## **Question #61239, Physics / Molecular Physics | Thermodynamics**

Steam is passed through a copper vessel of 1000 g of specific heat 0.4 J/g-\*C. 16.1 g of steam had condensed to at 10\*C. Find the Specific latent heat of vapourization of steam

## The answer to the question.

In accordance with the law of thermodynamics 1: the number of give off heat well received.

$$Q_{1} = Q_{2};$$

$$Q_{1} = C_{V}m_{1}\Delta T;$$

$$Q_{2} = \Delta H_{vap}m_{2};$$

$$C_{V}m_{1}\Delta T = \Delta H_{vap}m_{2}$$

$$\Delta H_{vap} = \frac{C_{V}m_{1}\Delta T}{m_{2}} = \frac{0.4\frac{J}{g}\circ C \cdot 1000 \ g \cdot (100\circ C - 10\circ C)}{16.1 \ g} = 2236 \ J/g$$

Answer:  $\Delta H_{vap} = 2236 \frac{J}{g}$ .

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