Ice Ice Maybe

Lockwood, Brooke-destinee

A major concern during winter is the ability to travel safely on roadways during inclement weather. Do you know which product melts more ice from roadways, keeps the roads clear from ice the best and has the least environmental impact? Does de-icing or anti-icing work the best and when applying melting agents to iced roadways, and is the traction value increased or decreased? To find these answers I tested sodium chloride, modified beet juice, calcium chloride, potash, foundry sand sodium chloride, lake sand sodium chloride and corn oil by-product at -2 and -10 degrees Celsius. I used a controlled environment and tested each product 10 times at the different temperatures making sure that each test would be consistent. After performing over 800 tests for anti-icing, de-icing, traction, and potential hydrogen soil tests. I found that modified beet juice melts more ice by 38%. Modified beet juice also kept the roads clear from ice by delaying the reformation of ice by 34% when compared to the other products. Since modified beet juice doesn't require the same amount of sodium chloride as the other treatments, the effect on the environment is reduced and has the pH level closest to the neutral. De-icing melted 56% more ice than anti-icing. Five of the seven products tested increased the traction value which allows our vehicles to drive more safely on the roadways. In conclusion, I determined when choosing a product that melts ice, delays the ice reformation time, has the least environmental impact while being cost effective, modified beet juice is the best product choice.

Awards Won:

Third Award of $1,000