Record Nr. UNINA9910459148303321 Autore Sankaranarayanan Krishnan Titolo Efficiency and sustainability in the energy and chemical industries: scientific principles and case studies / / Krishnan Sankaranarayanan, Hedzer J. van der Kooi, Jakob de Swaan Arons Boca Raton:,: CRC Press,, 2010 Pubbl/distr/stampa **ISBN** 0-429-11065-0 1-4398-7607-X 1-4398-1471-6 Edizione [2nd ed.] Descrizione fisica 1 online resource (396 p.) Collana Green chemistry and chemical engineering Altri autori (Persone) Swaan AronsJakob de KooiHedzer van der 660/.2969 Disciplina Soggetti **Energy dissipation** Energy dissipation - Prevention Electric power-plants - Efficiency Chemical engineering Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Swaan Arons' name appears first on the earlier edition. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Front cover; Contents; Preface; About This Book; Acknowledgments; Authors; Part I: Basics; Chapter 1: Introduction; Chapter 2: Thermodynamics Revisited; Chapter 3: Energy "Consumption" and Lost Work; Chapter 4: Entropy Generation: Cause and Effect; Chapter 5: Reduction of Lost Work; Part II: Thermodynamic Analysis of Processes; Chapter 6: Exergy, a Convenient Concept; Chapter 7: Chemical Exergy; Chapter 8: Simple Applications; Part III Case Studies; Chapter 9: Energy Conversion; Chapter 10: Separations; Chapter 11: Chemical Conversion; Chapter 12: A Note on Life Cycle Analysis Part IV SustainabilityChapter 13: Sustainable Development; Chapter 14: Efficiency and Sustainability in the Chemical Process Industry; Chapter 15: CO2 Capture and Sequestration; Chapter 16: Sense and Nonsense of Green Chemistry and Biofuels; Chapter 17: Solar Energy Conversion; Chapter 18: Hydrogen: Fuel of the Future?; Chapter 19: Future Trends;

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Sommario/riassunto

Using classic thermodynamic principles as the point of departure, this new edition of a popular resource supplies the understanding and tools required to measure process efficiency and sustainability with much improved accuracy. Exploring the driving forces in the chemical and power industries, Efficiency and Sustainability in the Energy and Chemical Industries: Scientific Principles and Case Studies, Second Edition investigates why losses occur and explains how to reduce such losses. Numerous case studies, examples, and problems illustrate the thermodynamic a