Scheduling with virtual demand profiles for chemical plant

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Daily demand in the scheduling horizon is one of the most important input data for production scheduling. In real plants, however, collecting all demand information for the whole time horizon and forecasting the daily demand by traditional forecasting methods are very difficult. After all, the daily demand fluctuates according to market prices and customers, and it is hard to get a general trend of the daily demand. In this study, the concept of the virtual demand profile (VDP) is introduced and VDP is used for production scheduling. VDP is the demand profile built by probabilistic distribution and random values through analyzing historical demand data. In order to make the VDP better represent the real demand, several or hundreds of the VDPs are used for the scheduling problem in this approach. The VDPs are applied to various scheduling cases to show the advantages of using VDPs for production scheduling.