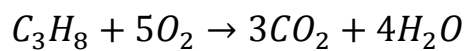


Answer on Question #67378, Chemistry / General Chemistry

Calculate the mass of water vapor produced when 6.00 L of propane gas undergo complete combustion at a temperature of 250 C and a pressure of 1.00 atm.

Solution:



$$PV = nRT \Rightarrow n = \frac{PV}{RT}$$

$$n(C_3H_8) = \frac{1 * 101,3 * 6.00}{8.31 * (250 + 273)} = 0,14 \text{ (mol)}$$

$$n(H_2O) = 4 * n(C_3H_8) = 4 * 0.14 = 0.56 \text{ (mol)}$$

$$m(H_2O) = n(H_2O) * M(H_2O) = 0.56 * 18 = 10.07 \text{ (g)}$$

Solution: 10.07 g.