1. Record Nr. UNINA9911004753003321

Titolo	Mixing in the process industries / / editors, N. Harnby, M.F. Edwards, A. W. Nienow
Pubbl/distr/stampa	Oxford ; ; Boston, : Butterworth-Heinemann, 1997
ISBN	1-281-07723-2 9786611077235 0-08-053658-1
Edizione	[2nd ed., pbk. ed.]
Descrizione fisica	1 online resource (429 p.)
Altri autori (Persone)	HarnbyN EdwardsM. F NienowA. W
Disciplina	660/.284292
Soggetti	Mixing Mixing machinery
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Mixing in the Process Industries; Copyright Page; Contents; Preface; List of contributors; Chapter 1. Introduction to mixing problems; 1.1 Range of problems; 1.2 Mixing mechanisms; 1.3 Assessment of mixture quality; 1.4 Rheology; Notation; References; Chapter 2. Characterization of powder mixtures; 2.1 A qualitative approach; 2.2 A quantitative approach; 2.3 A typical mixture analysis; 2.4 Non-ideal mixtures; References; Chapter 3. The selection of powder mixers; 3.1 The range of mixers available; 3.2 Selection based on process requirements; 3.3 Selection based on mixture quality 3.4 Selection based on mixing costs3.5 Selection decision chart; References; Chapter 4. Mixing in fluidized beds; 4.1 Introduction; 4.2 Fundamentals offluidization; 4.3 Types of mixing problems; 4.4 Mixing in non-segregating systems; 4.5 Mixing in segregating systems; 4.6 Concluding remarks; Notation; References; Chapter 5. The mixing of cohesive powders; 5.1 Introduction; 5.2 Interparticulate forces; 5.3 Selection of mixer; 5.4 Mixture quality for cohesive systems; References; Chapter 6. The dispersion of fine particles in liquid media; 6.1 Introduction; 6.2 Stages in the dispersion process

6.3 Other considerationsReferences; Chapter 7. A review of liquid mixing equipment; 7.1 Introduction; 7.2 Mechanically-agitated vessels; 7.3 Jet mixers; 7.4 In-line static mixers; 7.5 In-line dynamic mixers; 7.6 Mills; 7.7 High-speed dispersing units; 7.8 Valve homogenizers; 7.9 Ultrasonic homogenizers; 7.10 Extruders; 7.11 Equipment selection; References; Chapter 8. Mixing of liquids in stirred tanks; 8.1 Introduction; 8.2 Power input; 8.3 Flow patterns; 8.4 Flow rate-head concepts; 8.5 Turbulence measurements; 8.6 Mixing time; 8.7 Mixing efficiency; Notation; References
Chapter 9. Jet mixing9.1 Introduction; 9.2 Fluid dynamics of turbulent jets; 9.3 Jet mixing in tanks; 9.4 Jet mixing in tubes; Notation; References; Chapter 10. Mixing in single-phase chemical reactors; 10.1 Introduction; 10.2 Mechanisms of mixing; Notation; References; Chapter 11. Laminar flow and distributive mixing; 11.1 Introduction; 11.2 Laminar shear; 11.3 Elongational (or extensional) laminar flow; 11.4 Distributive mixing; 11.5 Dispersive mixing in laminar flows; 11.6 Applications to blending and dispersing equipment; 11.7 Assessment of mixture quality; Notation; References
Chapter 12. Static mixers12.1 Introduction; 12.2 Laminar mixing; 12.3 Turbulent mixing; 12.4 Conclusions; Notation; References; Chapter 13. Mechanical aspects of mixing; 13.1 Introduction; 13.2 The production of 'steady' forces on an agitator and transmission of power; 13.3 The EEUA method of shaft sizing; 13.4 Fluctuating forces and vibrations; 13.5 Shaft design to accommodate fluctuating loads - the FMP approach; 13.6 Fatigue analysis; 13.7 Seals, gearboxes and impellers; 13.8 Economic considerations; 13.9 Overall conclusions; Notation; References; Appendix 13.1: Worked examples
Chapter 14. Dynamics of emulsification

Sommario/riassunto

This volume is a valuable reference work for the student and the practising engineer in the chemical, pharmaceutical, minerals, food, plastics, paper and metallurgical industries.The second edition of this successful text has been thoroughly rewritten and updated. Based on the long running post-experience course produced by the University of Bradford, in association with the Institution of Chemical Engineers, it covers all aspects of mixing, from fundamentals through to design procedures in single and multi-phase systems. Experts from both industry and academia have contributed to th