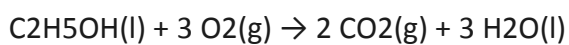


Answer on question #70414, Chemistry / General Chemistry

If the density of ethanol, C₂H₅OH, is 0.789 g/mL. How many milliliters of ethanol are needed to produce 15.0 g of CO₂ according to the following chemical equation?



Solution:

$$n(\text{CO}_2) = \frac{m}{M} = \frac{15\text{g}}{44\text{g/mol}} = 0.341\text{ mol};$$

$$n(\text{C}_2\text{H}_5\text{OH}) = \frac{n(\text{CO}_2)}{2} = \frac{0.341}{2} = 0.1705\text{ mol};$$

$$m(\text{C}_2\text{H}_5\text{OH}) = 0.1705\text{ mol} \cdot 46\text{g/mol} = 7.843\text{ g};$$

$$V(\text{C}_2\text{H}_5\text{OH}) = \frac{7.843}{0.789} = 9.94\text{ ml}.$$

Answer: 9.94 ml.

Answer provided by <https://www.AssignmentExpert.com>