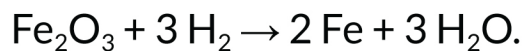


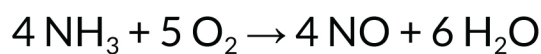
STOICHIOMETRY Calculations

1. Using the following equation:



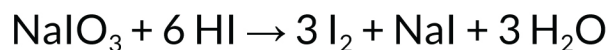
Calculate how many grams of iron can be made from 16.5 grams of Fe_2O_3 .

2. Using the following equation:



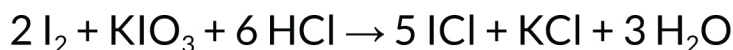
How many moles and grams of oxygen (O_2) are needed to react with 56.8 grams of ammonia by this reaction?

3. Using the following equation:



Calculate the number of moles and the number of grams of iodine (I_2) that can be made this way from 16.4 grams of NaIO_3 .

4. Using the following equation:

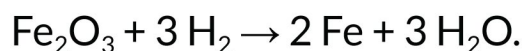


Calculate how many grams of iodine are needed to prepare 28.6 grams of ICl by this reaction.

STOICHIOMETRY Calculations

Answers

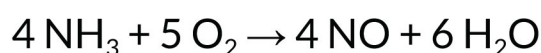
1. Using the following equation:



Calculate how many grams of iron can be made from 16.5 grams of Fe_2O_3 .

$$16.5 \text{ g Fe}_2\text{O}_3 \times (1 \text{ mol Fe}_2\text{O}_3 / 159.7 \text{ g Fe}_2\text{O}_3) \times (2 \text{ mol Fe} / 1 \text{ mol Fe}_2\text{O}_3) \\ \times (55.8 \text{ g Fe} / 1 \text{ mol Fe}) = 11.5 \text{ g Fe}$$

2. Using the following equation:



How many moles and grams of oxygen (O_2) are needed to react with 56.8 grams of ammonia by this reaction?

$$56.8 \text{ g NH}_3 \times (1 \text{ mol NH}_3 / 17 \text{ g NH}_3) \times (5 \text{ mol O}_2 / 4 \text{ mol NH}_3) = 4.18 \text{ mol O}_2$$

$$4.18 \text{ mol O}_2 \times (32 \text{ g O}_2 / 1 \text{ mol O}_2) = 133.6 \text{ g O}_2$$

3. Using the following equation:

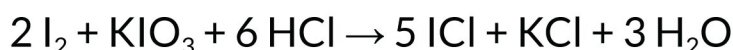


Calculate the number of moles and the number of grams of iodine (I_2) that can be made this way from 16.4 grams of NaIO_3 .

$$16.4 \text{ g of NaIO}_3 \times (1 \text{ mol NaIO}_3 / 197.9 \text{ g NaIO}_3) \times (3 \text{ mol I}_2 / 1 \text{ mol NaIO}_3) = \\ 0.249 \text{ mol I}_2$$

$$0.249 \text{ mol I}_2 \times (253.8 \text{ g I}_2 / 1 \text{ mol I}_2) = 63.1 \text{ g I}_2$$

4. Using the following equation:



Calculate how many grams of iodine are needed to prepare 28.6 grams of ICl by this reaction.

$$28.6 \text{ g ICl} \times (1 \text{ mol ICl} / 162.35 \text{ g ICl}) \times (2 \text{ mol I}_2 / 5 \text{ mol ICl}) \times (253.8 \text{ g I}_2 / 1 \text{ mol I}_2) = \\ 17.88 \text{ g I}_2$$