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Information models for planning and scheduling of chemical processes

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Abstract

The Process Data Exchange Institute (pdXi) has developed an information model for process engineering data. The pdXi information model is designed to facilitate the storage and exchange of steady-state process engineering data. Batch and real-time operating data can be stored and exchanged using the pdXi model as snapshots (data that characterizes the process at a specific point in time). Snapshots are an inefficient method for storing and exchanging batch and real-time data. Also, snapshots do not contain data that describe the processes that occur between snapshots. Sharma and Book modified the basic structure of the pdXi information model to make it efficient for storing and exchanging batch, real-time and steady-state process data and to include descriptions of the processes that occur. Large portions of the pdXi model that capture data describing chemical process equipment, process simulators, and process materials fit into the modified structure. The International Society for Measurement and Control

(ISA) is developing an information model for batch scheduling and control [ISA 1995 S88.01. *Batch control part 1: models and terminology*. ISA.]. The current draft of the ISA model is not harmonized (designed to fit together) with the pdXi model (original or modified). The ISA model captures data that describe process equipment and materials and product recipes in a way that is not computer-interpretable. The data must be human-interpreted or a format must be defined for these data so that they can be parsed. The modified pdXi information model has been further extended to include planning and scheduling data. The model captures planning and scheduling data as well as the progress equipment and materials data in a computer-interpretable form. the model has been tested using representative scheduling problems from the chemical process industry.



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Keywords

Batch control; Information models; Production planning; Process scheduling; pdXi; ISA S88

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upwards rewards determinants, while the mass defect is not formed.

