Answer on Question #54363 – Chemistry – General chemistry

Question:

In the reaction Mg (s) + 2HCl (aq) H2 (g) + MgCl2 (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:

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

ν = 1 mol/l × 0.075 l = 75 mmol

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

$Mg + 2HCl \rightarrow MgCl_2 + H_2$

Therefore, $\nu(H_2)$= 75 mmol/2 = 37.5 mmol = 37.5×10^{-3} mol