Mechanical Behaviour of Bio-Filler Reinforced Polymer Composite

by

Er. Unni Kisan
Assistant Professor
Department of Mechanical Engineering
Khwaja Moinuddin Chishti Language University, Lucknow

Associate Prof. Arun Mital
Associate Professor
Department of Mechanical Engineering
Institute of Engineering and Technology, Lucknow

Dr. Syed Asghar Husain Rizvi
Assistant Professor
Department of Mechanical Engineering
Khwaja Moinuddin Chishti Language University, Lucknow

Edition: 1st Edition

ISBN : 978-93-5786-484-8

PREFACE

In the new era, the scientist and researchers are solving the problem of the environment. Different type of elements affects the environment and ecological system which imbalances the ecological cycle. The manufacturing industries produce a lot of products made by synthetic fiber which are not efficient for the nature as they are not bio-degradable. In this case, the scientist and researchers are using natural and bio-degradable material to manufacture the composite product. The origin of natural fiber is through plant fiber, mineral fiber and animal fiber. This is the natural reinforcement which is used in the manufacturing of composite materials. The composite material is made by the amalgamation of the matrix and reinforcement. The present work illustrates the analysis of the mechanical behavior of bio-filler reinforced polymer composite. The reinforcement and matrix are natural and biodegradable which are used for manufacturing the composites. The reinforcement used is bio-fillers like groundnut shell, rice husk and jute. The groundnut shell, rice husk and jute are available in the nature which is natural fiber. The polymer matrix is epoxy which is thermosetting polymer. The epoxy is bio degradable because it has covalent bond molecular structure. The composite is prepared by the hand lay-up technique. For obtaining perfect size, the rice husk and groundnut shell are grinded in the grinder. The rice husk and groundnut shell size should be approximately 1-2 mm. The jute is used in the woven sheet form and is an intermediate part of the composite. A sandwich type composite is produced by the combination of rice husk, groundnut shell, jute and epoxy. The bio-filler reinforced polymer composite is bio-degradable and is reliable.

CONTENTS