

Design lab

[Environment](#), [Water](#)



DESIGN LAB Factors Affecting the Solubility of a Solid in a Liquid In this experiment, my goal is to determine the affect of temperature in the solubility of a solid in a liquid. Research Question: How does the change in the temperature affects the solubility of a solid in a liquid? Independent variables: Temperature of the Solution Dependent variables: The solubility of the solid substance Controlled Variables: * The pressure of the room. * The mass of zinc chloride reacted. * The volume of water in the beaker. * The equipment used. Materials: * Zinc chloride particles * Water Equipment: * Electronic balance (± 0.005 g) * Beaker, 1 liter * Graduated cylinder ($100 \text{ cm}^3 \pm 1 \text{ cm}^3$) * Bunsen Burner Method: 1. I obtained 5 grams of zinc chloride particles. Electronic balance is used to measure the mass of the particles. 2. I measured 50 cm^3 of water by pouring it to the graduated cylinder. 3. I put the 50 cm^3 water in to the beaker. 4. I inserted the zinc chloride particles in to the beaker. 5. I put the beaker on top of the Bunsen burner. 6. I repeated the same procedure in a different beaker but this time put the solution on top of a hotter Bunsen burner. 7. I watched for the solubility of the zinc chloride particles. 8. I looked for the amount of zinc chloride particles remained in every 15 seconds. 9. I made two more trials to collect sufficient and reliable data. How to control the variables: * I made sure that the windows and the doors were closed during the experiment, so that there will be no important changes of temperature and pressure in the room other than the Bunsen burner. * I used the same equipment in each trial to avoid any insufficient data. * The two separate procedures must take place in the same time and time intervals. While the experiment was taking place, I was comparing the amount of the zinc chloride left behind in the two

different beakers in the same time intervals. There was a significant difference in the two beakers. This is due to the temperature. The temperature had an important effect on the solubility of zinc chloride in water. As a result, it is clear that temperature affects the solubility of a solid in a liquid.