**Questions: “Alkanes as Fuels – Combustion of Alkanes”**

**Propane is an alkane and another energy source often used as a fuel for *camping stoves*, engines and for heating homes.**

**CH3CH2CH3 (g) + O2 (g) CO2 (g) + H2O(g) ; RHm = - 2,2197 x103 kJ/mol**

1. ***Balance* the *reaction equation* of propane with oxygen.**

CH3CH2CH3 (g) + 5 O2 (g) 3CO2 (g) + 4 H2O(g)

1. **How many moles of propane are in 1 L of propane? (*density* (ρ)of propane: 0,493 g/mL)**

There are 1000 mL in 1 L.

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| mpropane = V ρ = 1000 mL 0,493 g/mL  = 493 g | Mpropane = (3 MC) + (8 MH)   = (3 12 g/mol) + (8 1 g/mol)  = 44 g/mol |
| npropane =    =  = **11,2 mol** |  |

**There are 11,2 mol in 1 L of propane.**

1. **How much energy is released when 1 L of propane is combusted?**  
   RHm = - 2,2197 x103 kJ/mol  
    n = 11,2 mol  
     
   Energy = n RHm = 11,2 mol 2,2197 x103 kJ/mol  
    = **24 870,7 kJ**  
     
    **24 870,7 kJ are released when 1 L of propane is combusted.**