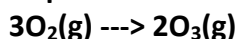


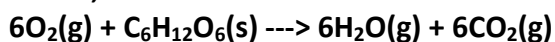
# Answer on Question #50437, Chemistry, Other

## Task:

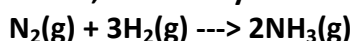
1) If an electric discharge produces 800 cm<sup>3</sup> of ozone (O<sub>3</sub>), how many cm<sup>3</sup> of oxygen (O<sub>2</sub>) are required?



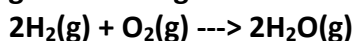
2. When 75.0 dm<sup>3</sup> of O<sub>2</sub> react with an excess of glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>), according to the reaction below, what volume of carbon dioxide will be produced?



3. If an excess of nitrogen gas reacts with 250 L of hydrogen gas, according to the reaction below, how many L of ammonia will be produced?



4. How many cm<sup>3</sup> of oxygen would be required to react completely with 432 cm<sup>3</sup> of hydrogen gas according to the reaction below?



## Answer:

$$v = \frac{V}{22.4}$$

$$1) \quad v(\text{O}_3) = \frac{0.8}{22.4} = 0.036 \text{ mol}$$

$$v(\text{O}_2) = \frac{3}{2} v(\text{O}_3) = \frac{3}{2} \cdot 0.036 = 0.054 \text{ mol}$$

$$V(\text{O}_2) = 22.4 \cdot v = 22.4 \cdot 0.054 = 1.21 \text{ l} = 1210 \text{ cm}^3$$

$$v = \frac{V}{22.4}$$

$$2) \quad v(\text{O}_2) = \frac{75}{22.4} = 3.35 \text{ mol}$$

$$v(\text{O}_2) = v(\text{CO}_2) = 3.35 \text{ mol}$$

$$V(\text{CO}_2) = 22.4 \cdot v = 22.4 \cdot 3.35 = 75 \text{ l} = 75 \text{ dm}^3$$

$$v = \frac{V}{22.4}$$

$$3) \quad v(\text{H}_2) = \frac{250}{22.4} = 11.16 \text{ mol}$$

$$v(\text{NH}_3) = \frac{2}{3} v(\text{H}_2) = \frac{2}{3} \cdot 11.16 = 7.44 \text{ mol}$$

$$V(\text{NH}_3) = 22.4 \cdot v = 22.4 \cdot 7.44 = 166.7 \text{ l}$$

$$v = \frac{V}{22.4}$$

$$4) \quad v(\text{H}_2) = \frac{0.432}{22.4} = 0.02 \text{ mol}$$

$$v(\text{O}_2) = \frac{1}{2} v(\text{H}_2) = \frac{1}{2} \cdot 0.02 = 0.01 \text{ mol}$$

$$V(\text{O}_2) = 22.4 \cdot v = 22.4 \cdot 0.01 = 0.224 \text{ l} = 224 \text{ cm}^3$$