

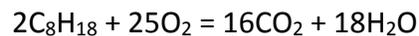
## Answer on Question #54719 - Chemistry – General Chemistry

### Question

How many pounds of CO<sub>2</sub> are produced from the complete combustion of 1.00 gal of gasoline? Assume that gasoline has the formula C<sub>8</sub>H<sub>18</sub> and has a density of 0.703 g/mL.

### Answer:

Combustion of gasoline:



1 gal = 3.785 L

$$m(\text{C}_8\text{H}_{18}) = \rho(\text{C}_8\text{H}_{18})V(\text{C}_8\text{H}_{18}) = 0.703 \cdot 3.785 \cdot 1000 = 2661 \text{ g}$$

$$m(\text{CO}_2) = \frac{2m(\text{C}_8\text{H}_{18}) \cdot 16M(\text{CO}_2)}{M(\text{C}_8\text{H}_{18})} = \frac{2 \cdot 2661 \cdot 16 \cdot 44}{114} = 32866 \text{ g}$$

$$m(\text{CO}_2) = 32866 \text{ g} = 72.46 \text{ pounds}$$

**Answer:** 72.46 lb.