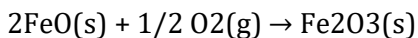


Chemistry - Stoichiometric Calculations

Q1) Iron(II) oxide burns easily in hot air according to the following equation:

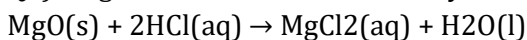


Calculate the mass of Iron(III) oxide produced when 36 g of Iron(II) oxide is heated.

[Fe = 56, O = 16]

Answer: 40 g

Q2) Magnesium oxide reacts with hydrochloric acid according to the following equation:



Calculate the mass of magnesium oxide that reacts completely with a certain solution of hydrochloric acid, if the formed magnesium chloride has a mass of 190 g.

[Mg = 24, Cl = 35.5, O = 16]

Answer: 80 g

Q3) How many atoms are present in one mole of white phosphorus (P₄)?

Answer: 2.408×10^{24} atom

Q4) How many nitrogen atoms are present in 0.25 mol of calcium nitrate, Ca(NO₃)₂?

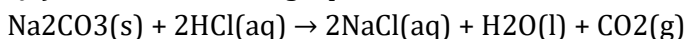
Answer: 3.01×10^{23} atom

Q5) Calculate the number of oxygen atoms present in 4.2 g of sodium bicarbonate, NaHCO₃.

[Na = 23, C = 12, O = 16, H = 1]

Answer: 9.03×10^{22} atom

Q6) From the following equation:



Calculate the number of water molecules formed when 26.5 g of sodium carbonate reacts

completely with hydrochloric acid.

[Na = 23, C = 12, O = 16]

Answer: 1.505×10^{23} molecule

Q7) Calculate the number of electrons lost when 5.4 g of aluminium is oxidized.

$\text{Al(s)} \rightarrow \text{Al}^{3+}(\text{aq}) + 3\text{e}^-$

[Al = 27]

Answer: 3.612×10^{23} e-

Q8) Sodium chloride dissolves in water according to the following equation:

$\text{NaCl(s)} \rightarrow \text{Na}^+(\text{aq}) + \text{Cl}^-(\text{aq})$

Calculate the number of sodium ions formed when 117 g of sodium chloride dissolves in water.

[Na = 23, Cl = 35.5]

Answer: 1.204×10^{24} ion

Q9) Calculate the number of ions produced when 10.6 g of sodium bicarbonate, NaHCO_3 , dissolves in water.

[Na = 23, C = 12, O = 16, H = 1]

Answer: 1.806×10^{23} ion
