Study of Ultraviolet Light on Graphene Oxide/Nitrocellulose Films for Surface Protection

AlEssa, Sultanah (School: AlBassam Schools)

Exposure to sunlight on many building materials has a negative impact on several aspects such as corrosion, discoloration, cracking, and high energy consumption. The current project investigates the application of graphene oxide nanomaterial with nitrocellulose coating. The graphene oxide (GO) UV reflectance was developed in this research by adding nitrocellulose. The purpose of this research project is to use this coating on building materials to help reduce the physical damage, thereby reducing the cost of their maintenance and reducing the energy demand in air conditioning systems. For achieving these goals, two groups of six slides were prepared. The first group was coated with GO coating only and the other group was GO coated with a single layer of nitrocellulose in each sample. Then, the effect of UV by using UV-VIS spectrophotometer was measured to check the reflectivity of graphene oxide with nitrocellulose as a coating agent and compared it to the graphene oxide coating only. The best sample that shows high reflectivity is the sample of 6 ml of GO with single layer of nitrocellulose. Based on that, there is a potential that it can used as an excellent coating that protects the surface from the effects of UV and provide an economic return in construction as well as on energy.

Awards Won: