

Material Management : Composite Materials

Pagare Roshni Rajendra, Shejwal Rushikesh Sopan, Shinde Omkar Sanjay,

Tuse Tushar Umesh, Thakare Aditya Kiran

Department of Mechanical Engineering,

Santosh N Darade Polytechnic, Yeola, Nashik, Maharashtra, India

Abstract: *Composite materials, formed from two or more distinct constituents, offer superior properties such as high strength-to-weight ratios and corrosion resistance, making them essential in industries like aerospace, automotive, and construction. This paper reviews the main types of composites, including polymer, metal, ceramic, and natural fiber matrices, alongside their manufacturing processes such as hand lay-up and resin transfer molding. While composites provide significant advantages, challenges such as high costs and recycling difficulties remain. Future developments in sustainability, nanocomposites, and smart technologies are set to enhance their applications and environmental impact, positioning composites as a key player in modern engineering.*

Keywords: Composite, Strength, aerospace, automotive, matrices, resin.