

Effect of carbonization and multi-walled carbon nanotubes on polyacrylonitrile short carbon fibre polymer composites

Vijay Kumar Srivastava

Indian Institute of Technology (BHU) Varanasi, India

Abstract

The present work deals with the characterization of multi-walled carbon nanotubes (MWCNTs) filled and unfilled short carbon fibre reinforced epoxy resin composites. Short carbon fibres (10 mm) were selected from different processing stages such as i) white colour polyacrylonitrile fibres (PAN), ii) pre-carbonized carbon fibres (Precarbonized CF), iii) oxidized carbon fibres (OPF), iv) fully carbonized carbon fibres (CF-low) and v) sized carbon fibres (CF Sized). The effects of MWCNTs on mechanical and electrical properties of short carbon fibres reinforced epoxy resin composites were characterized by three points bending test, hardness test, dynamic mechanical thermal analysis, electrical conductivity test, thermogravimetric analysis and scanning electron microscopy. The results show that the mechanical and electrical properties of the investigated materials markedly depend on the type of short fibres and on the presence of MWCNTs.



Biography:

Prof. Vijay K Srivastava has completed B.Tech. in Mechanical Engineering in 1977, M.Tech. in Machine Design in 1979 and Ph.D. in 1987 from Indian Institute of Technology (BHU) Varanasi, India. He is Professor in Mechanical Engineering Department, Indian Institute of Technology (BHU), Varanasi, India. He has published more than 155 papers in International Journals. He has supervised more than 40 master theses and 4 Ph.D. Thesis. Presently, he is FOUNDER PRESIDENT OF "ICRACM SERIES CONFERENCE." Prof. Srivastava, has also honored Adjunct Professorship in Faculty of Science, Engineering and Technology at Swinburne University of Technology (SUT), Hawthorn, Victoria, Australia for the period from 1st August 2016 to 30th August 2019. As an Adjunct Professor, Dr. Srivastava will determine the range of research activities with the faculty of Swinburne University for the benefits of students. The appointment is not as an employee of

Swinburne University but active collaborator of bilateral international project and are not entitled to salary from SUT.



Speaker Publications:

1. Srivastava, V. & Zamperlin, Nico & Fox, Bronwyn & Pegoretti, Alessandro. (2016). Effect of carbonization and multi-walled carbon nanotubes on polyacrylonitrile short carbon fiber- epoxy composites. *Polymer Composites*. 39. 10.1002/pc.24252.
2. Srivastava, V. & Jain, Pramod & Kumar, Parshant & Pegoretti, Alessandro & Bowen, Chris. (2020). Smart Manufacturing Process of Carbon-Based Low-Dimensional Structures and Fiber-Reinforced Polymer Composites for Engineering Applications. *Journal of Materials Engineering and Performance*. 10.1007/s11665-020-04950-3.
3. Azadmanjiri, Jalal & Srivastava, V. & Kumar, Parshant & Sofer, Zdeněk & Min, Jiakang. (2020). Graphene-Supported 2D transition metal dichalcogenide van der waalsheterostructures. 19.10.1016/j.apmt.2020.100600.

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