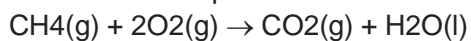


Question # 80564, answer

The balanced equation below shows the burning of methane in air.



How many grams of carbon dioxide will be produced when 1 mole of methane burns completely?

Given the atomic masses:

C = 12, H = 1, and O = 16

Answer:

- 1) Balance the reaction equation:
$$\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{l})$$
- 2) Based on reaction stoichiometry 1 mole of carbon dioxide CO₂ will be produced as 1 mole of methane CH₄ was burned
- 3) MW of CO₂ = 12 + 2*16 = 44 g/mole
- 4) Mass of CO₂ = MW (CO₂) * number of moles CO₂ = 44 g/mole * 1 mole = 44 g