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Validity and Accuracy of the Various Primary Models; 2.5 Summary References3 Method of Minimal Evidence: Diagnostic Strategy Details; 3.1 Overview; 3.2 Introduction; 3.3 MOME Diagnostic Strategy; 3.3.1 Example of MOME SV&PFA Diagnostic Rules' Logic; 3.3.2 Example of Key Performance Indicator Validation; 3.3.3 Example of MOME SV&PFA Diagnostic Rules with Measurement Redundancy; 3.3.4 Example of MOME SV&PFA Diagnostic Rules for Interactive Multiple-Faults; 3.4 General Procedure for Developing and Verifying Competent Model-Based Process Fault Analyzers; 3.5 MOME SV&PFA Diagnostic Rules' Logic Compiler Motivations; 3.6 MOME Diagnostic Strategy Summary References4 Method of Minimal Evidence: Fuzzy Logic Algorithm; 4.1 Overview; 4.2 Introduction; 4.3 Fuzzy Logic Overview; 4.4 MOME Fuzzy Logic Algorithm; 4.4.1 Single-Fault Fuzzy Logic Diagnostic Rule; 4.4.2 Multiple-Fault Fuzzy Logic Diagnostic Rule; 4.5 Certainty Factor Calculation Review; 4.6 MOME Fuzzy Logic Algorithm Summary; References; 5 Method of Minimal Evidence: Criteria for Shrewdly Distributing Fault Analyzers and Strategic Process Sensor Placement; 5.1 Overview; 5.2 Criteria for Shrewdly Distributing Process Fault Analyzers; 5.2.1 Introduction
5.2.2 Practical Limitations on Target Process System Size5.2.3 Distributed Fault Analyzers; 5.3 Criteria for Strategic Process Sensor Placement; References; 6 Virtual SPC Analysis and Its Routine Use in FALCONEERTM IV; 6.1 Overview; 6.2 Introduction; 6.3 EWMA Calculations and Specific Virtual SPC Analysis Configurations; 6.3.1 Controlled Variables; 6.3.2 Uncontrolled Variables and Performance Equation Variables; 6.4 Virtual SPC Alarm Trigger Summary; 6.5 Virtual SPC Analysis Conclusions; References; 7 Process State Transition Logic and Its Routine Use in FALCONEERTM IV
7.1 Temporal Reasoning Philosophy

Sommario/riassunto

Automated fault analysis is not widely used within chemical processing industries due to problems of cost and performance as well as the difficulty of modeling process behavior at needed levels of detail. In response, this book presents the method of minimal evidence (MOME), a model-based diagnostic strategy that facilitates the development and implementation of optimal automated process fault analyzers. With this book as their guide, readers have a powerful new tool for ensuring the safety and reliability of any chemical processing system.