

Answer on Question #54363 – Chemistry – General chemistry

Question:

In the reaction $\text{Mg (s)} + 2\text{HCl (aq)} \rightarrow \text{H}_2 \text{ (g)} + \text{MgCl}_2 \text{ (aq)}$, how many moles of hydrogen gas will be produced from 75.0 milliliters of a 1.0 M HCl in an excess of Mg?

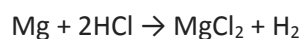
Answer:

The amount of HCl is defined by the equation:

$v = CV$, where C – the concentration of HCl and V – the volume of HCl.

$$v = 1 \text{ mol/l} \times 0.075 \text{ l} = 75 \text{ mmol}$$

According to the reaction the 1 mole of hydrogen is formed from 2 moles of HCl:



Therefore, $v(\text{H}_2) = 75 \text{ mmol} / 2 = 37.5 \text{ mmol} = 37.5 \times 10^{-3} \text{ mol}$