

Confluence of Multidisciplinary Sciences for Polymer Joining

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 Springer

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About This Book

This book adopts a holistic approach to present a course on plastic joining for researchers. Basic terminologies of plastics and the manufacturing processes deployed for joining them are discussed to benefit learners belonging to all strata of academics, industries and research sectors. The evolution of plastic joining and the advancements over the last three decades as reported in literatures have been comprehensively presented. Interesting observations, technical glitches, unusual material behaviour, inexplicable process behaviour and the challenges encountered during the research voyage of plastic joining have been briefed. This is followed by case studies on polymer joining for various combinations of thermoplastic materials espoused for components in automobile sectors. The discussion involves raw material purchase, design procedures, precautions to be undertaken, experimentation for sample preparation, welding trials, process parametric analysis and testing and characterization of polymer weld samples. To understand, examine, analyse and infer data of polymer welding in detail demands versatile knowledge on various streams of science for which it is imperative to record the signals without distortions at various stages of transfer. With the advent of sophisticated sensors/transducers and data acquisition system, several new coordinates of science for result interpretations have originated which are embedded in the case studies. The contents of this book are expected to systematically disseminate the knowledge of science underlying polymer joining to engineers.

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