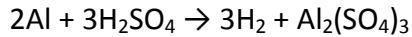


## Answer on Question #52447 - Chemistry – Inorganic Chemistry

### Question

Predict the mass of hydrogen gas produced when 2.73 g of aluminum reacts in a single replacement reaction with excess sulphuric acid.



### Answer:

Molar mass of Al is 27.3 g/mol. Molar mass of H<sub>2</sub> is 2 g/mol.

Number of moles of aluminum is:

$$n(\text{Al}) = \frac{m(\text{Al})}{M(\text{Al})} = \frac{2.73}{27.3} = 0.1 \text{ mol}$$

Make a proportion:

2 mol of Al produce 3 mol of H<sub>2</sub>

0.1 mol of Al – x g of H<sub>2</sub>

$$x = \frac{0.1 \cdot 3}{2} = 0.15 \text{ mol}$$

The mass of hydrogen gas produced is:

$$m(\text{H}_2) = n(\text{H}_2) \cdot M(\text{H}_2) = 0.15 \cdot 2 = 0.3 \text{ g}$$

**Answer:**  $m(\text{H}_2) = 0.3 \text{ g}$