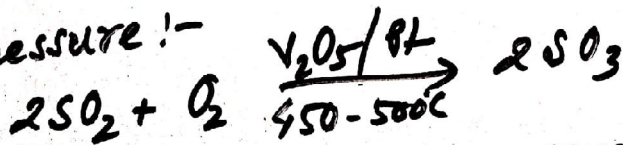
If no light then activated charcoal is used as catalyst.

Catalyst :-



Fe-Catalyst
Mo-Promoter.

Pressure :-

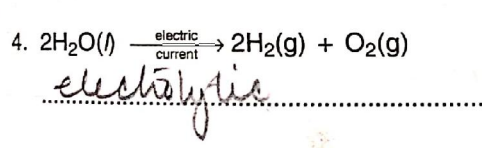
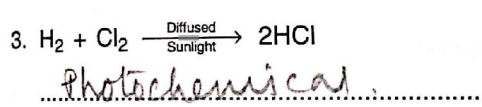
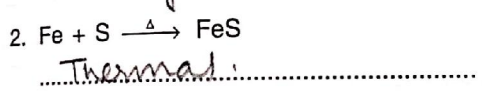
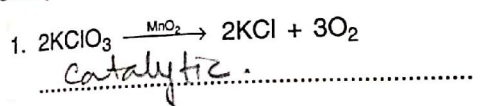


with increased pressure

V_2O_5 (Vanadium pentoxide)

Worksheet

I. Classify the following reactions on the basis of the terms given below :
Thermal reaction, Electrolytic reaction, Catalytic reaction, Photochemical reaction.



II. Fill in the blanks with suitable words :

1. Chemical reactions occur when the substances are brought in close contact.

2. Iron and Sulphur combine to form Iron Sulphide (FeS)

3. V₂O₅/Pt is the catalyst to convert sulphur dioxide to sulphur trioxide.

4. Mo acts as a promoter during manufacture of ammonia.

5. If concentration are more, the rate of reaction is more.

Questions

A. TICK (✓) THE CORRECT CHOICE AMONGST THE FOLLOWING :

- Which of the following is a chemical property ?
(a) Density (b) Solubility ✓(c) Reaction with acid (d) Colour
- The catalyst used to convert SO_2 to SO_3 is :
(a) Iron (b) Platinum ✓(c) Asbestos ✓(d) Vanadium pentoxide
- Gas evolved when potassium chlorate is heated :
(a) Chlorine (b) Bromine ✓(c) Hydrogen chloride ✓(d) Oxygen
- Frequency of collisions is maximum in:
(a) Solids (b) Liquids ✓(c) Gases (d) None of above
- Sodium reacts with water to liberate gas.
(a) Oxygen ✓(b) Hydrogen (c) Nitrogen (d) Chlorine

B. FILL IN THE BLANKS WITH SUITABLE WORDS :

- Heat increases the temperature and in turns increases its *K.E.*
- Reactions that take place when exposed to light *Photochemical Reaction.*
- A substance formed when iron and sulphur are heated *FeS.*
- Magnetization of a soft iron bar is an example of *Physical* change.
- The composition of a substance *changes* during a chemical change.

C. WRITE TRUE OR FALSE FOR EACH STATEMENT. REWRITE THE FALSE STATEMENTS CORRECTLY :

- Frequency of collision is maximum in gases. T
- A substance which increases the efficiency of a catalyst is known as promoter. T
- Rate of reaction doubles for every 20°C rise in temperature. F
- Distilled water decomposes on passing electric current. F
- Oxygen changes to ozone when it is exposed to UV rays. T

D. COMPLETE THE TABLE WITH RESPECT TO DISTINCTION BETWEEN PHYSICAL AND CHEMICAL CHANGES:

	PHYSICAL CHANGE	CHEMICAL CHANGE
Temporary / Permanent	T	P
Energy	may/may not	must
Product formed	no new substance	new substance
Reversible / irreversible	Reversible	Irreversible

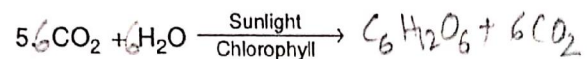
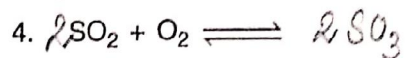
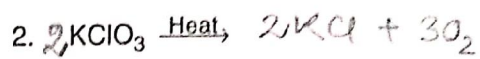
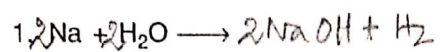
E. ANSWER THE FOLLOWING QUESTIONS :

- Which bonds are broken and which bonds are formed during a chemical reaction? Pg-32
- Name the most commonly used solvent. Water (Pg-32) (Closest) (ex. R₂O 2nd para)
- What are photochemical reactions? Pg 32 (Point 4)
- Which water allows electricity to pass through it? Acidulated water (Pg-33 Point 6)
- Name the catalyst used to decompose potassium chlorate. (Pg 33; Point 7)
- Reaction is fastest in gaseous state. Explain. Pg 32 (State of the reactant)
- Give completely equation for formation of ammonia. (Pg 32; Point 5)
- Define chemical reaction. Pg 32 .
- Give four reasons to prove that burning of paper is an example of chemical change. Pg 29
- Give a balanced reaction for photosynthesis in plants. Pg - 32 .
- Differentiate between physical and chemical changes Pg 31
- Explain the concept of catalyst and promoter. Pg 33 (Point 7)

F. MATCH THE ENTRIES OF COLUMN A WITH APPROPRIATE ENTRIES OF COLUMN B :

Column A	Column B
1. Increase or decrease the rate of reaction	3 (a) Promoter
2. High pressure	4 (b) Photochemical reaction
3. Increase the efficiency of a catalyst	2 (c) Ammonia
4. Reactions that take place when exposed to light	5 (d) Gases
5. Frequency of collisions and rate of reaction	1 (e) Catalyst

G. COMPLETE AND BALANCE THE FOLLOWING EQUATIONS :



H. PLEASE HELP SANJAM TO ENCIRCLE THE PHYSICAL CHANGES.



A rectangular box containing several physical changes. Some are circled in black:

- Melting of wax (circled)
- Sublimation of iodine (circled)
- ripening of fruits
- butter turning rancid
- Curdling of milk
- Evaporation of water (circled)
- Dissolution of sodium chloride (circled)
- Freezing of water (circled)
- Magnetisation of iron (circled)

