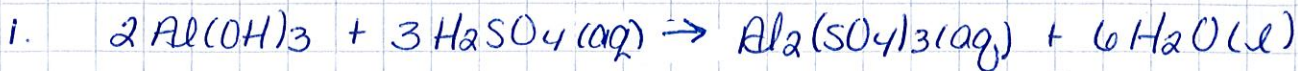


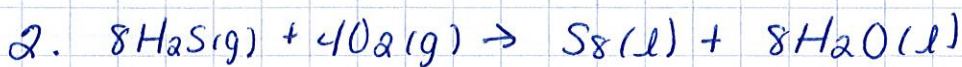
Key-review for Stoichiometry



a. $\frac{.88 \text{ mol Al(OH)}_3}{2 \text{ mol Al(OH)}_3} \times \frac{6 \text{ mol H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = 2.6 \text{ mol H}_2\text{O}$

b. $\frac{.88 \text{ g H}_2\text{SO}_4}{98.09 \text{ g H}_2\text{SO}_4} \times \frac{1 \text{ mol H}_2\text{SO}_4}{3 \text{ mol H}_2\text{SO}_4} \times \frac{6 \text{ mol H}_2\text{O}}{1 \text{ mol H}_2\text{O}} \times \frac{18.02 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = .32 \text{ g H}_2\text{O}$

c. $\frac{.88 \text{ g H}_2\text{O}}{18.02 \text{ g H}_2\text{O}} \times \frac{1 \text{ mol H}_2\text{O}}{6 \text{ mol H}_2\text{O}} \times \frac{1 \text{ mol Al}_2(\text{SO}_4)_3}{3 \times 2.17 \text{ g Al}_2(\text{SO}_4)_3} \times \frac{3 \times 2.17 \text{ g Al}_2(\text{SO}_4)_3}{1 \text{ mol Al}_2(\text{SO}_4)_3} = 2.8 \text{ g Al}_2(\text{SO}_4)_3$



$\frac{102.27 \text{ g H}_2\text{S}}{34.09 \text{ g H}_2\text{S}} \times \frac{1 \text{ mol H}_2\text{S}}{8 \text{ mol H}_2\text{S}} \times \frac{1 \text{ mol S}_8}{1 \text{ mol S}_8} \times \frac{256.56 \text{ g S}_8}{1 \text{ mol S}_8} = 96.210 \text{ g S}_8$

$\frac{64.00 \text{ g O}_2}{32.00 \text{ g O}_2} \times \frac{1 \text{ mol O}_2}{4 \text{ mol O}_2} \times \frac{1 \text{ mol S}_8}{1 \text{ mol S}_8} \times \frac{256.56 \text{ g S}_8}{1 \text{ mol S}_8} = 128.3 \text{ g S}_8$

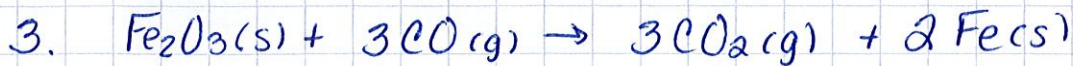
a. LR - H_2S

b. TY - 96.210 g S_8

$\frac{102.27 \text{ g H}_2\text{S}}{34.09 \text{ g H}_2\text{S}} \times \frac{1 \text{ mol H}_2\text{S}}{8 \text{ mol H}_2\text{S}} \times \frac{4 \text{ mol O}_2}{1 \text{ mol O}_2} \times \frac{32.00 \text{ g O}_2}{1 \text{ mol O}_2} = 48.000 \text{ g O}_2 \text{ used}$

c. $64.00 \text{ g O}_2 - 48.000 \text{ g O}_2 = 16.00 \text{ g O}_2 \text{ left over}$

d. $\% \text{ yield} = \frac{84.78 \text{ g}}{96.210 \text{ g}} \times 100 = 88.12\%$



a. $\frac{150.0\text{g Fe}_2\text{O}_3}{159.70\text{g Fe}_2\text{O}_3} \times \frac{1\text{mol Fe}_2\text{O}_3}{1\text{mol Fe}_2\text{O}_3} \times \frac{3\text{mol CO}}{3\text{mol CO}} \times \frac{28.01\text{g CO}}{1\text{mol CO}} = 78.93\text{g CO}$

b. $\frac{2.50\text{mol CO}}{3\text{mol CO}} \times \frac{2\text{mol Fe}}{1\text{mol Fe}} \times \frac{55.85\text{g Fe}}{1\text{mol Fe}} = 93.1\text{g Fe}$

c. $\frac{100.0\text{g Fe}_2\text{O}_3}{159.70\text{g Fe}_2\text{O}_3} \times \frac{1\text{mol Fe}_2\text{O}_3}{1\text{mol Fe}_2\text{O}_3} \times \frac{3\text{mol CO}_2}{3\text{mol CO}_2} \times \frac{44.01\text{g CO}_2}{1\text{mol CO}_2} = 82.67\text{g CO}_2$

$\frac{100.0\text{g CO}}{28.01\text{g CO}} \times \frac{1\text{mol CO}}{3\text{mol CO}} \times \frac{3\text{mol CO}_2}{1\text{mol CO}} \times \frac{44.01\text{g CO}_2}{1\text{mol CO}_2} = 157.1\text{g CO}_2$

LR - Fe_2O_3

d. TY - 82.67g CO_2

e. $\frac{100.0\text{g Fe}_2\text{O}_3}{159.70\text{g Fe}_2\text{O}_3} \times \frac{1\text{mol Fe}_2\text{O}_3}{1\text{mol Fe}_2\text{O}_3} \times \frac{3\text{mol CO}}{3\text{mol CO}} \times \frac{28.01\text{g CO}}{1\text{mol CO}} = 52.6\text{g CO used}$

$100.0\text{g CO} - 52.6\text{g} = 47.4\text{g CO left over}$

f. $\% \text{ yield} = \frac{60.5\text{g}}{82.67\text{g}} \times 100 = 73.2\%$