

Specific Heat Capacity Lab

Vincent Edwards, Ali Mortada

Mt. San Antonio College, Physics 4B, CRN 42240
March 3, 2023

1. Purpose

The goal of the experiment was to determine the specific heat capacities of various substances based on measurements of mass, temperature, power, and/or time. For parts 1 and 2 the material was known, so the calculated specific heat capacities could be compared to the accepted values. For part 3 the material was unknown, so its identity was guessed based on the calculated specific heat capacity.

2. Results

Table 1. Part 1 Measurements

Quantity	Value
m_c	33.02 ± 0.01 g
m_{c+w}	439.19 ± 0.01 g
T_i	20.2 ± 0.4 °C
H	293 ± 1 W
t	120.2 ± 0.2 s
T_f	38.5 ± 0.4 °C

Table 2. Uncertainty Trials

Run	T °C
1	99.0
2	99.1
3	98.8
4	98.7
5	98.6
6	99.0
7	99.1
8	99.1
9	99.0
10	98.9
11	98.8
12	98.8
13	99.1
14	99.2
15	99.1
16	99.2
17	99.1
18	99.1
19	99.2
20	99.1
21	99.0
22	99.1
23	99.3
24	99.0
25	98.8