

Recycling and Waste Management

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Utilization of agricultural wastes in thermal insulators development

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The UAE has one of the highest levels of energy consumption per capita in the world. The commercial and residential buildings in UAE account for almost 70% of the total energy consumption. An on-going search for finding the proper alternatives to preserve energy and minimize energy losses, heat insulators, part of building materials, are steadily getting their importance as a means of saving energy. Extensive use of insulating materials in construction eventually results in lower energy consumption and has positive reflection on the environment by reduction in carbon emission. Heat insulating materials (polyurethane, polystyrene, and mineral wool) available in the local market are relatively expensive and suffer from the low mechanical properties, which limit its application in the construction process. Consequently, there is a necessity to develop and come up with a cheap insulating material that possesses excellent mechanical properties as

far as energy saving, prevention of water leak, and ease of handling and machining are concerned. Cost reduction of the thermal insulation materials can be achieved by using natural materials and/or wastes as a part of the main matrix, which will also contribute in the reduction of CO₂ emission. In this study, focus was made on the formulation and development of polymer-filler composite as an insulating material local agricultural waste materials (Date pits and Date Palm wood) as a filler. The solid samples produced were then subjected to different physical, mechanical and chemical tests to come up with a product formulation having competitive properties.

Speaker Biography

Abu-Jdayil B has completed his PhD in 1996 from Erlangen-Nurnberg University, Germany. He is a professor of chemical engineering at the UAE University. He has over 75 publications that have been cited over 1800 times, and his publication H-index is 24.

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