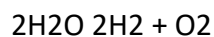


How many litres of hydrogen gas will be produced by the decomposition of 90L of water?
Assume that temperature and pressure are constant



Solution. We have, that $V(\text{H}_2\text{O})=90$ L, and $m(\text{H}_2\text{O})=90$ g, then $n(\text{H}_2\text{O})=m(\text{H}_2\text{O})/M(\text{H}_2\text{O})=90/18=5$ moles. According to the reaction equation: $n(\text{H}_2)=n(\text{H}_2\text{O})=5$ moles, $n(\text{O}_2)=0.5n(\text{H}_2\text{O})=2.5$ moles. The temperature and pressure are constant, then $V(\text{H}_2)=V_m \times n(\text{H}_2)=5 \times 22.4=112$ litres.

Answer: 112 litres hydrogen gas.

Answer provided by www.AssignmentExpert.com