1. Record Nr. UNISALENTO991003161309707536

Autore	Faraone, Christopher A.
Titolo	Ancient Greek love magic / Christopher A. Faraone
Pubbl/distr/stampa	Cambridge, Mass : Harvard University Press, c1999
ISBN	0674033205
Descrizione fisica	XII, 223 p. ; 24 cm
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Autore	Reinhardt Karen A
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Collana	Wiley-Scrivener ; ; v.48
Altri autori (Persone)	ReidyRichard F. <1960->
Disciplina	621.38152
Soggetti	Semiconductors - Surfaces - Cleaning Surface preparation

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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Handbook of Cleaning for Semiconductor Manufacturing: Fundamentals and Applications; Contents; Foreword; Introduction; Part 1: Fundamentals; 1. Surface and Colloidal Chemical Aspects of Wet Cleaning; 1.1 Introduction to Surface Chemical Aspects of Cleaning; 1.2 Chemistry of Solid-Water Interface; 1.2.1 Surface Charging of Oxide Films in Aqueous Solutions; 1.2.2 Surface Charging of Silicon Nitride Films in Aqueous Solutions; 1.2.3 Electrified Interfaces: The Double Layer and Zeta Potential; 1.2.3.1 Oxide Films and Particles; 1.2.3.2 Nitride Films and Particles 1.3 Particulate Contamination: Theory and Measurements1.3.1 Effect of the Electric Double Layer Formation on Particulate Contamination; 1.3.2 Direct Measurement of Interaction Forces between Particles and Surfaces; 1.4 Influence of Surface Electrical Charges on Metal Ion Adsorption; 1.5 Wettability of Surfaces; 1.5.1 Surface Tension and Surface Energy; 1.5.2 Adsorption Characteristics and Wettability Modification; 1.6 High Aspect Ratio Cleaning: Narrow Structures; 1.6.1 Rate of Liquid Penetration into Narrow Structures; 1.6.2 Enhancement of Liquid Penetration into Narrow Structures 1.7 Surface Tension Gradient: Application to Drying1.7.1 Isopropyl Alcohol Surface Tension Gradient Drying; 1.7.2 Water Layer After Drying; 1.7.3 Alternate Chemicals for Drying; 1.8 Summary; References; 2. The Chemistry of Wet Cleaning; 2.1 Introduction to Aqueous Cleaning; 2.1.1 Background of Aqueous Cleaning Chemistry; 2.2 Overview of Aqueous Cleaning Processes; 2.2.1 RCA Cleaning; 2.2.2 Modified RCA Processes; 2.2.3 Other Cleaning Processes; 2.3 The SC-1 Clean or APM; 2.3.1 Electrochemistry of SC-1; 2.3.2 Molecular Mechanism; 2.3.3 Etching Rate in APM; 2.3.4 Concentration Variations 2.3.5 Concentration Monitoring and Control2.3.6 APM-related Surface Roughening; 2.3.6.1 Vapor Etching; 2.3.6.2 Galvanic Etching and Masking; 2.3.6.3 Catalyzed H2O2 Depletion; 2.3.7 Metal-ion Contamination and Complexing Agents; 2.3.8 Diluted APM; 2.4 The SC-2 clean or HPM; 2.4.1 Particle Deposition; 2.4.2 Hydrogen Peroxide Decomposition in SC-2; 2.4.3 Hydrochloric Acid Fumes; 2.4.4 Diluted HC1; 2.5 Sulfuric Acid-Hydrogen Peroxide Mixture; 2.5.1 Stripping and Cleaning Mechanism; 2.5.1.1 Dissolution Reaction; 2.5.1.2 Discoloration Reaction; 2.5.2 Particulate and Sulfate Contamination 2.5.3 Alternatives2.5.3.1 Modification of SPM; 2.5.3.2 Sulfur Trioxide; 2.6 Hydrofluoric Acid; 2.6.1 Hydrogen Passivation; 2.6.2 Etching Rate Control; 2.6.3 Bath Monitoring; 2.6.3.1 Conductivity; 2.6.3.2 Near Infrared; 2.6.4 Contamination; Acknowledgments; References; 3. The Chemistry of Wet Etching; 3.1 Introduction and Overview; 3.1.1 Definition of Etching; 3.1.2 The Physics of Wet Etching; 3.1.2.1 Difference in Bond Strength; 3.1.2.2 Absence of the Proper Reactant; 3.1.2.3 Formation of Inhibiting Coatings; 3.2 Silicon Dioxide Etching; 3.2.1 Hydrofluoric Acid Etching 3.2.2 Water-based Etching
Sommario/riassunto	This comprehensive volume provides an in-depth discussion of the fundamentals of cleaning and surface conditioning of semiconductor applications such as high-k/metal gate cleaning, copper/low-k cleaning, high dose implant stripping, and silicon and SiGe passivation. The theory and fundamental physics associated with wet etching and

wet cleaning is reviewed, plus the surface and colloidal aspects of wet processing. Formulation development practices and methodology are presented along with the applications for preventing copper corrosion, cleaning aluminum lines, and other sensitive layers. This