

Practice: Chemical and Physical Changes

1. a. Explain the main difference between a chemical and a physical change.

A physical change does not change the nature of the original substance. A chemical change does change the nature of the original substance.

b. State 5 pieces of evidence of a chemical change

- light/heat given off
- permanent colour change
- bubbles released
- A new substance is formed
- precipitate formed

2. State which of the following are Physical Changes (P) and which are Chemical Changes (C).

- a. Melting Wax P
- b. Burning Clothes C
- c. Clothes drying on the line P
- d. Leaves changing colour in the fall C
- e. Toasting bread C
- f. Frost forming on the window P
- g. A car rusting C
- h. Mixing Kool-Aid P
- i. Breaking a mirror P
- j. Water boiling P

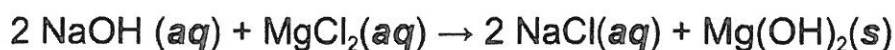
3. State the physical change in each of the following changes.

- a. Water turning to ice freezing
- b. Boiling water evaporation
- c. Making instant ice tea dissolution
- d. Puddles drying in the sun evaporation
- e. Dew forming of the grass condensation
- f. Rain condensation
- g. Ice cubes forming in the freezer freezing
- h. Solid air freshener sublimation
- i. Frost forming on a windshield deposition
- j. Fog condensation

4. Identify the substance based on its characteristic chemical property.

- a. Relights a glowing splint O₂ (oxygen gas)
- b. Turns limewater cloudy CO₂ (carbon dioxide)
- c. Changes colour in different pH levels Universal indicator
- d. Pops when exposed to open flame H₂ (hydrogen)

5. Observe the reaction below:



- a. Identify the reactants 2NaOH, MgCl₂
- b. Identify the products 2NaCl, Mg(OH)₂
- c. Identify the precipitate Mg(OH)₂
- d. Identify the state of MgCl₂ aqueous

6. Classify the following reactions as: Synthesis, Decomposition, Precipitation and Oxidation

- a. $2\text{Na(s)} + \text{Cl}_2\text{(g)} \rightarrow 2\text{NaCl(s)}$ Synthesis
- b. $\text{Pb(NO}_3)_2\text{(aq)} + 2\text{KI(aq)} \rightarrow \text{PbI}_2\text{(s)} + 2\text{KNO}_3\text{(aq)}$ precipitation
- c. $\text{CH}_4\text{(g)} + 2\text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + 2\text{H}_2\text{O(l)}$ oxidation
- d. $\text{Hg(NO}_3)_2\text{(aq)} + 2\text{KI(aq)} \rightarrow \text{HgI}_2\text{(s)} + 2\text{KNO}_3\text{(aq)}$ precipitation
- e. $2\text{NH}_3\text{(g)} \rightarrow \text{N}_2\text{(g)} + 3\text{H}_2\text{(g)}$ decomposition
- f. $\text{CuCO}_3\text{(s)} \rightarrow \text{CuO(s)} + \text{CO}_2\text{(g)}$ decomposition