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Autore	Kister Henry Z
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Nota di contenuto	1. Troubleshooting Distillation Simulations; 2. Where Fractionation Goes Wrong; 3. Energy Savings and Thermal Effects; 4. Tower Sizing and Material Selection Affect Performance; 5. Feed Entry Pitfalls in Tray Towers; 6. Packed-Tower Liquid Distributors: Number 6 on the Top 10 Malfunctions; 7. Vapor Maldistribution in Trays and Packings; 8. Tower Base Level and Reboiler Return: Number 2 on the Top 10 Malfunctions; 9. Chimney Tray Malfunctions: Part of Number 7 on the Top 10 Malfunctions; 10. Draw-Off Malfunctions (Non-Chimney Tray) Part of Number 7 on the Top 10 Malfunctions11. Tower Assembly Mishaps: Number 5 on the Top 10 Malfunctions; 12. Difficulties During Start-Up, Shutdown, Commissioning, and Abnormal Operation: Number 4 on the Top 10 Malfunctions; 13. Water-Induced Pressure Surges: Part of Number 3 on the Top 10 Malfunctions; 14. Explosions, Fires, and Chemical Releases: Number 10 on the Top 10 Malfunctions; 15. Undesired Reactions in Towers; 16. Foaming; 17. The Tower as a Filter: Part A. Causes of Plugging-Number 1 on the Top 10 Malfunctions; 18. The Tower as a Filter: Part B. Location of Plugging-Number 1 on the Top 10 Malfunctions19. Coking: Number 1 on the Top 10 Malfunctions; 20. Leaks; 21. Relief and Failure; 22. Tray, Packing, and Tower Damage: Part of Number 3 on the Top 10 Malfunctions; 23. Reboilers That Did Not Work: Number 9 on the Top 10 Malfunctions; 24. Condensers That Did Not Work; 25. Misleading Measurements: Number 8 on the Top 10

Malfunctions; 26. Control System Assembly Difficulties; 27. Where Do Temperature and Composition Controls Go Wrong?; 28. Misbehaved Pressure, Condenser, Reboiler, and Preheater Controls; 29. Miscellaneous Control Problems; Distillation Troubleshooting; References; Index.

Sommario/riassunto

The last half-century of research on distillation has tremendously improved our understanding and design of industrial distillation equipment and systems. High-speed computers have taken over the design, control, and operation of towers. Invention and innovation in tower internals have greatly enhanced tower capacity and efficiency. With all these advances, one would expect the failure rate in distillation towers to be on the decline. In fact, the opposite is the case: the tower failure rate is on the rise and accelerating. Distillation Troubleshooting collects invaluable hands-on experiences acquired in dealing with distillation and absorption malfunctions, making them readily accessible for those engaged in solving today's problems and avoiding tomorrow's. The first book of its kind on the distillation industry, the practical lessons it offers are a must for those seeking the elusive path to trouble-free distillation. Distillation Troubleshooting covers over 1,200 case histories of problems, diagnoses, solutions, and key lessons. Coverage includes: Successful and unsuccessful struggles with plugging, fouling, and coking; Histories and prevention of tray, packing, and internals damage; Lessons taught by incidents and accidents during shutdowns, commissioning, and abnormal operation; Troubleshooting distillation simulations to match the real world; Making packing liquid distributors work; Plant bottlenecks from intermediate draws, chimney trays, and feed points; Histories of and key lessons from explosions and fires in distillation towers; Prevention of flaws that impair reboiler and condenser performance* Destabilization of tower control systems and how to correct it* Discoveries from shutdown inspections; Suppression of foam and accumulation incidents. A unique resource for improving the foremost industrial separation process, Distillation Troubleshooting transforms decades of hands-on experiences into a handy reference for professionals and students involved in the operation, design, study, improvement, and management of large-scale distillation.