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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chemical Process Simplification: Improving Productivity and Sustainability; Contents; Preface; 1 Process Simplification: Basic Guidelines; Application Areas; References; 2 Process Solutions; Examples of Problem Solving; Mass Balance; Monitoring Plant Operations; Filter Feed Pump; Ester Manufacturing Process; Simplification of a Product Solution Process; Process "On Stream Time"; Inventory Management and Process Repeatability; Sampling and Size; Antioxidant Production; Novolac Resin; Alkyd Resins; Paint Making; Continuous-Process Latex Polymer; Waste Paint; Wastewater Treatment

Electroplating Chemicals Specialty Surfactant Manufacture; Decanter; Active Pharmaceutical Ingredients; API Intermediates and Pollution; Solving Process Problems; Maintaining Pump Prime; Problem; Degas the Ammonia; Take out Torque; Problem; Slowly Add Fine Powder; Stop Solvent Losses; Problem; Cut Back the Mixing Time; Choose a Pump Wisely; Problem; Try a Rotary Disk Pump; Know When the End is Near; Problem; Use an Inline Viscosity Measuring Device; Vanquish Material Variations; Problem; Choose Monitoring Point Carefully; Fend off Reboiler Fouling; Problem; Remove the Fatty Oil First Prevent Heat Exchanger Plugging Problem; Recycle Concentrated Solution; Making Sense of Temperature Sensing; Problem; Poor Mixing; Boost the Reliability of a Solvent Supply Pump; Problem; Use Eccentric Reducers; Uncovering the Cause of Solid Buildup; Problem; Look at the Material Balance; Consider Options for Automation; Problem; Automation can also Boost Morale; Sticky Valve; Problem; Focus on Heat-Tracing Failure; Quick Fix Needed!; Problem; Eventually, Do a Redesign; Clarify a Clogged Caustic Conundrum; Problem; Try Recirculation; Succeed through Thick and Thin; Problem Maintain the Temperature Quell a Quality-Control Confrontation; Problem; Improve the Design; Get out of the Soup; Problem; Use an Educator; KAYO a Cascade Control Complication; Problem; Redesign the Process; Use of Azeotrope to Improve a Process; Problem; Alternate Process; Use of Heat Exchanger in the Manufacture of Coatings; References; 3 Commonalities of Businesses; Products Produced by Reactions; Examples; Simplification Strategy; Amines and Other Products; Emulsion Polymerization; Formulated Products; Method of Production; Surface Coating Manufacturing; Architectural Coatings Continuous Paint Processing Cosmetic Ingredients; Equipment Commonalities; Tanks, Reactors, and Vats; Dispersers; Similarities in Coatings; Use of Architectural Coatings in Paper Manufacture; Surplus Paint in Other Applications; Ink-Jet Printing for Cheaper Solar Cells; References; 4 Laboratory Process Development; Laboratory Development; Mass Balance; Chemicals Produced by Reaction; Examples; Considerations for the Development of a Continuous Process; Solvent Selection; Solvent Separation; Phase Separation; Azeotropic Distillation; Kinetics; Chemical Blending Operation; References

5 Mass and Heat Balance

Sommario/riassunto

While emphasizing conservation and sustainable strategies, this book provides steps to improve the manufacturing technologies used in creating products. By simplifying the chemistry, process development, manufacturing practices and processes, the book provides a structured approach to producing quality products with little waste, making the process not only efficient but environmentally friendly. Illustrated with case studies, this is an essential resource for chemical engineers, chemists, plant engineers, and operating personnel in any chemical related businesses.