Lab 1B: Factors Affecting Reaction Rate

1 Purpose

2 Procedure

3 Data/Observations

3.1 Concetration Test Data

Table 1: Initial Parameters of Open $CaCO_3$(s) and HCl(aq) Reaction.

Parameter	Test 1	Test 2
Concentration HCl (M)	1.0	3.0
Mass HCl (g)	17.9	32.5
Mass CaCO3 (g)	10.6	13.7
Mass Total (g)	28.5	46.2

Table 2: Change in Mass Over Time of an Open $CaCO_3$(s) and HCl(aq) Reaction.

Time	Test 1 Mass (g)	Test 2 Mass (g)
0:00	28.5	46.1
0:30	28.3	46.0
1:00	28.3	45.8
1:30	28.2	45.6
2:00	28.1	45.4
2:30	28.0	45.3
3:00	28.0	45.1
3:30	27.9	45.0
4:00	27.9	44.9
4:30	27.9	44.9
5:00	27.8	44.8

3.2 Temperature and Surface Area Test Data

Table 3: Initial Parameters of Open Denture Tablet Reactions.

Parameter	Test 1 (Control)	Test 2 (Crushed)	Test 3 (Heated)
Crushed	no	yes	no
Heated	no	no	yes
Mass Beaker-Water (g)	98.0	75.6	80.9
Mass Tablet (g)	2.6	2.5	2.5

Table 4: Change in Mass Over Time of Open Denture Tablet Reactions.

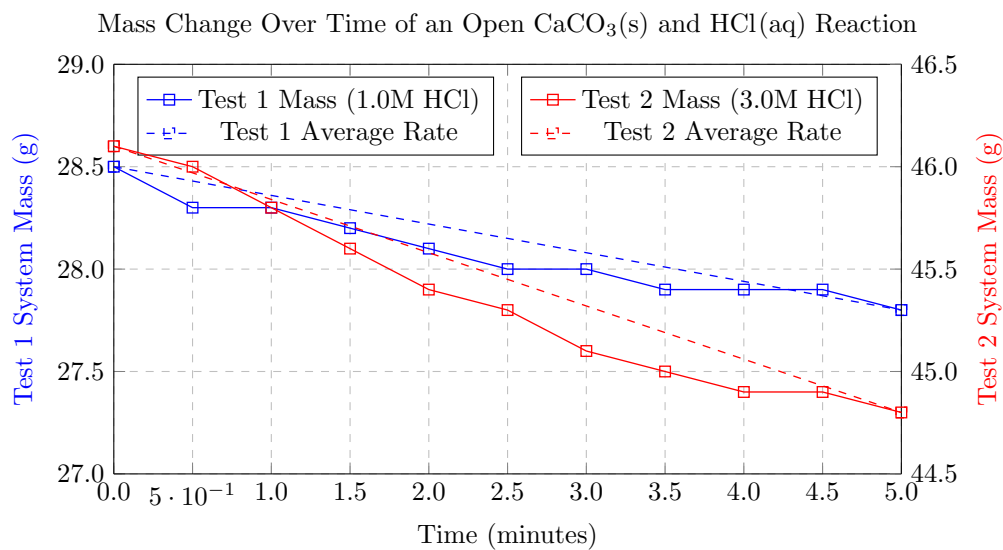| Time	Test 1 Mass (g)	Test 2 Mass (g)	Test 3 Mass (g)
0:00	2.5	2.5	2.5
0:30	2.5	2.4	2.4
1:00	2.5	2.4	2.4
1:30	2.5	2.4	2.4
2:00	2.5	2.4	2.4
2:30	2.5	2.4	—
3:00	2.5	2.3	—
3:30	2.5	2.3	—
4:00	2.5	—	—
4:30	2.5	—	—
5:00	2.4	—	—

4 Analysis

4.1 Concentration Test Analysis

Figure 1: Change in mass of the system with average rates.

5 Conclusion