

Sample stoichiometry problems

1. Determine the amount of energy released when 15 grams of NH_4NO_3 is dissolved in water. The heat of solution or molar enthalpy of solution of ammonium nitrate in water is 25.41 kJ/mol of NH_4NO_3 . Is the change endothermic or exothermic?

2. If the molar enthalpy of dissolution of ammonium nitrate in water is 25.41 kJ/mol, how many grams of ammonium nitrate should be used to release 15 kJ of energy?

3. How many grams of CH_4 (methane) should undergo complete combustion to produce 2000 kJ of energy, if the molar enthalpy of combustion or molar heat of combustion of methane is 890 kJ/mol.

Intro thermochemistry Molar Enthalpy = q/n q = total heat released or absorbed and n = number of moles of the compound used.