Key

Practice Test Chemistry

What is wrong with leaving the following skeleton equation alone? What law does that violate?

$Na + Cl_2 \rightarrow NaCl$

Not Balanced - * Conservation of matter *

Balance the following skeleton equation and include reaction type:

C 1) 1 C_5H_{12} + 8 O_2 → 5 CO_2 + 6 H_2O

S 2) 6 MgO + 1 P_4O_{10} → 2 $Mg_3(PO_4)_2$

DR 3) 1 $PdCl_2$ + 2 HNO_3 → 1 $Pd(NO_3)_2$ + 2 HCl

D 4) 2 $KClO_3$ → 2 KCl + 3 O_2

Write molecular equations for the following.

5. Solid mercury (II) oxide decomposes into its constituent elements upon heating.

Hg^{+2} O^{-2}

$2HgO_{(s)} \xrightarrow{heat} 2Hg_{(l)} + O_{2(g)}$

6. Zinc metal is reacted with an aqueous Nickel (II) nitrate solution.

Zn more reactive than Ni

Zn^{+2} Ni^{+2} NO_3^-

$Zn_{(s)} + Ni(NO_3)_{2(aq)} \rightarrow Ni_{(s)} + Zn(NO_3)_{2(aq)}$

7. Liquid butane (C_4H_{10}) fuel combusts. (O_2)

$2C_4H_{10(l)} + 13O_{2(g)} \rightarrow 8CO_{2(g)} + 10H_2O_{(l)}$

8. Sulfuric acid is reacted with a solution of Barium iodide

$H_2SO_{4(aq)} + BaI_{2(aq)} \rightarrow BaSO_{4(s)} + 2HI_{(aq)}$

9. Magnesium metal is reacted with nitrogen gas to form one product.

$3Mg_{(s)} + N_{2(g)} \rightarrow Mg_3N_{2(s)}$

10. A Calcium nitrate solution is reacted with a solution of ammonium chromate.

$Ca(NO_3)_{2(aq)} + (NH_4)_2(CrO_4)_{(aq)} \rightarrow CaCrO_{4(s)} + 2NH_4NO_{3(aq)}$

Write molecular, ionic, and net ionic for the following:

11. Barium hydroxide is reacted with a solution of Ammonium nitrate

molecular: $Ba(OH)_{2(s)} + 2NH_4NO_{3(aq)} \longrightarrow Ba(NO_3)_{2(aq)} + 2NH_4OH_{(aq)}$

Broke up a solid

ionic:

No Reaction

net ionic:

(Both products are aqueous)

What is this reactions driving force?

12. Chlorine is reacted with an aqueous solution of Aluminum fluoride

molecular: $Cl_{2(g)} + AlF_{3(aq)} \longrightarrow$ No Reaction

ionic:

* Chlorine is less reactive than fluorine - Activity Series

net ionic:

What is this reactions driving force?

13. Barium chloride is dissolved in water and then reacted with a solution of Sodium sulfate.

molecular: $BaCl_{2(aq)} + Na_2SO_{4(aq)} \longrightarrow 2NaCl_{(aq)} + BaSO_{4(s)}$

ionic: $Ba^{+2}_{(aq)} + 2Cl^{-1}_{(aq)} + 2Na^{+1}_{(aq)} + SO_4^{-2}_{(aq)} \longrightarrow 2Na^{+1}_{(aq)} + Cl^{-1}_{(aq)} + BaS$

net ionic: $Ba^{+2}_{(aq)} + SO_4^{-2}_{(aq)} \longrightarrow BaSO_{4(s)}$

What is this reactions driving force?

Formation of a precipitation