

Answer on Question #67132, Chemistry / General Chemistry

During a strenuous workout, athlete generates 2060.0 kJ of heat energy. What mass of water would have to evaporate from the person's skin to dissipate this much heat? Vaporization of water is 40.67 kJ/mol, vaporization of water is 44.0 kJ/mol.

Solution:

$$1. \ n(H_2O) = \frac{2060.0}{40.67} = 50.65 \text{ (mol)}$$

$$m(H_2O) = n(H_2O) * M(H_2O) = 50.65 * 18 = 911.7 \text{ (g)}$$

$$2. \ (H_2O) = \frac{2060.0}{44.0} = 46.81 \text{ (mol)}$$

$$m(H_2O) = n(H_2O) * M(H_2O) = 46.81 * 18 = 842.7 \text{ (g)}$$

Answer: 911.7 g; 842.7 g

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