

Key Aspects in the design of silicone/graphene-based strain sensors for structural monitoring

Abstract

The graphene as a material used in engineering applications has been on the rise in the last decade due to being a material with interesting electrical and structural properties. This possibility offers a very wide range of technological applications. Among the potential fields of application is in the development of new sensors for structural applications. Recently the combination of graphene with cross-linked polysilicones has been proposed. This compound has interesting electrical and visco-elastic properties that have allowed the development of highly sensitive pressure and strain sensors. For this reason, their use as strain sensors in structures through structural health monitoring systems opens up an interesting field of research. The aim of this work is to study the mechanical behavior, and the characteristics required of graphene / polysilicone-based sensors to be applied effectively in structural health monitoring systems.