عنوان مقاله:

Investigation of the Impact of Graphene Nanostructure on the Mechanical Properties of Tires Compounds

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خلاصه مقاله:

Numerous researchers have shown interest in the new technique of adding various nanoparticles to elastic materials in an attempt to improve their properties. Physical qualities such as wear resistance, strength, thermal properties, tear limit, and elastic fracture were improved as a result of the atomic scale bonds between the nanoparticles and elastic compounds. These characteristics will in turn lead to high-quality and market-friendly products that can compete in international markets. According to the literature, various nanoscale materials including graphene, calcium carbonate (CaCO۳) nanoparticles, aluminum nanoparticles, diamond nanoparticles, nanoclays, and zinc oxide nanoparticles have been widely used in the rubber industry. Development of significant CaCO۳ nanoparticle structures has continued to date. Carbon nanotubes are another type of nanoscale that can be employed in the rubber industry. In this paper, the effect of graphene on the mechanical properties of rubber compounds was studied due to the significance of incorporation of graphene into the composites, especially into the rubber compounds. The obtained results demonstrated that mechanical properties including tensile strength, wear resistance, and elongation percentage could be easily enhanced by adding graphene to rubber materials. The authors hope that these enhanced compounds will be applicable to the industrial production.

کلمات کلیدی:

graphene, tensile strength, Rubber Compound, Stress and Strain