

Making Cars Cool in the Summer

In recent years, more people have been staying in their cars due to natural disasters. Additionally, there have been cases in which infants have been left in a car for long periods. These incidents are very dangerous during the summer when temperatures are high. Therefore, we explored ways to efficiently suppress the rise in a car's internal temperature. We hypothesized that a car covered with wet towels could absorb heat, thereby lowering the temperature of a car's insides. In our experiment, we created car models. Wet towels were put inside cardboard surrounded by bubble wrap. We covered our car models with these wet towel constructions. Finally, we used a floodlight to heat up our car models covered with the wet towels. The floodlight's energy was set to match the power flux from the sun. The models were warmed by the floodlight for 10 minutes. Afterwards, we examined the temperature change in the car and the amount of water evaporation of the wet towels. Five trials were done in our experiment: one without a towel and one with a waterless towel; the remaining three trials used towels with water masses of 50 g, 75 g and 100 g, respectively. The results showed that temperature rise and evaporation have a proportional relationship until a certain water mass. The lower a car's temperature, the less evaporation. In future research, more than 100 g of water should be added to the towels. Secondly, the position of the towels should be changed to enhance the temperature suppression effect.