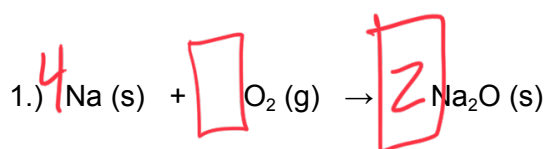


General Chemistry Chapter 4 Pre-Test



(18 pts total) Balance the equation. If you begin with 60 g of sodium and 100 g of oxygen

a) (8 pts) Identify the limiting reagent. Show work.

$$60 \text{g Na} * \frac{1 \text{ mol Na}}{22.99 \text{g Na}} * \frac{2 \text{ mol Na}_2\text{O}}{4 \text{ mol Na}} * \frac{61.979 \text{g Na}_2\text{O}}{1 \text{ mol}} = \boxed{80.9 \text{g Na}_2\text{O}}$$

$$100 \text{g O}_2 * \frac{1 \text{ mol O}_2}{31.998 \text{g O}_2} * \frac{2 \text{ mol Na}_2\text{O}}{1 \text{ mol O}_2} * \frac{61.979 \text{g Na}_2\text{O}}{1 \text{ mol}} = 387.4 \text{g Na}_2\text{O}$$

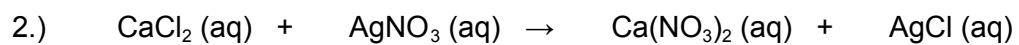
b) (8 pts) Find the mass of Na₂O produced during the reaction.

$$80.9 \text{g Na}_2\text{O}$$

c) (2 pts) Find the mass of excess reagent.

$$60 \text{g Na} * \frac{1 \text{ mol Na}}{22.99 \text{g Na}} * \frac{1 \text{ mol O}_2}{4 \text{ mol Na}} * \frac{31.998 \text{g O}_2}{1 \text{ mol O}_2} = 20.9 \text{g O}_2$$

$$100 \text{g} - 20.9 \text{g} = \boxed{79.1 \text{g O}_2}$$



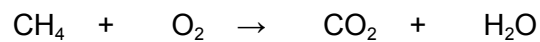
(18 pts total) If you begin with 90 g of CaCl_2 and 120 g of AgNO_3

a) (8 pts) Identify the limiting reagent.

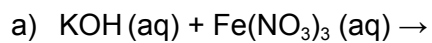
b) (8 pts) Find the mass of AgCl produced during the reaction.

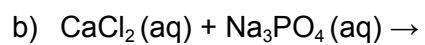
c) (2 pts) Find the mass of excess reagent.

3.) (18 pts) If you have 80 g of methane (CH₄) is reacted with 90 g of oxygen (O₂), find the liters of carbon dioxide (CO₂) produced under STP conditions.



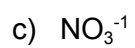
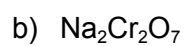
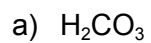
4.) (18 pts total, 6 pts each) For each reaction, 1) complete each reaction by writing the potential products. 2) Balance the reaction. 3) Consult the solubility rules and identify soluble and insoluble compounds. 4) Write the net reaction.





c) Aqueous solutions of lithium sulfate and calcium nitrate are mixed...

5.) (12 pts total, 3 pts each) Find the oxidation state of each atom within the compound.





6.) (16 pts total, 8 pts each) Find the oxidation state of each atom within the reaction. Indicate which atom is reduced and which is oxidized.

