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Nota di contenuto	Cover; Title Page; Copyright Page; Contents; Preface; List of Contributors; Part 1: Synthesis Methodologies for Silicones; 1 Room Temperature Vulcanized Silicone Rubber Coatings: Application in High Voltage Substations; 1.1 Introduction; 1.2 Pollution of High Voltage Insulators; 1.3 Silicone Coatings for High Voltage Ceramic Insulators; 1.4 RTV SIR Coatings Formulation; 1.4.1 The Base Polymer; 1.4.2 Polymerization and Crosslinking Processes; 1.4.3 Formulation Additives; 1.5 Hydrophobicity in RTV SIR; 1.5.1 Reorientation Mechanism; 1.5.2 Migration of LMW Molecules 1.5.3 Silicone Fluid - Material Thickness1.5.4 Material Formulation; 1.5.5 Influence of the Crosslinking Degree; 1.5.6 Influence of the Contamination Nature; 1.5.7 Amount of LMW; 1.5.8 Influence of the Electrical Surface Activity; 1.6 Electrical Performance of RTV SIR Coatings; 1.6.1 Application of RTV SIR Coatings in High-Voltage Substations; 1.7 Conclusions; References; 2 Silicone Copolymers: Enzymatic Synthesis and Properties; 2.1 Introduction; 2.2 Polysiloxanes; 2.3 Silicone Aliphatic Polyesters; 2.4 Silicone Aliphatic Polyesteramides; 2.5 Silicone Fluorinated Aliphatic Polyesteramides

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	 2.6 Silicone Aromatic Polyesters and Polyamides2.7 Silicone Polycaprolactone; 2.8 Silicone Polyethers; 2.9 Silicone Sugar Conjugates; 2.10 Stereo-Selective Esterification of Organosiloxanes; 2.11 Conclusion and Outlook; Acknowledgments; References; 3 Phosphorus Containing Siliconized Epoxy Resins; 3.1 Introduction; 3.1.1 Applications of Epoxy Resins; 3.1.2 Need for Modified Epoxy and Modifiers; 3.1.3 Multi-Faceted Properties of Phosphorus-Containing Siliconized Epoxy Resins; 3.1.4 Matrix Materials for the Fabrication of Bulk and Nanocomposites 3.2 Preparation of Siliconized Epoxy-Bismaleimide Intercrosslinked Matrices3.2.1 Dynamic Mechanical Thermal Analysis (DMTA); 3.2.2 Thermal Gravimetric Analysis (TGA); 3.2.3 Limiting Oxygen Index Test; 3.2.4 Moisture Absorption Behavior; 3.2.5 SEM Investigation; 3.2.6 Research Findings and Recommendation; 3.3 Phosphorus-Containing Siliconized Epoxy Resin as Thermal and Flame Retardant Coatings; 3.3.1 Preparation of Siliconized Epoxy Prepolymer; 3.3.2 Glass Transition Temperature and Thermal Stability of Phosphorus-Containing Siliconized Epoxy Resin; 3.4.1 Mechanical Properties; 3.4.2 Thermo-Mechanical Behavior; 3.4.3 Thermal Properties; 3.4.2 Thermo-Mechanical Behavior; 3.4.3 Thermal Properties; 3.4.4 Flame Retardancy Studies; 3.4.5 Effect of Curing Agent towards Flame Retardancy; 3.4.6 Nano Reinforcement (POSS) Effect towards Flame Retardancy; 3.4.7 Highlights; 3.5 Anticorrosive and Antifouling Coating Performance of Siloxane- and Phosphorus-Modified Epoxy Composites; 3.5.1 Results of Potentiodynamic Polarization Study; 3.5.2 Results of Electrochemical Impedance Study (EIS); 3.5.3 Salt Spray Test Results 3.5.4 Results from Antifouling Studies
Sommario/riassunto	The encyclopedia will be an invaluable source of information for researchers and students from diverse backgrounds including physics, chemistry, materials science and surface engineering, biotechnology, pharmacy, medical science, and biomedical engineering.