

EXPERIMENTAL PROCEDURE

Before we begin the experiment, we must first understand the theory behind it.

The first step in the experiment is to prepare the solution. We will use a 10% solution of sodium chloride in water. This solution will be used to measure the rate of diffusion. The rate of diffusion is the amount of substance that moves from one area to another in a given time. We will measure this rate by observing the change in concentration of the solution over time. The rate of diffusion is affected by several factors, including temperature, the size of the molecules, and the viscosity of the medium. In this experiment, we will focus on the effect of temperature on the rate of diffusion. We will perform the experiment at two different temperatures, 25°C and 35°C, and compare the results. The rate of diffusion is expected to increase with temperature, as the molecules have more kinetic energy and can move more quickly.

The second step in the experiment is to set up the apparatus. We will use a U-tube manometer to measure the rate of diffusion. The U-tube manometer consists of a U-shaped tube filled with a liquid, such as water or oil. One end of the tube is connected to the solution being studied, and the other end is open to the atmosphere. As the solution diffuses into the manometer, the liquid level in the tube will rise, and the difference in height between the two arms of the U-tube will be proportional to the rate of diffusion. We will use this difference in height to calculate the rate of diffusion. The U-tube manometer is a simple and effective way to measure the rate of diffusion, and it is commonly used in laboratory settings.

The third step in the experiment is to perform the experiment. We will perform the experiment at two different temperatures, 25°C and 35°C, and compare the results. We will use the U-tube manometer to measure the rate of diffusion at each temperature. We will record the difference in height between the two arms of the U-tube at regular intervals of time. We will then calculate the rate of diffusion for each temperature. The rate of diffusion is expected to be higher at 35°C than at 25°C, as the molecules have more kinetic energy and can move more quickly. We will also calculate the average rate of diffusion for each temperature. The average rate of diffusion is the total amount of substance that moves from one area to another divided by the total time. We will compare the average rates of diffusion at the two temperatures and see if they are significantly different.