

Results of Alka-Seltzer Experiments

In one Alka-Seltzer tablet, there are 1916 mg of the limiting reagent, sodium bicarbonate (f.w. 84.0). Thus the average rate of the reaction was calculated as the change in reactant molarity (from M of reactant present at the start, down to zero M at the end) divided by the time for the reaction to reach apparent completion (in seconds).

Expt #	Control	A) 2x tablets	B) warm H ₂ O	C) crushed	D) 2x H ₂ O
1	55	58			
2	80	88			
3	62	67			
4	56	66			
5			29		
6	60		30		
7	52		37		
8			40		
9	67			20	
10	60			40	
11	64			53	
12	69				60
13	51				47
14	46				23
15	62				57
16	50				48
Average time (s)	59.6	69.8	34.0	37.7	47.0
mg of lim reagent	1916	3832	1916	1916	1916
mmol lim reagent	22.8	45.6	45.6	45.6	45.6
mL water	100	100	100	100	200
Initial concn (M)	0.228	0.456	0.228	0.228	0.114
Avg Rate (M/s)	0.0038	0.0065	0.0067	0.0061	0.0024
Rate = (change in molarity of limiting reactant that reacted) / (average time for the reaction to reach apparent completion)					

Extra credit assignment

(due at beginning of class (2:00) on Tues Oct 14)

- Make a table like the following and fill it out
- In the Results column, explain in words what the results were and how they compare to the control
- Your answers in the "Why I think that happened" column do not need to be correct, but they do need to be what you think.

	Results of this experiment in class	Why I think that happened
A) <i>Two tablets instead of one</i>		
B) <i>Warm water instead of room temp water</i>		
C) <i>Tablet crushed first before adding to water</i>		
D) <i>Twice as much water used</i>		