Answer on Question #60344- Chemistry - Other

Task:

How many moles of oxygen gas react with 6.00 mol of propane, C_3H_8?

Solution:

The chemical equation for the reaction is:

$$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O;$$

When propane is reacted with oxygen, carbon dioxide and water are produced. One mole of propane is burnt in the presence of five moles of oxygen to yield three moles of carbon dioxide and four moles of water.

$$1\,mole\,of\ C_3H_8 - 5\,moles\,of\ O_2$$
$$6\,moles\,of\ C_3H_8 - X\ moles\,of\ O_2;$$
$$X = \frac{5\times 6}{1} = 30\,moles\,of\ O_2;$$

Therefore, 30 moles of oxygen gas are required to react completely with 6.00 moles of propane.

Answer:

30 moles of oxygen gas react with 6.00 mol of propane.