

Ketora Clarke

Experimental 4: Heat of Neutralization

A. Heat Capacity of Calorimeter

Assuming: heat capacity of calorimeter is zero!!!

B. Heat of Neutralization of HCl+ NaOH

| | 1.0 M NaOH, 50 mL | 1.0 M HCl, 50 mL |
|--|---|------------------|
| Temperature before mixing | 22°C | 22°C |
| Average (T _i) | 22°C | |
| Temperature after reaction (T _f) | 32 °C | |
| Calculate Heat of Neutralization | $Q=mc \Delta T$ $50g \times 32 \text{ degrees C} \times$ 57.3 KJ/ mol | |

C. Heat of Neutralization of CH₃COOH+NaOH

| | 1.0 M NaOH, 50 mL | 1.0 M CH ₃ COOH, 50 mL |
|--|--|-----------------------------------|
| Temperature before mixing | 22 °C | 21.5 °C |
| Average (T _i) | 22 °C | |
| Temperature after reaction (T _f) | 27 °C | |
| Calculate Heat of Neutralization | $Q=mc \Delta T$ $= -13.1 \text{ KJ/ mol}$ | |

D. Compare part B and C, discuss the results

B is a strong acid, where as C is a weak acid because it is in the negatives.

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