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4.9 Auger Electron Spectroscopy (AES)4.10 Ion Scattering Spectroscopy (ISS); 4.11 Secondary Ion Mass Spectroscopy (SIMS); 4.12 Mass Spectroscopy or Spectrometry (MS); 4.13 Gas Chromatography (GC); 4.14 Nuclear Magnetic Resonance (NMR); 4.15 Differential Scanning Calorimetry (DSC); 4.16 Differential Thermal Analysis (DTA); 4.17 Dynamic Mechanical Analysis (DMA); 4.18 Thermogravimetric Analysis (TGA); REFERENCES; Chapter 5. Theories of Adhesion; 5.1 Introduction; 5.2 Mechanical Theory; 5.3 Electrostatic (Electronic) Theory; 5.4 Diffusion Theory; 5.5 Wetting Theory; 5.6 Chemical Bonding 5.7 Weak Boundary Layer Theory5.8 Definition of Failure Modes; 5.9 Mechanisms of Bond Failure; REFERENCES; Part II: Surface Treatment Methods and Techniques; Chapter 6. Material Surface Preparation Techniques; 6.1 Introduction; 6.2 General Considerations; 6.3 Surface Treatment of Metals; 6.4 Cleaning (Degreasing) Metals; 6.5 Priming; 6.6 Surface Treatment of Plastics; 6.7 Methods for Evaluating Effectiveness of Surface Preparation; 6.8 Surface Exposure Time (SET); REFERENCES; Chapter 7. Surface Preparation of Metals; 7.1 Introduction; 7.2 Aluminum; 7.3 Beryllium; 7.4 Brass; 7.5 Bronze 7.6 Cadmium7.7 Copper and Copper Alloys; 7.8 Gold; 7.9 Magnesium and Magnesium Alloys; 7.10 Nickel and Nickel Alloys; 7.11 Platinum; 7.12 Silver; 7.13 Steel; 7.14 Stainless Steel; 7.15 Tin; 7.16 Titanium; 7.17 Tungsten and Alloys; 7.18 Uranium; 7.19 Zinc and Alloys; 7.20 Weld Bonding Metals; 7.21 Conclusions; REFERENCES; Chapter 8. Surface Preparation of Thermoplastics, Thermosets, and Elastomers; 8.1 Introduction; 8.2 Thermoplastics; 8.3 Thermosets; 8.4 Reinforced Plastics/Thermosets; 8.5 Reinforced Thermoplastics (Glass-Reinforced); 8.6 Plastic Foams; 8.7 Surface Preparation of Rubbers 8.8 Thermoplastic Elastomer

Sommario/riassunto

This is a unique compilation of surface preparation principles and techniques for plastics, thermosets, elastomers, and metals bonding. With emphasis on the practical, it draws together in a single source technical principles of surface science and surface treatments technologies of plastics, elastomers, and metals. It is both a reference and a guide for engineers, scientists, practitioners of surface treatment, researchers, students, and others involved in materials adhesion and processing. This book describes and illustrates the surface preparations and operations that must be applied