

## Answer on Question #62132 - Chemistry - General Chemistry

### Question

What mass of carbon dioxide is produced from the complete combustion of  $4.00 \times 10^{-3}$  g of methane?

### Solution:

Chemical equation:  $\text{CH}_4 + 2\text{O}_2 \rightarrow \text{CO}_2 + 2\text{H}_2\text{O}$

$$\vartheta(\text{CO}_2) = \vartheta(\text{CH}_4)$$

$$\begin{aligned} m(\text{CO}_2) &= M(\text{CO}_2) \cdot \vartheta(\text{CO}_2) = M(\text{CO}_2) \cdot \vartheta(\text{CH}_4) = M(\text{CO}_2) \cdot \frac{m(\text{CH}_4)}{M(\text{CH}_4)} = 44 \cdot \frac{4 \cdot 10^{-3}}{16} \\ &= 0.011 \text{ (g)} \end{aligned}$$

**Answer:** The mass of carbon dioxide is 0.011 g