

## Answer on Question #83205 – Chemistry – General Chemistry

A 4.82 L cylinder contains 4.64 g of methane, CH<sub>4</sub>, at 3.93 atm. What is the temperature of the gas?

### Solution:

$$pV = nRT$$

$$pV = \frac{m}{M} RT$$

$$T = \frac{pVM}{mR} = \frac{3.93\text{atm} \times 4.82\text{L} \times 16\text{g/mol}}{4.64\text{g} \times 0.082\text{atm} \cdot \text{L}/(\text{K} \cdot \text{mol})} = 796.58 \text{ K}$$

$$T = (796.58 - 273.15) \text{ }^\circ\text{C} = 523.43 \text{ }^\circ\text{C}$$

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