

Abstract

Project Title: Reducing the Carbon Footprint

Project ID: 247

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An increasing human population has created a greater energy demand. Fossil fuels are used to support the energy demand but are considered nonrenewable and pollute the environment. The burning of fossil fuels emits air pollutants including a group of chemicals known as greenhouse gases. Greenhouse gases are known for their role in creating global climate change, or the increasing of the Earth's average temperature. Renewable energy resources such as wood can also lead to the release of greenhouse gases. Carbon dioxide is one of the major greenhouse gases that is emitted from the burning of firewood. The burning of wood products releases carbon dioxide into the atmosphere most commonly through a chimney system. Most chimney systems do not have a system to capture emissions. The purpose of this experiment is to determine which chemical (activated carbon, potassium hydroxide, or sodium hydroxide) would have the greatest impact on decreasing greenhouse gas emissions by absorbing the carbon dioxide. The hypothesis states that if activated carbon, calcium hydroxide, and potassium hydroxide are all used to absorb carbon dioxide, then potassium hydroxide will be most efficient at absorbing carbon dioxide. Each chemical used to absorb carbon dioxide was tested four times and both a mean and standard deviation of carbon dioxide concentration (parts per million) were calculated. Statistical analysis was completed using an analysis of variance (ANOVA) and the hypothesis that potassium hydroxide would be the most efficient chemical at absorbing carbon dioxide was not supported at a 95% confidence interval.