LESS IS MORE: OPTIMAL EXPERIMENTAL DESIGN IN PHARMACEUTICAL PRODUCTION LINES

Introduction

The pharmaceutical industry's current hot topic is the transition to more efficient, controlled and sustainable manufacturing ways. The ConsiGma™-25 process is an example of such process innovation, achieving continuous wet granulation as preparation for tablet production. Despite being robust, the process is complex and needs computational modeling to understand and optimize its operation. The data collection for this research project is the most expensive and time-consuming step. In this thesis, the scope is on the development of a more efficient data collection method.

Methodology

This master thesis involves the development of a new method for data collection. Optimal experimental design or model-based design of experiments (MBDoE) uses system knowledge (translated in a model) for the design of information-rich experiments. Model based design of experiments will help us to increase the added value of an experiment and/or reduce the experimental workload.

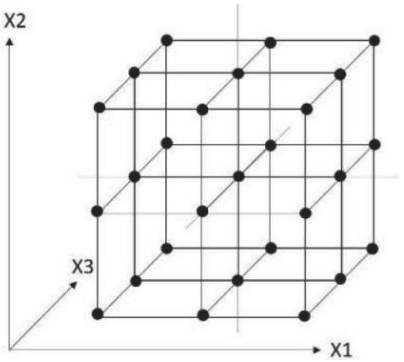

Figure 1 – Traditional three-level full factorial design matrix.

Objectives of the thesis

The goal of this thesis topic is to develop and implement a general method for MBDoE in a practical environment of continuous pharmaceutical production. There are also possibilities to test the developed method experimentally in a pharmaceutical lab. This work is performed in a precompetitive consortium with Janssen Pharmaceutics, UCB, and Pfizer.

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BACKGROUND

C&B, L&V, M

LANGUAGE

English / Dutch

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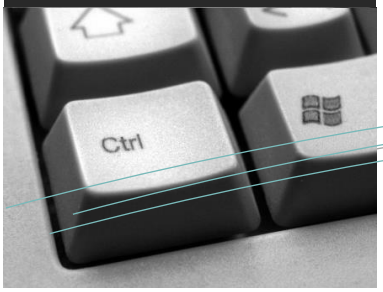

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