

## OCTANE NUMBER PREDICTION FOR GASOLINE BLENDS

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### **Abstract**

Today, the world production and consumption of gasoline steadily grow. Therefore, gasoline blending is an important unit operation in refineries. A trustworthy and reliable model for the blending process is beneficial for the plant operation and prediction of gasoline qualities. Gasoline production technology is specific to each refinery, which is associated with a different set of technological processes in the enterprise, the availability of raw materials and their value in each case. Optimization of blending process is one of the most difficult optimization problems. This is primarily because the main characteristic of gasoline – octane number is not subject to the law of additivity. Thereby, hydrocarbon composition of flows, such as reformates, isomerates, different octane boosters, which are involved in the compounding process, is not constant quantity even for the same processes and is changed depending on the composition of feedstock, process conditions and catalyst activity. Thus, the creation of a reliable mathematical model, which allows calculating the octane numbers of flows involved in the blending process, becomes urgent because gasoline demand increases annually.

Keywords: gasoline, octane number, blending