Calorimetry Set solutions

q = mCpΔT q = C ΔT

1. q = mCpΔT

175 J/(5.75 ˚C)(0.449 J/g·˚C) = 67.8 g

1. CaCl2 (s) 🡪 Ca+2 (aq) + 2 Cl-1(aq)

q = 100)(4.184 J/g·˚C)(4.99 ˚) = 2088 J

Process is exo

2088 J/2.80 g CaCl2 = X J/mole (110.98 g) =82.76 kJ/mole

1. q = C ΔT

13.24 kJ/˚C)(8.92 ˚C) = 118 kJ

That heat came from the 5 ml of EtOH (ethanol) which is 3.945 g of EtOH

(5 ml)(0.789 g/ml)

118 kJ/3.945 g = X kJ/46 g = 1375 kJ/mol

1. q = C ΔT

9.285 kJ/2.152˚ = 4.31 kJ/˚C

1. 0.2500 g C10H8(1 mol/128.16 g)(5150 kJ/mol) = 10.0 kJ

10,000 J = 4999J/g·˚C)(ΔT ΔT = 20 ˚C Started at 20 went up 20 so

Tf = 40

1. 8.16 kJ = C(1.79) C = 4.558 kJ/˚C

q = CΔT = 4.558 (10.94) = 49.87 kJ/1.0 g = X kJ/26.04 g

1298 kJ/mol

1. qcal = 1000()4.184)(12.8) = 53555 J

This came out of the rxn so -53555J = 199.6 ΔT

ΔT = -268 ˚

– 268 = (32.8 – Ti) Ti = 301

1. qcold = 108g)(4.184 J/g·˚C)(25.4˚C) = 111,478 J

this came out of the hot water

– 111478 = 65.1)(4.184)(ΔT) ΔT = - 42.1

– 42.1 = 47.9 – Ti Ti = 90.0˚C