

Sample Student CERs – Yeast Sphere Lab

Guiding Question: How does temperature affect the decomposition of hydrogen peroxide.

Claim: Changing the temperature from warm to cold increases the rise on seconds, so the reaction time is slower.

Temperature	Room Temperature 21C	Cold - 8C	Warm - 35C
Trial 1	26.83 seconds	45.39 seconds	21.31 seconds
Trial 2	29.20 seconds	47.06 seconds	20.80 seconds
Trial 3	26.30 seconds	44.02 seconds	22.35 seconds
Trial 4	29.43 seconds	43.14 seconds	20.67 seconds
Average	27.94 seconds	44.90 seconds	21.28 seconds

Justification: The hydrogen peroxide (reactant) was converted to two molecules of water and one molecule of oxygen (product). The catalase is what breaks down the hydrogen peroxide into the product. Rise time is the time a yeast sphere takes to float up, and reaction rate is the time of the reaction. So, if the yeast sphere takes a lot of time to float up, it has a low reaction rate, and if the yeast sphere takes a very little time to float up, its reaction rate is high, it happens because what makes the yeast spheres float up is oxygen, oxygen appears faster on warm water than on cold water. Yeast spheres on warm water take an average of 21.28 seconds to float up, it is a low rise time, so the reaction rate is high, and yeast spheres on cold water take an average of 44.90 seconds to float up, it is a high rise time, so the reaction rate is low.

Guiding Question: How does hydrogen peroxide concentration affect the rate of decomposition of hydrogen peroxide?

Claim: Adding more percentage of hydrogen peroxide concentration to hydrogen peroxide increases the decomposition rate of hydrogen peroxide.

Evidence:

H2O2 Concentration	Rise time in Seconds		
	0.3%	1%	3%
Trial 1	166 seconds	28 seconds	13 seconds
Trial 2	163 seconds	26 seconds	14 seconds
Trial 3	152 seconds	32 seconds	12 seconds
Trial 4	196 seconds	28 seconds	13 seconds
Average	169.25	28.5	13

Justification: Hydrogen peroxide is broken down and produces water and oxygen, and those compounds and elements make the decomposition of hydrogen peroxide. The role that catalase plays in the decomposition of hydrogen peroxide is very important since it's found in all living organisms exposed to oxygen, it also catalyzes the decomposition of hydrogen peroxide to water and oxygen like it's previously said. The time it takes for the yeast sphere to reach the top is connected to the reaction rate because by adding more percentage of hydrogen peroxide concentration creates a faster rise in time which means that it creates an increased rate of reaction. According to the data the higher the concentration of hydrogen peroxide, the more the rate of decomposition increases.