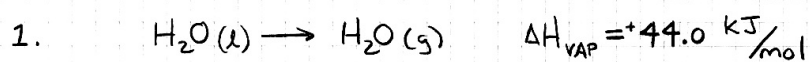


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$$m = 50.0 \text{ g}$$

$$n = \frac{m}{M}$$

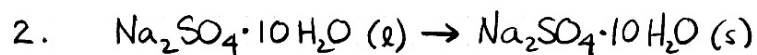
$$= \frac{50.0 \text{ g}}{18.02 \frac{\text{g}}{\text{mol}}}$$

$$= 2.7746 \dots \text{ mol}$$

$$\Delta H = n \cdot \Delta H_{\text{VAP}}$$
$$= (2.7746 \dots \text{ mol}) \left( +44.0 \frac{\text{kJ}}{\text{mol}} \right)$$

$$= +122.086 \dots \text{ kJ}$$

∴ The enthalpy change is +122 kJ.



$$m = 2.50 \text{ kg}$$

$$\Delta H_r = -78.0 \frac{\text{kJ}}{\text{mol}}$$

$$n = \frac{m}{M}$$

$$= \frac{2500 \text{ g}}{322.24 \frac{\text{g}}{\text{mol}}}$$

$$= 7.7581 \dots \text{ mol}$$

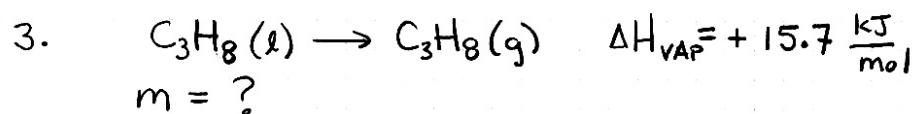
"releases"

$$\Delta H = n \cdot \Delta H_r$$

$$= (7.7581 \dots \text{ mol}) \left( -78.0 \frac{\text{kJ}}{\text{mol}} \right)$$

$$= -605.139 \dots \text{ kJ}$$

∴ The enthalpy change is -605 kJ.



$$\Delta H = +100.0 \text{ kJ}$$

$$n = \frac{\Delta H}{\Delta H_{\text{VAP}}}$$
$$= \frac{100.0 \cancel{\text{kJ}}}{15.7 \frac{\cancel{\text{kJ}}}{\text{mol}}}$$

$$= 6.3694... \text{ mol}$$

$$m = n \cdot M$$
$$= (6.3694... \cancel{\text{mol}}) \left( 44.11 \frac{\text{g}}{\cancel{\text{mol}}} \right)$$
$$= 280.955... \text{ g}$$

$\therefore$  The mass of propane that would vaporize is 281 g.