

1. Record Nr.	UNINA9910141835903321
Titolo	Atmospheric pressure plasma treatment of polymers : relevance to adhesion / / edited by Michael Thomas and K. L. Mittal
Pubbl/distr/stampa	Salem, Massachusetts ; ; Hoboken, New Jersey : , : Scrivener Publishing : , : Wiley, , 2013 ©2013
ISBN	1-118-74730-5 1-118-74728-3 1-118-74751-8
Descrizione fisica	1 online resource (641 p.)
Collana	Adhesion and Adhesives: Fundamental and Applied Aspects
Classificazione	TEC031030
Disciplina	668.4
Soggetti	Plastics - Finishing Plastics - Surfaces Surface preparation Plasma polymerization
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	Cover; Half Title page; Title page; Copyright page; Preface; Acknowledgements; Part 1: Fundamental Aspects; Chapter 1: Combinatorial Plasma-based Surface Modification of Polymers by Means of Plasma Printing with Gas-Carrying Plasma Stamps at Ambient Pressure; 1.1 Introduction; 1.2 Experimental; 1.3 Results and Discussion; 1.4 Conclusions; Acknowledgements; References; Chapter 2: Treatment of Polymer Surfaces with Surface Dielectric Barrier Discharge Plasmas; 2.1 Introduction; 2.2 A General Overview of Surface Modification Results Obtained with Surface DBDs 2.3 An Overview of Selected Results Obtained at TNO by the SBD2.4 Conclusions; References; Chapter 3: Selective Surface Modification of Polymeric Materials by Atmospheric Pressure Plasmas: Selective Substitution Reactions on Polymer Surfaces by Different Plasmas; 3.1 Introduction; 3.2 Defluorination of Poly(tetrafluoroethylene) Surfaces; 3.3 Selective Modification of Polymeric Surfaces by Plasma; 3.4 Summary; References; Chapter 4: Permanence of Functional Groups at

Polyolefin Surfaces Introduced by Dielectric Barrier Discharge Pretreatment in Presence of Aerosols; 4.1 Introduction 4.2 Experimental 4.3 Results; 4.4 Discussion; 4.5 Summary; Acknowledgements; References; Chapter 5: Achieving Nano-scale Surface Structure on Wool Fabric by Atmospheric Pressure Plasma Treatment; 5.1 Introduction; 5.2 Experimental; 5.3 Results and Discussion; 5.4 Conclusions; Acknowledgements; References; Chapter 6: Deposition of Nanosilica Coatings on Plasma Activated Polyethylene Films; 6.1 Introduction; 6.2 Experimental; 6.3 Results and Discussion; 6.4 Conclusions; Acknowledgement; References; Chapter 7: Atmospheric Plasma Treatment of Polymers for Biomedical Applications; 7.1 Introduction 7.2 Plasma for Materials Processing 7.3 Atmospheric Plasma Sources; 7.4 Effects of Plasma on Polymer Surface; 7.5 Atmospheric Plasma in Biomedical Applications; 7.6 Conclusion; References; Part 2: Adhesion Enhancement; Chapter 8: Atmospheric Pressure Plasma Polymerization Surface Treatments by Dielectric Barrier Discharge for Enhanced Polymer-Polymer and Metal-Polymer Adhesion; 8.1 Introduction; 8.2 Atmospheric Plasma Polymerization Processes; 8.3 Atmospheric Plasma Surface Modification for Enhanced Adhesion; 8.4 Applications of Adhesion Improvement Using Atmospheric Pressure Plasma Treatments 8.5 Conclusion References; Chapter 9: Adhesion Improvement by Nitrogen Functionalization of Polymers Using DBD-based Plasma Sources at Ambient Pressure; 9.1 Introduction; 9.2 Amino Functionalization with Nitrogen-Containing Gases; 9.3 Adhesion Promotion by Amino Functionalization with Nitrogen-Containing Gases; 9.4 Conclusion; Acknowledgements; References; Chapter 10: Adhesion Improvement of Polypropylene through Aerosol Assisted Plasma Deposition at Atmospheric Pressure; 10.1 Introduction; 10.2 Experimental; 10.3 Results and Discussion; 10.4 Conclusions; Acknowledgments; References Chapter 11: The Effect of Helium-Air, Helium-Water Vapor, Helium-Oxygen, and Helium-Nitrogen Atmospheric Pressure Plasmas on the Adhesion Strength of Polyethylene

Sommario/riassunto

The Atmospheric Pressure Plasma (APP) treatment for polymer surface modification has attracted much attention recently, owing to its advantages over other techniques and its ability to improve adhesion without tampering with polymer's bulk properties. Focusing on the utility of APP treatment for enhancing polymer adhesion, this book covers the latest development in this important and enabling technology, providing profound insights from many top researchers on the design and functions of various types of reactors, as well as current and potential applications of APP treatment.
