MULTI RESPONSE SURFACE OPTIMIZATION IN INDUSTRIAL PLASTIC BOTTLE USING FUZZY PROGRAMMING APPROACH

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ABSTRACT

Plastic packaging is loved by most of consumer and began to shift other packaging such as glass and paper packages. Nevertheless, plastic consumption in Indonesia is still low. Lack of plastic consumption in Indonesia is indicated due to lack of good quality plastic produced by Indonesian factories. PT. AAM is a company that is engaged in plastic bottle manufacturing. One of their product is Chamomile 60 ml bottle. In this product, there are 2 important quality characteristics to be noted, they are volume and inner mouth diameter of bottle. In producing Chamomile 60 ml bottle, thing to note is how to setting barrel temperature, blowing time, and blowing pressure to obtain the volume and inner mouth diameter optimum. Amrillah (2006) conducted a study on the response surface optimization using desirability function approach and obtained composite desirability of 0.534. In this research, we conducted the study using the same data with Amrillah (2006) but employ different methods, namely multi response surface using fuzzy programming approach to obtain better results than Amrillah (2006). With composite desirability 0.665.

Keyword : Multi response surface, Fuzzy Programming, Desirability, Deviation.