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Applications; ABSTRACT; 4.1 INTRODUCTION; 4.2 ROSIN CHEMICAL COMPOSITION; 4.3 RESIN ACIDS CHEMICAL REACTIVITY; 4.4 MAJOR APPLICATIONS OF ROSIN AND DERIVATIVES; 4.5 CONCLUDING REMARKS; REFERENCES; Chapter 5 Sugars as Monomers; ABSTRACT; 5.1 INTRODUCTION; 5.2 ALDITOLS; 5.3 ALDONIC ACIDS AND LACTONES; 5.4 ALDARIC ACIDS; 5.5 AMINOSUGARS; 5.6 MISCELLANEOUS; REFERENCES; Chapter 6 Furan Derivatives and Furan Chemistry at the Service of Macromolecular Materials; ABSTRACT; 6.1 INTRODUCTION; 6.2 THE FURAN HETEROCYCLE AND SOME OF ITS CHEMICAL FEATURES; 6.3 FURFURAL AND HYDROXYMETHYLFURFURAL; 6.4 FURAN MONOMERS; 6.5 POLYMERS FROM CHAIN REACTIONS; 6.6 POLYMERS FROM STEP-GROWTH REACTIONS; 6.7 CONJUGATED OLIGOMERS AND POLYMERS; 6.8 THE APPLICATION OF THE DA REACTION TO FURAN POLYMERS; 6.9 MISCELLANEOUS DENDRIMERS; 6.10 THE AGING OF FURAN POLYMERS; 6.11 CONCLUSIONS; REFERENCES; Chapter 7 Surfactants from Renewable Sources: Synthesis and Applications; ABSTRACT; 7.1 INTRODUCTION; 7.2 CARBOHYDRATE-BASED SURFACTANTS; 7.3 SURFACTANTS BASED ON RRM<sub>n</sub> ENTIRELY FROM OLEOCHEMISTRY: POLYGLYCEROL ESTERS; 7.4 NOVEL BIODEGRADABLE PLANT-DERIVED CATIONIC EMULSIFIERS FOR ROAD CONSTRUCTION AND COSMETICS; 7.5 GEMINI SURFACTANTS AND BOLAAMPHIPHILES; 7.6 CONCLUSIONS AND PERSPECTIVES; REFERENCES; Chapter 8 Tannins: Major Sources, Properties and Applications; ABSTRACT; 8.1 HISTORY OF TANNINS EXTRACTION; 8.2 MAJOR SOURCES; 8.3 USES; 8.4 TANNIN STRUCTURE; 8.5 ANALYSIS; 8.6 A FEW CONSIDERATIONS ON LEATHER MANUFACTURE; 8.7 TANNIN-BASED ADHESIVES; 8.8 TECHNOLOGY OF INDUSTRIAL TANNIN ADHESIVES; 8.9 NEW CONCEPTS AND PRINCIPLES; 8.10 CEMENT SUPERPLASTICIZERS; 8.11 MEDICAL/PHARMACEUTICAL APPLICATIONS; REFERENCES; Chapter 9 Lignins: Major Sources, Structure and Properties; ABSTRACT; 9.1 INTRODUCTION; 9.2 NOMENCLATURE OF LIGNIN; 9.3 BIOSYNTHESIS OF MONOLIGNOLS AND THE FORMATION OF LIGNIN; 9.4 MAJOR SOURCES OF LIGNIN; 9.5 THE STRUCTURE OF LIGNIN; 9.6 TECHNICAL LIGNINS; REFERENCES; Chapter 10 Industrial Commercial Lignins: Sources, Properties and Applications; ABSTRACT; 10.1 INTRODUCTION

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#### Sommario/riassunto

The progressive dwindling of fossil resources, coupled with the drastic increase in oil prices, have sparked a feverish activity in search of alternatives based on renewable resources for the production of energy. Given the predominance of petroleum- and carbon-based chemistry for the manufacture of organic chemical commodities, a similar preoccupation has recently generated numerous initiatives aimed at replacing these fossil sources with renewable counterparts. In particular, major efforts are being conducted in the field of polymer science and technology to prepare macromolecular materi

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