

Thermochemical equations – and [PV = nRT](#)

Lesson 10

1) Propane gas is used as a fuel source.

a) What amount of energy, in MJ, is provided by the complete combustion of propane gas kept in a 2.00 Litre vessel at 137.0 °C and a pressure of 240.0 kPa.?

b) Write a thermochemical equation for the complete combustion of 2 mol of propane gas to produce carbon dioxide and liquid water.

c) A mass of 33.56 grams of propane is ignited with a limited amount of oxygen in a 2.45 litre vessel. A total amount of 0.777 MJ of energy is released and all the CO₂ gas is removed from the chamber. Assume all the oxygen is used up to produce CO₂ and liquid water.

i. Using the equation in b) above calculate the pressure exerted on the walls of the container after the reaction is complete if the temperature of the vessel is kept at 60 °C ? (Propane MW = 44.1 g/mol)

ii. The CO₂ produced, in c) above, is placed in a 5.00 litre fire extinguisher at 25.0 °C. What pressure is exerted on the walls of the extinguisher?

