An Optimizing Controller for Crude Oil Blending Operations

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Abstract
This paper presents the application of a “bias-update” optimizing controller to the blending of crude oil. The “bias-update” is carried out based on a non-linear mixing model. The goal is to meet contractual quality (i.e. density) and to minimize raw material costs. The proposed controller is compared in simulation to its linear counterpart. Results show that the non-linear controller meets the quality requirements whilst the linear controller produces degraded blends at a lower cost.

Keywords: crude oil blending, optimizing control

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