Group Work

CHEM 0101: Introduction to Chemistry

Activity 16: Energy from Combustion

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1. The combustion of graphite (a form of carbon) releases 394 kJ of energy per mole of graphite burned. (1 kJ = 0.00028 kWh)

$$C(s) + O_2(g) \longrightarrow CO_2(g) \quad \Delta H = -393.5 \text{ kJ/mol}$$

Determine the amount of energy released by the combustion of 6.0 g of carbon.

2. Determine the amount (g) of CO_2 produced from the combustion of 6.0 g of carbon.

3. Determine the amount (g) of CO_2 released when methane (CH_4) is burned to generate the same amount of energy as in part 1.

$$CH_4(g) + 2\ O_2(g) \longrightarrow CO_2(g) + 2\ H_2O(g) \quad \Delta H = -802.3 \text{ kJ/mol}$$

4. For the same amount of energy, which reaction releases less CO_2, the combustion of methane or the combustion of CH_4.