

Thermochemistry Podcast #6: Calorimetry; SC5 a,c

1. When 12.3-g of magnesium reacts with 1000.0g of hydrochloric acid it **raises** the temperature from 22.5°C to 48.3°C. What is the value of ΔH ?
2. When 13.5-g of ammonium nitrate is dissolved in water it **cools** 1000.0-g of water from 32.3°C to 29.5°C. What is the value of ΔH ?
3. The combustion of 25.6-g of propane, C_3H_8 raises the temperature of 1000-g of water by 16.8°C. What is the value of ΔH ?
4. The single replacement reaction: $Li + Al_2(SO_4)_3 \rightarrow Li_2SO_4 + Al$ has a ΔH of -229.7 kJ/mol. If 12.1-g of Li reacts, how much will the temperature of 1000.0-g of water rise? (Hint: balance the reaction and then use $Q=mc\Delta T$ and solve for ΔT)
5. For the dissolving of sulfuric acid, H_2SO_4 the value of $\Delta H=-236$ kJ/mol. If 2.54-g of sulfuric acid dissolves in 100.0-g of 20.0°C water, what will be the final temperature of the water?