

A grand model for chemical product design - DTU Orbit (09/11/2017)

A grand model for chemical product design

Chemical engineering has been expanding its focus from primarily business-to-business products (B2B) to business-to-consumer (B2C) products. The production of B2B products generally emphasizes on process design and optimization, whereas the production of B2C products focuses on product quality, ingredients and structure. Market and competitive analysis, government policies and regulations have to be explicitly considered in product design. All these considerations are accounted for in the Grand Product Design Model, which consists of a process model, a property model, a quality model, a cost model, a pricing model, an economic model as well as factors such as company strategy, government policies and regulations. This article introduces the model and highlights selected aspects of the model with two case studies. One is a die attach adhesive that illustrates how pricing affects profitability, and how product composition changes with market conditions. Another is a hand lotion that illustrates how product quality affects the profit. (C) 2016 Elsevier Ltd. All rights reserved.

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