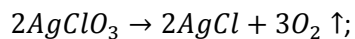


What is the mass of silver chlorate (191.32 g/mol) that releases 0.466 L of oxygen gas at STP.

Solution.

Write the chemical reaction path:



2 moles of silver chlorate($AgClO_3$) releases 3 moles of oxygen. The volume of 1 mole of gas at STP is 22.41 L. So find that:

$$2 * 191.32 \text{ g}(AgClO_3) - 3 * 22.41 \text{ L}(O_2)$$

And x g of silver chlorate releases 0.466 L of oxygen

$$x \text{ g}(AgClO_3) - 0.446 \text{ L}(O_2);$$

Find x :

$$x = \frac{2*191.32*0.446}{3*22.4} = 2.54 \text{ g}(AgClO_3);$$

Answer: 2.54 g($AgClO_3$);