

Answer on Question #70805, Chemistry / General Chemistry :

If Left exposed hydrogen peroxide will slowly decompose to form water and oxygen gas. If you left 34g of H_2O_2 exposed, and you find 18 g of H_2O Remaining, how much oxygen gas was released?

Solution.

$$m(H_2O_2) = 34g$$

$$M(H_2O_2) = 34g / mol$$

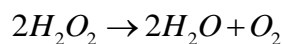
$$m(H_2O) = 18g$$

$$M(H_2O) = 18g / mol$$

$$V_m = 22.4l / mol$$

$$V(O_2) = ?$$

Reaction H_2O_2 exposed:



The amount of water formed in the reaction:

$$v(H_2O) = \frac{m(H_2O)}{M(H_2O)} = \frac{18g}{18g / mol} = 1mol$$

$$v(H_2O) = 1mol$$

And:

$$v(O_2) = \frac{1}{2} v(H_2O) = \frac{1}{2} \cdot 1mol = 0.5mol$$

Weight oxygen gas:

$$m(O_2) = v(O_2) \cdot M(O_2)$$

$$m(O_2) = 0.5mol \cdot 32g / mol$$

$$m(O_2) = 16g$$

V oxygen gas:

$$V(O_2) = v(O_2) \cdot V_m$$

$$V(O_2) = 0.5mol \cdot 22.4l / mol$$

$$V(O_2) = 11.2l$$

Answer: $m(O_2) = 16g$, $V(O_2) = 11.2l$.