

## **Review of electrical properties of graphene conductive composites**

### **ABSTRACT**

Conductive composites include any composite having significant electrical conductivity. An electrically conductive filler such as carbon-based materials like graphene when added to insufficient quantities of a polymeric resin, a conductive composite is formed. The filler content in the composite when increased, the conductive fillers particles start to contact each other, and form a continuous path that make the free electrons travel easily and conduct the electricity. These conductive composite materials have lightweight, resistance to corrosion, and can be easily adapted to meet the needs of a specific application. Therefore, these conductive composites may replace the metals in some applications. The applications of conductive composites include, for example, electromagnetic interference shielding materials, coatings, sensors, batteries, electrodes. This review paper focuses on carbon-based materials such as graphene, as a conductive nanofiller, and it provides a review of the properties and synthesis of graphene. Then, the paper provides a comprehensive review of electrical properties of conductive graphene composites, and how the graphene is utilized to improve and enhance the electrical conductivity of some polymers such as epoxy resin to be used in more applications.

**Keyword:** Conductive composite; Carbon fiber; Graphene; Polymer; Electrical conductivity; Conductive ink