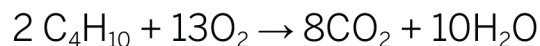


STOICHIOMETRY

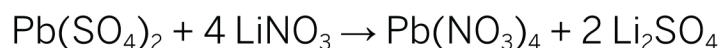
PRACTICE WORKSHEET

1. The combustion of a sample of butane, C_4H_{10} (lighter fluid), produced 2.46 grams of water.



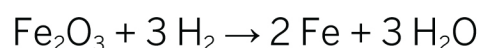
- (a) How many moles of water formed?
- (b) How many moles of butane burned?
- (c) How many grams of butane burned?
- (d) How much oxygen was used up in moles?
- (e) How much oxygen was used up in grams?

2. Using the following equation:



How much (in grams) lithium nitrate will be needed to make 250 grams of lithium sulfate, assuming you have enough lead (IV) sulfate to react?

3. Using the following equation:



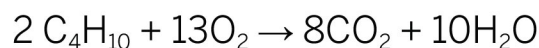
Calculate how many grams of iron can be made from 16.5 grams of Fe_2O_3 .

STOICHIOMETRY

PRACTICE WORKSHEET

Answers

1. The combustion of a sample of butane, C_4H_{10} (lighter fluid), produced 2.46 grams of water.



(a) How many moles of water formed?

$$2.46 \text{ g } H_2O \times (1 \text{ mol } H_2O / 18 \text{ g } H_2O) = 0.137 \text{ mol } H_2O$$

(b) How many moles of butane burned?

$$0.137 \text{ mol } H_2O \times (2 \text{ mol } C_4H_{10} / 10 \text{ mol } H_2O) = 0.027 \text{ mol } C_4H_{10}$$

(c) How many grams of butane burned?

$$0.027 \text{ mol } C_4H_{10} \times (58.12 \text{ g } C_4H_{10} / 1 \text{ mol } C_4H_{10}) = 7.94 \text{ g } C_4H_{10}$$

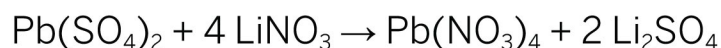
(d) How much oxygen was used up in moles?

$$0.137 \text{ mol } H_2O \times (13 \text{ mol } O_2 / 10 \text{ mol } H_2O) = 0.1781 \text{ mol } O_2$$

(e) How much oxygen was used up in grams?

$$0.1781 \text{ mol } O_2 \times (16 \text{ g } O_2 / 1 \text{ mol } O_2) = 2.85 \text{ g } O_2$$

2. Using the following equation:



How much (in grams) lithium nitrate will be needed to make 250 grams of lithium sulfate, assuming you have enough lead (IV) sulfate to react?

$$250 \text{ g } Li_2SO_4 \times (1 \text{ mol } Li_2SO_4 / 110 \text{ g } Li_2SO_4) \times (4 \text{ mol } LiNO_3 / 2 \text{ mol } Li_2SO_4) \\ \times (69 \text{ g } LiNO_3 / 1 \text{ mol } LiNO_3) = 313.6 \text{ g}$$

3. Using the following equation:



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

$$16.5 \text{ g } Fe_2O_3 \times (1 \text{ mol } Fe_2O_3 / 159.7 \text{ g } Fe_2O_3) \times (2 \text{ mol } Fe / 1 \text{ mol } Fe_2O_3) \\ \times (55.8 \text{ g } Fe / 1 \text{ mol } Fe) = 11.5 \text{ g } Fe$$