FUZZY CONTROL TO STUDY CRUDE FRACTIONATOR

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Lars Ebbesen in 1992 has studied about the crude fractionator operating in Kalundborg Refinery. Kalundborg refinery operates with 10 to 12 different crudes on a regular basis. To study the crude fractionator he mainly uses mass and enthalpy balance method. However at the end of his study he has made it clear that in the case of naphtha 95% distillation stayed within 1°C of its set points. After two hours the quality during crude switches was different indicating a lower quality. The main reason for this may be due to the improper prediction of the set point of temperature for naphtha. To overcome this situation we, in this paper, using the ranges of temperature for the naphtha distillation given by [1] adopt the fuzzy control to obtain the probable set-point. We feel that the prediction of set-point for naphtha using this method will be better as this gives a range within which the set-point should fall thus consequently giving the ranges of temperature for the maximum distillation of naphtha. Thus in this paper, we have used only the temperature for naphtha by different distillation of crude refinery, and the method to obtain the set-point is distinctly different. This paper consists of three sections. In section 1, we give the fuzzy control technique used by us. In section 2, we describe the crude refinery. In section 3, we adopt fuzzy control and the data given in [1] and obtain the set-point for naphtha.