Using Titanium dioxide in coating outdoor advertising surfaces and graffiti ads in reducing atmospheric pollution in Egypt

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Abstract

Developing paint products that help save the environment and address climate change started several years ago, but people who are exposed to toxic air pollutants at sufficient concentrations whether indoor or outdoor, for long periods of time, their chances of getting cancer have increased also they might experience other serious health effects, such as reproductive system problems, birth defects, and aggravated asthma.

There are many types of coatings that purify the atmosphere, whether indoor or outdoor. These coatings can be used in advertising industry, especially external advertising and graphic ads. This technology has not been used in Egypt yet though its optimal use will provide fresh air and better life, reduce allergic chest diseases, and help purify the air for being able to breathe cleaner air.

This paper aims at clarifying the impact of air purification by heterogeneous photo catalysis (ultrafine titanium dioxide or Nanocrystalline titanium dioxide (TiO2) particles with diameters less than 100 nm) that can be coated on advertising outdoor materials and painted on street walls in Egyptian industrial cities. Coating outdoor advertisements with TiO_2 is an advanced surface coating technology designed to self-clean the surface, remove air and water contaminates, suppression of microbial growth, degrading hazardous organic pollutants into harmless substance.

This paper also seeks to contribute in reducing air pollution rates by using advertising as an intermediary to realize the fastest results in the shortest time. Producing safe and healthy living environment is what this paper hopes to achieve in Egypt in a short period of time by help applying these coatings to industrial cities. The effect of using titanium dioxide nanoparticles, identification of its applications, usage on advertising materials and its impact on environment were studied.

Some examples have been discussed and illustrated about using titanium dioxide in advertising and street paintings in air purification beside the statistical method used in analyzing the questionnaire presented to individuals. This paper follows the descriptive approach in collecting theoretical information related to Titanium dioxide and its role in converting outdoor advertisements to giant air purifying advertising systems, followed by presenting some international advertising models that used purifying titanium dioxide in ad painting.

Keywords:

Sustainable advertising, Titanium dioxide, self-cleaning, photocatalytic coating, nanotechnology air purification.

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