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Introduction to Particle Technology Particle Technology and Applications Introduction to Particle Technology Particle Technology and Engineering Fundamentals of Particle Technology Particle Technology Fundamentals of Particle Technology Particle Technology and Engineering Particle Technology and Engineering Particle Technology Particle Science and Engineering Particle Technology Research Review, V.1 Analytical Methods in Fine Particle Technology Particle Technology Handbook of Particle Technology Particle Technology Dictionary of Particle Technology, English-German, German-English World Congress on Particle Technology 3 Superfine Particle Technology World Congress on Particle Technology 4 Particle Technology 1973 1. World Congress Particle Technology Particle Technology Engineering of Submicron Particles World Congress Particle Technology Special Topics in Particle Technology 2018 Powtech '85 Particles in Contact Chemical Engineering: Particle technology and separation processes Particle Technology Research Reviews Applications of Particle Technology Powder Technology Coulson & Richardson's Chemical Engineering: Particle technology & separation processes Applications of Particle Technology for Pharmaceuticals 2018 Handbook of Powder Science & Technology The Science and Technology of Particle Accelerators The Science and Engineering of Granulation Processes Processing of

Particulate Solids Coulson and Richardson's Chemical Engineering

Coulson and Richardson's Chemical Engineering: Particle technology
and separation processes

Introduction to Particle Technology 2008-06-09 particle technology is a term used to refer to the science and technology related to the handling and processing of particles and powders the production of particulate materials with controlled properties tailored to subsequent processing and applications is of major interest to a wide range of industries including chemical and process food pharmaceuticals minerals and metals companies and the handling of particles in gas and liquid solutions is a key technological step in chemical engineering this textbook provides an excellent introduction to particle technology with worked examples and exercises based on feedback from students and practitioners worldwide it has been newly edited and contains new chapters on slurry transport colloids and fine particles size enlargement and the health effects of fine powders topics covered include characterization size analysis processing granulation fluidization particle formation granulation size reduction storage and transport hopper design pneumatic conveying standpipes slurry flow separation filtration settling cyclones safety fire and explosion hazards health hazards engineering the properties of particulate systems colloids respirable drugs slurry rheology this book is essential reading for undergraduate students of chemical engineering on particle technology courses it is also valuable supplementary reading for students in other branches of engineering applied chemistry physics pharmaceuticals mineral processing and metallurgy practitioners in industries in which powders are handled and processed may find it a useful starting point for gaining an understanding of the behavior of particles and powders review of the first edition taken from high temperatures high pressures 1999 31 243 251 this is a modern textbook that presents clear cut knowledge it can be successfully used both for teaching particle technology at universities and for individual study of

engineering problems in powder processing

Particle Technology and Applications 2016-04-19 particle technology and applications presents the theoretical and technological background of particle science and explores up to date applications of particle technologies in the chemical petrochemical energy mechanical and materials industries it looks at the importance of particle science and technology in the development of efficient chemi

Introduction to Particle Technology 2024-07-15 introduction to particle technology a new edition of the indispensable guide to particulates and powders particle technology concerns the formation processing and properties of the particles and powders which make up many of the products that surround us such products range from the cement and aggregate in the built environment to pharmaceuticals and processed foods most of the process industries involve particles either as essential components such as catalysts or as intermediate or final products and minerals such as the rare earths that are generally mined and processed in particulate form particles can have many beneficial uses but they can also cause harm in the environment and through inhalation to the individual in all cases the powder properties particularly particle size are crucially important this well known textbook now in its 3rd edition provides an easily understood introduction to the underlying scientific principles of particle technology together with examples of how these principles can be used in practical design and operation of industrial processes each chapter contains both worked examples and exercises for the student based on feedback from students and users of the earlier editions this revised and expanded text includes introductory chapters on particles as products and on computational methods the topics have been selected to give coverage of the broad areas of particle technology and

include characterization size analysis surface area processing granulation fluidization particle formation granulation crystallisation tableting size reduction storage and transport hopper design pneumatic conveying standpipes separation filtration settling cyclones safety fire and explosion hazards health hazards engineering the properties of particulate systems to achieve desired product performance discrete element modelling of particulate systems introduction to particle technology 3rd edition is essential reading for students of chemical engineering the text is also recommended reading for students of mechanical engineering applied chemistry pharmaceuticals physics mineral processing and metallurgy and is an excellent source for practising engineers and scientists looking to establish a working knowledge of the subject

Particle Technology and Engineering 2016-05-20 particle technology and engineering presents the basic knowledge and fundamental concepts that are needed by engineers dealing with particles and powders the book provides a comprehensive reference and introduction to the topic ranging from single particle characterization to bulk powder properties from particle particle interaction to particle fluid interaction from fundamental mechanics to advanced computational mechanics for particle and powder systems the content focuses on fundamental concepts mechanistic analysis and computational approaches the first six chapters present basic information on properties of single particles and powder systems and their characterisation covering the fundamental characteristics of bulk solids powders and building an understanding of density surface area porosity and flow as well as particle fluid interactions gas solid and liquid solid systems with applications in fluidization and pneumatic conveying the last four chapters have an emphasis on the mechanics

of particle and powder systems including the mechanical behaviour of powder systems during storage and flow contact mechanics of particles discrete element methods for modelling particle systems and finite element methods for analysing powder systems this thorough guide is beneficial to undergraduates in chemical and other types of engineering to chemical and process engineers in industry and early stage researchers it also provides a reference to experienced researchers on mathematical and mechanistic analysis of particulate systems and on advanced computational methods provides a simple introduction to core topics in particle technology characterisation of particles and powders interaction between particles gases and liquids and some useful examples of gas solid and liquid solid systems introduces the principles and applications of two useful computational approaches discrete element modelling and finite element modelling enables engineers to build their knowledge and skills and to enhance their mechanistic understanding of particulate systems

Fundamentals of Particle Technology 2020-12-01 fundamentals of particle technology is designed to assist the understanding of how particulate materials behave during processing and is written with engineers and scientists who are new to the subject in mind it is accessible in both cost and style and is illustrated with numerous line diagrams most of the 16 chapters end with questions in multiple choice format this helps problem decomposition and the reader can see each step required to arrive at an overall process solution if the reader makes a mistake with any of the steps he or she usually does not see their answer and will immediately know where they have gone wrong the aspects of particle technology covered include particle characterisation solid liquid and solid gas separations fluidisation flow of and in dispersions powder mixing storage hazards crushing and

colloidal interaction extensive internet support and referencing is provided the teaching style adopted is the result of experience gained from presenting the subject for over 30 years at both undergraduate and postgraduate level

Particle Technology 2012-12-06 the inspiration for translating this classic text came during a sabbatical year spent at the university of karlsruhe in 1974 under the leadership of the late professor hans rumpf the institut fur mechanische verfahrenstechnik karlsruhe from the early 1960s onwards by extensive research and advanced teaching had promoted the discipline of mechanical process technology a branch of process engineering which had been rather neglected especially in many chemical engineering departments of universities in the english speaking world there is a need for texts of this kind particularly for the more specialized teaching that has to be done during the later stages of engineering courses this work which is really a monograph serves as a concise and compact introduction albeit at an advanced level to all those functions of process engineering that have to do with the handling and treatment of particulate matter and bulk solids much of this information has previously been scattered around journals and other books and not brought together in one work furthermore rumpf has emphasized the physical and theoretical foundations of the subject and avoided a treatment that is simply empirical

Fundamentals of Particle Technology 2002-01-01 particle technology and engineering presents the basic knowledge and fundamental concepts that are needed by engineers dealing with particles and powders the book provides a comprehensive reference and introduction to the topic ranging from single particle characterization to bulk powder properties from particle particle interaction to particle

fluid interaction from fundamental mechanics to advanced computational mechanics for particle and powder systems the content focuses on fundamental concepts mechanistic analysis and computational approaches the first six chapters present basic information on properties of single particles and powder systems and their characterisation covering the fundamental characteristics of bulk solids powders and building an understanding of density surface area porosity and flow as well as particle fluid interactions gas solid and liquid solid systems with applications in fluidization and pneumatic conveying the last four chapters have an emphasis on the mechanics of particle and powder systems including the mechanical behaviour of powder systems during storage and flow contact mechanics of particles discrete element methods for modelling particle systems and finite element methods for analysing powder systems this thorough guide is beneficial to undergraduates in chemical and other types of engineering to chemical and process engineers in industry and early stage researchers it also provides a reference to experienced researchers on mathematical and mechanistic analysis of particulate systems and on advanced computational methods provides a simple introduction to core topics in particle technology characterisation of particles and powders interaction between particles gases and liquids and some useful examples of gas solid and liquid solid systems introduces the principles and applications of two useful computational approaches discrete element modelling and finite element modelling enables engineers to build their knowledge and skills and to enhance their mechanistic understanding of particulate systems

Particle Technology and Engineering 2016 particle technology and engineering an engineer s guide to particles powders and multiphase systems presents the basic knowledge and fundamental concepts

needed by engineers who work with particles and powders users will find a comprehensive reference and introduction to important topics ranging from single particle characterization to bulk powder properties and complex multiphase gas solid liquid systems this helpful guide emphasizes quantitative explanation and theoretical concepts and contains numerous case studies of practical applications the book is structured into four parts beginning with basic information on single particle properties and their interaction with solids and gas liquids the fundamental characteristics of bulk solids powders the principles of multiphase systems including fluidization and pneumatic conveying and advanced numerical methods and measurement techniques for particle engineering explores core topics including particle properties and interactions characteristics of bulk solids multiphase systems and advanced particle engineering emphasizes quantitative explanation and theoretical concepts provides numerous helpful case studies enables engineers to develop their knowledge and skills to work with particle systems

Particle Technology and Engineering 2015-10-01 discussing the state of the art research in particle science and technology and their roles in the environment this book will contain a selection of high quality papers from the uk china international particle technology forum iv held in shanghai coverage includes a wide range of topics synthesis and crystallisation characterisation and measurement across length scales multi scale modelling and simulation processing and handling of particulate system nanoparticle technology and particle mechanics making this a valuable reference for the recent advances and future research directions in the field and related fields with applications in emerging areas it will integrate different perspectives of particle science and technology to help the understanding of the fundamentals

of particle systems for scientists and engineers in the fields of environmental science energy and modelling

Particle Technology 1981 the branch of science which deals with the handling and processing of particles and powders is termed as particle technology it deals with the production modification handling and usage of a broad range of particulate materials these particles can be wet or dry as well as vary in size from nanometers to centimeters some of the major areas of study associated with particle technology are the behavior of solids in bulk separation of particles through the processes such as tabling magnetic separation and sieving and particle size analysis it is also closely related to the field of mineral processing and petrochemical industry this book unfolds the innovative aspects of particle technology which will be crucial for the progress of this field in the future also included herein is a detailed explanation of the various concepts and applications of this field this book will also provide interesting topics for research which interested readers can take up

Particle Science and Engineering 2014-06-30 a world conference held in this area every four years with 1998 being the third icheme publishes the proceedings and this time they are presented in cd rom format amongst the plenary contributors is sir harold kroto on buckminsterfullerenes

Particle Technology Research Review, V.1 1973 if a substance is repeatedly subdivided the result is what are known as microscopic particles these particles are distinguished from the solid mass which they originally formed by the size of the surface area per unit weight this simple difference holds true down to a certain lower size limit and when this limit is exceeded a new state of matter is reached in which the behavior of the particles is quite different to that of the

original solid particles in this state are termed superfine particles and are distinct from ordinary particles the size of the superfine particles that is to say the size limit below which particle behavior is completely different from the behavior of the original solid varies a good deal depending on the physical properties of the substance in question properties such as magnetism and electrical resistance are closely related to the internal structural properties of the particles themselves such as the magnetization processes of their respective magnetic domains and the mean free path of charged bodies this internal structure therefore limits the size of the superfine particles in ceramic processing on the other hand the surface area of the particles themselves becomes an even more important factor than their internal structure in this case the size of the superfine particles is determined by the interaction between water and solvents on the surface of the particles

Analytical Methods in Fine Particle Technology 1997 brings together in one place the fundamental theory and models and the practical aspects of submicron particle engineering this book attempts to resolve the tricky aspects of engineering submicron particles by discussing the fundamental theories of frequently used research tools both theoretical and experimental the first part covers the fundamental models and includes sections on nucleation growth inter molecular and inter particle forces colloidal stability and kinetics the second part examines the modelling of a suspension and features chapters on fundamental concepts of particulate systems writing the number balance modelling systems with particle breakage and aggregation and monte carlo simulation the book also offers plenty of diagrams software examples brief experimental demonstrations and exercises with answers engineering of submicron particles fundamental concepts and models

offers a lengthy discussion of classical nucleation theory and introduces other nucleation mechanisms like organizer mechanisms it also looks at older growth models like diffusion controlled or surface nucleation controlled growth along with new generation models like connected net analysis aggregation models and inter particle potentials are touched upon in a prelude on intermolecular and surface forces the book also provides analytical and numerical solutions of population balance models so readers can solve basic population balance equations independently presents the fundamental theory practical aspects and models of submicron particle engineering teaches readers to write number balances for their own system of interest provides software with open code for solution of population balance model through discretization filled with diagrams examples demonstrations and exercises engineering of submicron particles fundamental concepts and models will appeal to researchers in chemical engineering physics chemistry engineering and mathematics concerned with particulate systems it is also a good text for advanced students taking particle technology courses

Particle Technology 1970 this book contains the latest scientific findings in the area of granular materials their physical fundamentals and applications in particle technology focused on the description of interactions of fine adhesive particles in collaboration between physicists chemists mathematicians and mechanics and process engineers from 24 universities new theories and methods for multiscale modeling and reliable measurement of particles are developed with a focus on basic physical chemical processes in the contact zone particle particle and particle wall contacts particle collisions and their dynamics constitutive material laws for particle systems on the macro level

Handbook of Particle Technology 2021-11-16 an updated fourth edition for undergraduates and postgraduate students of chemical engineering

Particle Technology 1982-03 the aim of this handbook is to provide a comprehensive summary of the field of particle science and technology which includes most updated research findings and their applications in different industries it is hoped that the consolidated knowledge described by this handbook will inspire more innovative ideas to bring the field forward the size of the particles may range from nanometer scale as in pigments or aerosols to that of mined or quarried materials the handbook will cover the topics ranging from the formation and synthesis packing and flow and application of these particles each part is explored in great details in different sections and chapters it is written by a pool of international well known scholars as well as industrial experts the handbook fully reflects the state of the art in particle science and technology

Dictionary of Particle Technology, English-German, German-English 1978-01-01 drawing from the third edition of the bestselling powder technology handbook this book is focused solely on analyzing the fundamental properties and behavior of particles and particle beds powder technology fundamentals of particles powder beds and particle generation concentrates on the most useful analytical methods of o

World Congress on Particle Technology 3 1998 since the publication of the first edition of canada and australia have increased teach handbook of powder science and technology ing research and training activities in areas the field of powder science and technology has related to particle science and technology gained broader recognition and its various ar in addition it is worth mentioning the many eas of interest have become more defined and books and monographs that have been

pub focused research and application activities lished on specific areas of particle powder related to particle technology have increased and particle fluid by professional publishers globally in academia industry and research technical societies and university presses also institutions during the last decade many to date there are many career development groups with various scientific technical and courses given by specialists and universities on engineering backgrounds have been founded various facets of powder science and technol to study apply and promote interest in areas ogy

Superfine Particle Technology 1991-12-16 the science and technology of particle accelerators provides an accessible introduction to the field and is suitable for advanced undergraduates graduate students and academics as well as professionals in national laboratories and facilities industry and medicine who are designing or using particle accelerators providing integrated coverage of accelerator science and technology this book presents the fundamental concepts alongside detailed engineering discussions and extensive practical guidance including many numerical examples for each topic the authors provide a description of the physical principles a guide to the practical application of those principles and a discussion of how to design the components that allow the application to be realised features written by an interdisciplinary and highly respected team of physicists and engineers from the cockcroft institute of accelerator science and technology in the uk accessible style with many numerical examples contains an extensive set of problems with fully worked solutions available rob appleby is an academic member of staff at the university of manchester and chief examiner in the department of physics and astronomy graeme burt is an academic member of staff at the university of lancaster and previous director of education at the

cockcroft institute james clarke is head of science division in the accelerator science and technology centre at stfc daresbury laboratory hywel owen is an academic member of staff at the university of manchester and director of education at the cockcroft institute all authors are researchers within the cockcroft institute of accelerator science and technology and have extensive experience in the design and construction of particle accelerators including particle colliders synchrotron radiation sources free electron lasers and medical and industrial accelerator systems

World Congress on Particle Technology 4 2002 this book had its origins in a meeting between two relatively young particle technology researchers on rehobeth beach in delaware in 1992 near the holiday house of reg davies then director of the particle science and technology research center in dupont as we played in the sand we shared an excitement for developments in particle technology especially particle characterization that would lead operations such as granulation to be placed on a sound scientific and engineering footing the immediate outcome from this interaction was the development of new industry short courses in granulation and related topics which we taught together both in australia and north america this book follows closely the structure and approaches developed in these courses particularly the emphasis on particle design in granulation where the impact of both formulation properties and process variables on product attributes needs to be understood and quantified the book has been a long time in the making we have been actively preparing the book for at least five years although the chapters have relatively good bibliographies this book is not a review of the field rather it is an attempt by the authors to present a comprehensive engineering approach to granulator design scale up and operation it is exciting for

us to see the explosion of research interest around the world in this area in the last five to seven years some of the most recent work will have to find its way into the second edition

Particle Technology 1973 over half of the products of the chemical and process industries are sold in a particulate form the range of such products is vast from agrochemicals to pigments from detergents to foods from plastics to pharmaceuticals however surveys of the performance of processes designed to produce particulate products have consistently shown inadequate design and poor reliability particle technology is a new subject facing new challenges chemical and process engineering is becoming less concerned with the design of plants to produce generic simple chemicals which are often single phase fluids and is now more concerned with speciality effect chemicals which may often be in particulate form chemical and process engineers are also being recruited in increasing numbers into areas outside their traditional fields such as the food industry pharmaceuticals and the manufacture of a wide variety of consumer products this book has been written to meet their needs it provides comprehensive coverage of the technology of particulate solids in a form which is both accessible and concise enough to be useful to engineering and science students in the final year of an undergraduate degree and at master s level although it was written with students of chemical engineering in mind it will also be of use and interest to students of other disciplines it comprises an account of the fundamentals of the subject illustrated by worked examples and followed by a wide range of selected applications

1. World Congress Particle Technology 1986 Coulson and Richardson s chemical engineering volume 2a particulate systems and particle technology sixth edition has been fully revised and updated to

provide practitioners with an overview of chemical engineering including clear explanations of theory and thorough coverage of practical applications all supported by case studies a worldwide team of contributors has pooled their experience to revise old content and add new content the content has been updated to be more useful to practicing engineers this complete reference to chemical engineering will support you throughout your career as it covers every key chemical engineering topic fluid flow heat transfer and mass transfer has been developed from the series volume 1 6th edition this volume covers the three main transport process of interest to chemical engineers momentum transfer fluid flow heat transfer and mass transfer and the relationships between them particulate systems and particle technology has been developed from the series volume 2 5th edition this volume covers the properties of particulate systems including the character of individual particles and their behavior in fluids sedimentation of particles both singly and at high concentrations flow in packed and fluidized beds and filtration are then examined separation processes has been developed from the series volume 2 5th edition this volume covers distillation and gas absorption which illustrate applications of the fundamental principles of mass transfer several techniques adsorption ion exchange chromatographic and membrane separations and process intensification are described chemical and biochemical reactors and reaction engineering has been developed from the series volume 3 3rd edition features fully revised reference material converted from textbooks covers foundational to technical topics features emerging applications numerical methods and computational tools

Particle Technology 1972

Engineering of Submicron Particles 2019-08-05

World Congress Particle Technology 1986

Special Topics in Particle Technology 2018 2018

Powtech '85 1985

Particles in Contact 2019-07-31

Chemical Engineering: Particle technology and separation processes
1991

Particle Technology Research Reviews 1973-03-01

Applications of Particle Technology 2018-03-15

Powder Technology 2006-11-29

Coulson & Richardson's Chemical Engineering: Particle technology & separation processes 1993

Applications of Particle Technology for Pharmaceuticals 2018 2018

Handbook of Powder Science & Technology 2013-11-27

The Science and Technology of Particle Accelerators 2020-12-27

The Science and Engineering of Granulation Processes 2010-10-28

Processing of Particulate Solids 2012-12-06

Coulson and Richardson's Chemical Engineering 2019-04-15

Coulson and Richardson's Chemical Engineering: Particle technology and separation processes 2014

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