Application of Online Optimization Technology to Chemical Plants

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The application of online optimization technology to a chemical process is no longer troublesome because many chemical plants have introduced real-time database systems. In this presentation, we will introduce how to apply the online optimization to chemical processes by utilizing the real-time database systems. In addition, we will present a development of an online optimization system and its application to a chemical plant. The developed online optimization system consists of four major components: the optimization engines, the system manager, the model manager, and the optimization client. The optimization engines locate the optimal operating conditions and calculate key performance indices of chemical equipments. The system manager serves to retrieve operational data to be used for the optimization and to put the optimal values from the engine, by communicating with a real-time database system. The model manager builds and updates the optimization models. The optimization client serves to show the current and optimal operating values and the key performance indices on the process flow diagrams. The energy cost has been significantly reduced since the optimization system had been applied to the chemical plant.