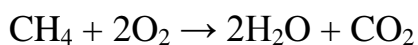


**Answer on Question #62112, Chemistry / General Chemistry**

**What mass of water is produced from the complete combustion of  $4.00 \cdot 10^{-3}$  g of methane?**



$$n(\text{CH}_4) = \frac{m(\text{CH}_4)}{M(\text{CH}_4)}$$

$$n(\text{CH}_4) = \frac{4.00 \cdot 10^{-3} \text{ g}}{16 \text{ g/mol}} = 2.5 \cdot 10^{-4} \text{ mol}$$

$$n(\text{H}_2\text{O}) = \frac{n(\text{CH}_4)}{2}$$

$$n(\text{H}_2\text{O}) = \frac{2.5 \cdot 10^{-4} \text{ mol}}{2} = 1.25 \cdot 10^{-4} \text{ mol}$$

$$m(\text{H}_2\text{O}) = n(\text{H}_2\text{O}) \cdot M(\text{H}_2\text{O})$$

$$m(\text{H}_2\text{O}) = 1.25 \cdot 10^{-4} \text{ mol} \cdot 18 \text{ g/mol} = 2.25 \cdot 10^{-3} \text{ g}$$