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PVA:PEDOT:PSS:CARBON BASED NANO-COMPOSITES FOR PRESSURE SENSOR APPLICATIONS

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A novel pressure sensor, PVA:PEDOT:PSS: carbon-based nanocomposites has been characterized by different physical analyses and measurements. Through SEM and optical images, we notice that carbon-based materials to the PVA/PEDOT: PSS solutions change the shape of the surface and its mechanical characteristics in addition to the change of resistance and be the highest possible at carbon black (7.98 x 10-1). XRD results show that the PVA/PEDOT:PSS: MWCNTs composite has the highest value of the strain (s= -0.0753) and the lowest value for grain size (G = 1.03456 nm). The adhesion properties, the casted drops solutions have high adhesion properties.

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1. Introduction

These days, there is a quick evolution of high performance smart materials, just as shrewd home and web of things innovation; in this way, sensors innovation has steadily offered into individuals' lives and pulled in broad enthusiasm from researchers, particularly, inflexible pressure sensors. The flexible pressure sensors have a wide scope of uses since they have amazing mechanical and electrical properties, for example, high adaptability, high affectability, high goals proportion, furthermore, fast reaction, among others [1]. Concentrates on flexible, wearable sensor apparatuses have been quickly expanding in the most recent decade.

In the most recent decade, flexible devices exhibited incredible potential in different fields[2]. One of the most significant applications is a flexible electronic skin (E-skin) for pressure detecting, which is initially presented with polymer-based exchanging lattices for showcases, robots, and others [2,3]. As of late, many survey papers concentrated for the most part on the improvement of flexible electronic devices for E-skin [3–5].

The kind of pressure sensor assumes an imperative job in work productivity and execution. Particularly, the absence of the high performance in pressure or power sensor is a noteworthy obstruction [6]. Most pressure sensors are just skilled in working at high-pressure ranges. Along these lines, more research is being completed in the evolution of sensors for low-pressure ranges [7,8]. Delicate polymers like polydimethylsiloxane (PDMS) are picking up enthusiasm for micro-fluidics and sensors on account of their high adaptability, capacity to be organized into wanted shape and size, and above all, their ability to deliver savvy materials by fusing nanofillers.[8,9] The way toward blending such nanocomposite-based smart materials are significantly testing as a result of two parameters: homogeneity and stability. Fitting the essential handling steps is still a key research center, which is definitive for showing signs of improvement, more brilliant and touchy materials for pressure sensors with superior. From the sensor point of view, the decision of nanofillers in the polymer network is urgent, as it contributes to the conductivity improvement of the protecting polymer just as different electrical parameter changes in the material, affected by the outside physical or compound changes [7,10]. The conductive

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