1. Record Nr. UNINA9910967891703321

Titolo	Handbook of deposition technologies for films and coatings : science, applications and technology / / edited by Peter M. Martin
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier / WA, c2010
ISBN	1-282-71184-9 9786612711848 0-8155-2032-8 0-08-095194-5
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (931 p.)
Altri autori (Persone)	MartinPeter M
Disciplina	667.9
Soggetti	Coating processes Coatings
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; Handbook of Deposition Technologies for Films and Coatings : Science, Applications and Technology; Copyright; Copyright; Contents; Preface to the Third Edition; List of Abbreviations; Chapter 1 - Deposition Technologies: An Overview; The Market; Introduction; Aim and Scope; Definitions and Concepts; Surface Engineering; Physical Vapor Deposition Process Terminology; Classification of Coating Processes; New Deposition Technologies; Microstructure and Properties; Unique Features of Deposited Materials and Gaps in Understanding; Current Applications; Decorative/Functional Coating Transparent Conductive Thin FilmsThin Film Solar Cells and Batteries; Friction and Wear: Nanolaminates and Superlattices; Cutting Tools; Gas and Water Permeation Barriers on Plastic; Biomedical; Thin Film Solid Oxide Fuel Cells; Flat Panel Displays and Molecular Electronics; 'Frontier Areas' for Applications of the Products of Deposition Technology; Selection Criteria; Summary; Deposition Process Definitions; Conduction and Diffusion Processes; Chemical Processes; Wetting Processes; Spraying Processes; Physical Vapor Deposition Processes; References Chapter 2 - Plasmas in Deposition ProcessesIntroduction; Particle

Collisions, Energy, and Motion; Collisions: Mean Free Path and Cross-Section; Electron Kinetic Energy; Electron Energy Distribution; Collision Frequencies; Reaction Rates; Mobilities; Conductivity and Diffusion; Particle Motion in Magnetic Fields; Plasma Parameters and Collective Behavior; Plasma Sheaths; Ambipolar Diffusion; Plasma Oscillations; Discharge Plasmas; Introduction; Plasma Production and Breakdown; Cold Cathode Discharges; Magnetron Discharges; RF Discharges; Gas-Phase Plasma Reactions; Introduction
Electron-Atom InteractionsElectron-Molecule Interactions; Metastable Species and Processes; Applications of Volume Reactions; Plasma-Surface Interactions; Introduction; Ion Bombardment; Electron Bombardment; Photon Interactions; Summary of Surface Reactions; An Example: Magnetron Discharge for Deposition; Summary; Appendix 2.1; References; Chapter 3 - Surface Preparation for Film and Coating Deposition Processes; Introduction; External Cleaning; Gross Cleaning; Stripping; Abrasive Cleaning; Wet Chemical Etching; Specific Cleaning; Solvent Cleaning; Alkaline Cleaners; Detergent (Soap) Cleaners Solution AdditivesWet Reaction Cleaning; Reactive Gas Cleaning; Reactive Plasma Cleaning; Application of Fluids; Immersion; Spraying; Vapor Condensation; Ultrasonic Cleaners; Removal of Particulate Contamination; Rinsing; Ultrapure Water; Drying, Outgassing, and Outdiffusion; Drying; Outgassing; Outdiffusion; Evaluating and Monitoring of Cleaning; Cleaning Tests; Test: Sheeting; Test: Contact Angle; Test: Nucleation; Test: Adsorption and Desorption Behavior; Test: Friction and Marking; Test: Extraction and Analysis; Test: Surface Analytical Spectroscopies
Particle Detection on Smooth Surfaces

Sommario/riassunto

This 3e, edited by Peter M. Martin, PNNL 2005 Inventor of the Year, is an extensive update of the many improvements in deposition technologies, mechanisms, and applications. This long-awaited revision includes updated and new chapters on atomic layer deposition, cathodic arc deposition, sculpted thin films, polymer thin films and emerging technologies. Extensive material was added throughout the book, especially in the areas concerned with plasma-assisted vapor deposition processes and metallurgical coating applications. - Explains in depth the many recent improvements in depo