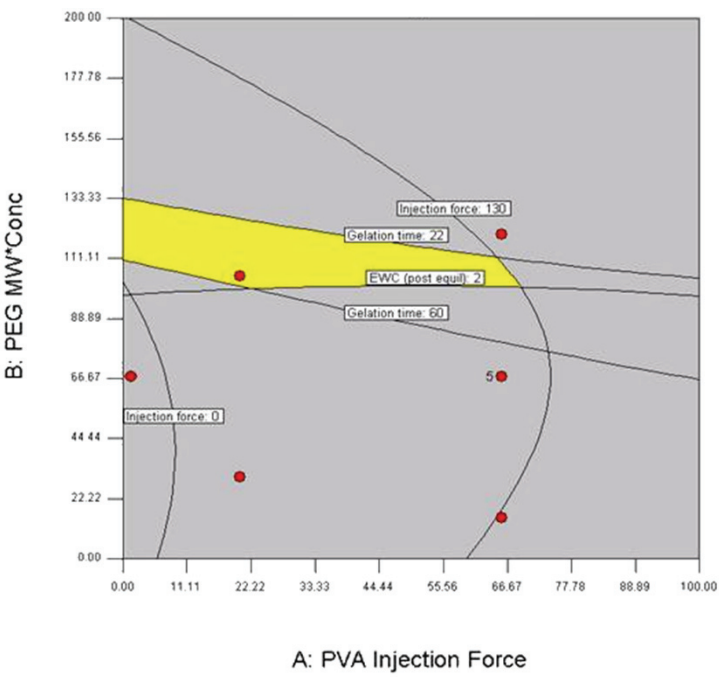
Design of Experiments / Formulation Development

Summary

Traditional strategies for material development can be involved, requiring gradual iteration towards a target set of properties. Design of Experiments (DoE) allows a structured, statistically robust approach to material development and generates predictive tools for determining optimal formulations from a minimum of experiments. Although DoE does not replace intuition and inspiration, the careful use of the technique allows large parameter spaces to be explored in a highly efficient manner.

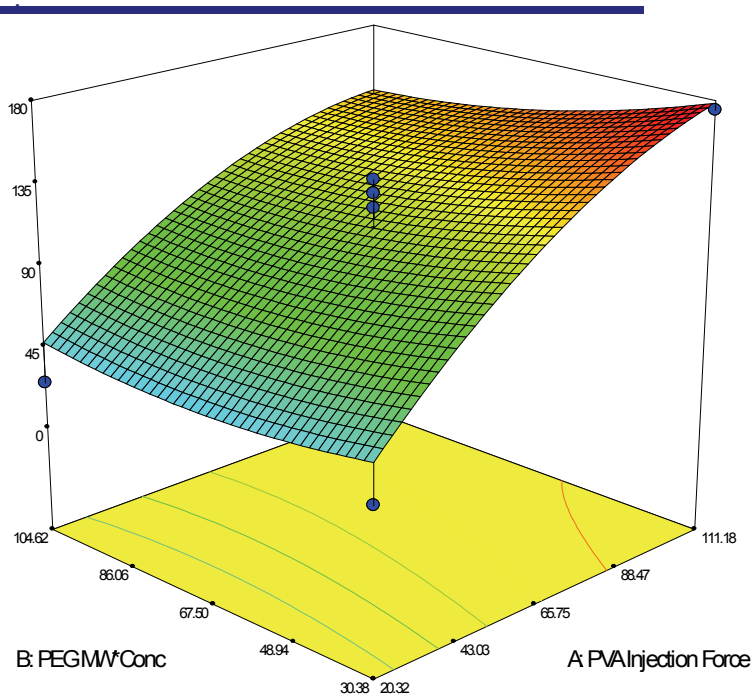


Description

Design of Experiments (DoE) is a technique for developing an experimental matrix design that requires specific inputs, measurable outcomes, weighted interests, and experience in reviewing the output. At CPG, our experience will help you plan the shortest route to improved product performance. Utilization of a well planned DoE saves supplies, energy, and time. Our experience can help you minimize necessary resources while maximizing product performance. Our broad range of backgrounds allows us to help our clients in choosing relevant parameters and decision weights. Efficient lower cost Research Development and problem solving is possible due to more information from fewer experiments, and the outcomes can be used to predict new formulations and materials.

Data and outcomes

Experience is important with DoE results. Often, there are a few more steps necessary to make the most of the DoE data because a clear understanding of the physical processes involved is critical to fully leverage the experimental results. As a project progresses, priorities can change. In this situation, the DoE data can be manipulated to address changes in customer interests or needs and can be used to predict properties that were not part of the initial requirements.



Uses

- Formulations
- Material optimization
- Property prediction

Cambridge Polymer Group

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Rev: 06/03/11

ANALYZE • RESEARCH • CREATE

Cambridge Polymer Group, Inc. is a contract research laboratory specializing in materials. We partner with our clients to solve problems utilizing our multi-disciplinary research team and full service laboratory.

We work with clients throughout the product life cycle to:

- **Develop new materials**
- **Design prototypes for proof-of-concept studies**
- **Create and execute experimental design**
- **Validate and verify manufacturing processes**
- **Perform root-cause analysis in product failures**

Cambridge Polymer Group, Inc. was founded in 1996 to provide a cost-effective resource for testing, research and development to clients who need periodic access to Ph.D.-level scientists and their support structure. We have developed a host of testing methods and materials for our clients, which number more than 300.

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