

Application of Mixture Design of Experiment Approach for Design for Manufacturability (DFM)

Shreeranga Bhat

Department of Mechanical Engineering, St Joseph Engineering College, Mangaluru, 575028, India

shreeranga1981@gmail.com

Abstract:

The article intended to utilize statistical and engineering techniques to design and develop novel materials to ensure Design for Manufacturability (DFM). The Mixture Design of the Experiment (DOE) is effectively utilized to model and optimize a novel material's parameters of mixture components. In addition, multi-response optimization is effectively integrated with Mixture DOE to determine the parameters for DFM. Regression models are established and validated for further research and development. The study provides a step-by-step approach for practitioners and academicians to effectively integrate statistical techniques, material science, and mechanical engineering concepts for novel material development.

Keywords: Mixture DOE, Modelling, Optimization, Multi-response, DFM