Names: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

Physical Science

Rates of Reaction

Objective: The observe effect of concentration on reaction rate at a constant temperature.

Materials: Test tubes, stopwatch, strip of Mg, HCl, distilled water, 10 mL pipette, 150mL beaker, disposable droppers. HCl is corrosive; be careful!!!

Procedures:

1. Clean 3 medium sized test tubes.
2. Collect about 10mL of 0.1M HCl in a graduated cylinder.
3. Add 10 ml of 0.1M HCl to one, 10 ml of 1 M HCl to another, and 10 ml of 3 M HCl.
4. Collect 3 pieces of Mg ribbon.
5. Drop one of the pieces into the 0.1M HCl and record the time it takes to disappear.
6. Repeat for acids at 1M and 3M.
7. All products dump down the sink with lots of water.

Data Table:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Effect of Concentration of HCl (hydrochloric acid) on the Rate of Reaction | | | | | | | | |
| Reaction Conditions | Trial 1 (s) | Trial 2  (s) | Trial 3  (s) | Trial 4  (s) | Trial 5  (s) | Trial 6 (s) | Av. Time(s) | Rate  (1/time) | Rank |
| 0.1M HCl |  |  |  |  |  |  |  |  |  |
| 1M HCl |  |  |  |  |  |  |  |  |  |
| 3M HCl |  |  |  |  |  |  |  |  |  |

Analysis:

1. Write the balanced chemical equation for the reactions.

2. Explain why you observed the changes in rate of reaction?