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*The Dissolution Rate of Lactose Pills*

People who have a lactose deficiency want a fast-acting lactase pill so that they can absorb milk and milk products. What will the average dissolution rate be of four different brands of lactase pills if they are dropped into a hydrochloric acid solution? The purpose explored in this experiment is to determine which brand of lactase pill will dissolve the fastest, on average. If Super Lactase Enzyme is dropped into a pre-diluted hydrochloric acid solution, then it will, on average, dissolve the fastest. 250 milliliters of the hydrochloric acid was measured using a graduated cylinder, poured into a beaker, and then heated to thirty-seven degrees Celsius. The beaker was placed onto a magnetic stirrer that was then turned to high in order to get the solution going fast before the first pill was dropped in. Once a pill had dissolved, the stirrer was stopped and then the stopwatch. Five pills each of four brands of lactase pills were tested; then the times were averaged and recorded.

Once data had been recorded, it was determined that Super Lactase Enzyme had dissolved the fastest, as predicted. In order to properly simulate the hydrochloric acid within the digestive system, the hydrochloric acid must have a molarity of 0.1 to 0.01 Moles per liter. It was heated to thirty-seven degrees Celsius because that is the normal temperature of the body within. However, reagent-grade hydrochloric acid was used because reagent-grade chemicals have a sufficient purity level for use of physical testing, and in this case, it was simply heated and did not undergo a chemical change. Those with the deficiency cannot readily produce the enzyme lactase needed to breakdown lactose in milk and milk goods, so a lactase enzyme pill can provide them the enzyme and therefore they can digest the lactose.