Answer on the Question #70458 – Chemistry – Other

Question:
How much heat is produced by the complete combustion of 218 g of CH4?

Answer:
According to the NIST chemistry webbook,
http://webbook.nist.gov/cgi/cbook.cgi?ID=C74828&Mask=1

The heat of combustion of methane is -890.7 kJ/mol. Thus, the heat produced by combustion of 218g of methane is the heat of combustion times the number of the moles (mass of methane divided by molar mass):

$$Q = -\Delta_C H^0 \cdot \frac{m}{M} = 890.7 \left(\frac{kJ}{mol}\right) \cdot \frac{218(g)}{16.0425 \left(\frac{g}{mol}\right)} = 12.1 \; MJ.$$

Answer provided by https://www.AssignmentExpert.com