Comparative Analysis of the Effectiveness of Cetyl Alcohol (Hexadecan-1-ol) and Shade Balls in Preventing Evaporation of Water

Radle, Alyse (School: North Ogden Junior High)

Water is the most important natural resource. There are many ways to prevent water evaporation, including the recently used “Shade Balls”. They are four inch polyethylene balls that cover reservoirs and preserve water. They prevent the formation of a carcinogenic chemical, bromate. Another method to prevent water evaporation is covering the surface with Cetyl Alcohol(Hexadecan-1-ol). This study was completed to compare how effective these methods are at preventing water evaporation. The procedures included covering a water surface with a double layer of 2 inch white plastic balls to simulate “Shade Balls”. The other methods tested were the application of various amounts of Cetyl Alcohol (Hexadecan-1-ol) to create a thin film over the water’s surface. The water surface was exposed to 125W Heat lamps for various time periods. Measurements taken included the amount of water evaporated along with water temperature. Results found that the amount of water evaporated using the double layer of white balls was 28.2%. The test completed using 13 grams of Cetyl alcohol had 76.9% evaporated, and the test containing 6.5 grams of Cetyl alcohol had 81.1% evaporated. The control had 85.7% of the water evaporated. This experiment demonstrated that a double layer of 2 inch white plastic balls covering a water sample had the least amount of water loss from evaporation compared with the tests using the various amounts of Cetyl alcohol. This study shows that “Shade Balls” are a viable method to prevent water evaporation.

Awards Won: