

Entrepreneur India

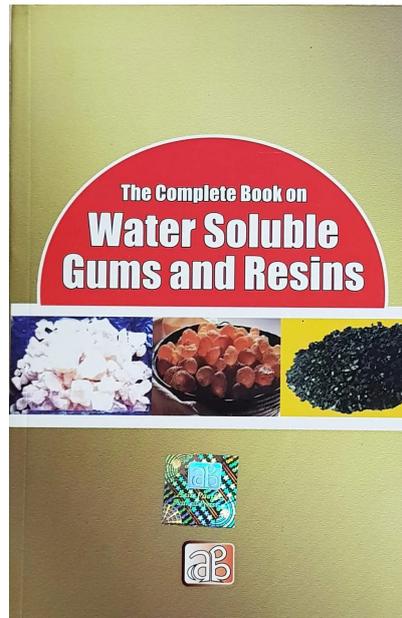
106-E, Kamla Nagar, New Delhi-110007, India.

Tel: 91-11-23843955, +91 9097075054

Mobile: +91-9097075054

Email: npcs.ei@gmail.com, info@entrepreneurindia.co

Website: www.entrepreneurIndia.co



The Complete Book on Water Soluble Gums and Resins

Code	NI240
Format	paperback
Indian Price	₹1675
US Price	\$150
Pages	640
ISBN	9788178331478
Publisher	Asia Pacific Business Press Inc.

Description

Resins, gums and latex are almost ubiquitous in the plant kingdom and many of them continue to play an important role in our daily lives. Numerous plants produce some kind of resin, latex or gum, but only a few are commercially important today, even though their uses and applications are truly manifold. They have been used as adhesives, emulsifiers, thickening agents, they are added to varnishes, paints and ink; they lend their aromas to perfumes and cosmetics and even play a role in pharmacy and medicine. Gums are viscous substances which are secreted by the bark of certain trees. Usually transparent (but sometimes slightly tinted) they contain a mucilage which when dissolved in water makes the latter become viscous. When this mucilage is dissolved in water it can be made to precipitate with alcohol. Resins, on the other hand, are gluey and viscous substances which may be whitish, brownish, or red and are secreted by certain trees when they are incised. Resins contain an essence and are usually not water soluble. Most commonly found types of plant exudates are chemically completely different to gums. Several acacia species are important economically. True gums are complex organic substances mostly obtained from plants, some of which are soluble in water and others of which, although insoluble in water, swell up by absorbing large quantities of it. They are used in adhesives, pharmaceuticals, inks, confections, and other products. Resins are terpene based compounds. Terpenes constitute one of the largest groups of plant chemicals and they can be very complex. They are not water soluble, but can be either oil soluble or spirit soluble, depending on their specific chemical composition. Worldwide interest and activity in gums and resins has grown dramatically in the last few years. Governments, environmentalists, research institutions and other interest groups are among those who have begun to push for stronger support for gums and resins as a way to meet a range of economic, social and environmental goals.

Some of the fundamentals of the book are photosynthesis and metabolism of carbohydrates, occurrence, properties and synthesis of the monosaccharides, nitrogen derivatives, carbohydrates in parenteral nutrition, essential carbohydrates, ethers, anhydro sugars and unsaturated derivatives, constitution of nicotinic acid and of nicotinamide, industrial methods of preparing nicotinic acid and nicotinamide, general physiology, metabolism and mechanism of the vitamin action etc.

This book gives a complete insight of water soluble gums and resins that are used in day to day life in various Industries. It is an invaluable resource to all its readers, students, scientist, new entrepreneurs, existing industries and others.

Content

1. CARBOHYDRATES

1. PHOTOSYNTHESIS AND METABOLISM OF CARBOHYDRATES

Photosynthesis

Introduction

Structural Aspects of the Photosynthetic Apparatus

Kinetic Studies on Photosynthesis

Bacterial Photosynthesis

The Hill Reaction

The Path of Carbon in Photosynthesis

The Biosynthesis of Carbohydrates by Plants

Monosaccharides

Oligosaccharides

Starch

Sugar Alcohols

Sugar Acids

Carbohydrate Biochemistry

Pathways for the Metabolism of Carbohydrates

Interconversion of the Sugars

2. OCCURRENCE, PROPERTIES AND SYNTHESIS OF THE MONOSACCHARIDES

Naturally Occurring Monosaccharides

Origin and Preparation of Some Naturally Occurring Monosaccharides

Synthetic Sugars

Complete Synthesis of the Sugars

Methods for Lengthening the Carbon Chain of the Sugars

Methods for Shortening the Carbon Chain of Sugars

Methods Based on Changing the Configuration of Other Sugars

Methods for the Synthesis of Deoxysugars

Preparation of Ketoses by Biochemical Oxidation of Alcohols

Aldose to Ketose Conversion Utilizing the Osones

Methods for Isotope-Labeled Sugars

3. OLIGOSACCHARIDES

Synthesis of Oligosaccharides

Rearrangement and Degradation of Oligosaccharides

Condensation of Two Monosaccharide Units

Determination of Structure

Ease of Acid Hydrolysis

Preparation, Properties, and Structures of Some Oligosaccharides of Natural Origin

Miscellaneous Disaccharides

Tri-, Tetra-, and Pentasaccharides

Miscellaneous Tri- and Tetrasaccharides

Enzymic Synthesis of Oligosaccharides

Synthesis of Sucrose by the Mechanism of Phosphorolysis

Synthesis of Analogs of Sucrose and Maltose by Sucrose and Maltose Phosphorylases

Synthesis of Disaccharides by Transglycosidation Through the Action of Sucrose Phosphorylase

Synthesis of Oligosaccharides by Transglycosidation Through the Action of Hydrolytic Enzymes

Miscellaneous Oligosaccharides

4. NITROGEN DERIVATIVES

Glycosylamines, Nucleic Acids and Hydrolysis Products, Hydrazones, Osazones, Oximes, Amino Sugars, etc.

Glycosylamines

Unsubstituted Glycosylamines

N-Substituted Glycosylamines

Nucleotides

Preparation and Structures

Nucleoside Di- and Triphosphoric Acids

Biologically Important Substances Related to Nucleotides

Nucleic Acids

Combinations of Sugars with Amino Acids and Proteins

Preparation

Protein-Carbohydrate Compounds as Synthetic Antigens

Reactions of the Sugars with Substituted Hydrazines and Hydroxylamine

Hydrazones and Osazones

Comparison of Weygand-Reckhaus and Bloink-Pausacker Mechanisms

Oximes

Derivatives in which an Amino Group Replaces a Primary or Secondary Hydroxyl Group

Amino Sugars (Glycosamines)

Glycamines and Aminodeoxyalditols

5. ROLE OF CARBOHYDRATES IN DENTAL CARIES

Dietary Carbohydrates in Diabetes and Nutrition

Carbohydrate Sweeteners in Nutrition: Fact and Fantasy

Consumption

Cost

Acceptability

Safety

Availability, Convenience, Quality

6. CARBOHYDRATES IN NUTRITION

General Aspects

Caloric Value

Digestion and Absorption

Starches

Dextrins

Maltose

Sucrose

D-glucose (Dextrose)

D-fructose (Levulose)

D-Mannose

D-galactose and Lactose

Lactose and the Microflora of the Digestive Tract

□ -Lactose vs. □ -Lactose

C. Influence of the Glycosidic Linkage on the Utilization of Lactose

Adaptation to Lactose Ingestion

Laxative Action of Lactose

Cataractogenic Action of Lactose

Galactosemia Associated with Cataracts in Humans

Lactose and Calcium Metabolism

Cellobiose

Rare Sugars

Xylose Toxicity

Sugar Alcohols (Alditols)

Hexosamines

Cellulose and Related Substances

Sweetness and Flavoring Characteristics of Sugars

Appetite for Carbohydrate

Blood Glucose and the Urge to Eat

Synthesis of Vitamins by the Intestinal Microflora

Protein Sparing Action

Sugar in Candy and Carbonated Beverages

Carbohydrates and Weight Control

Carbohydrates in Parenteral Nutrition

7. ESSENTIAL CARBOHYDRATES

The Active Compounds and Their Properties

Pathological States Caused by a Deficiency of the Active Compounds

Specificity Studies

The Physiological Action of the Active Compounds

Requirements

8. INOSITOL

Nomenclature

Names

Chemical formula

Empirical Formula
Occurrence
Isolation
Properties
Chemistry
Industrial Methods of Preparation
Biogenesis
Specificity
Determination
Physiology of Plants and Microorganisms
Animal Physiology
Avitaminosis
Hypervitaminosis
Requirements

9. ETHERS, ANHYDRO SUGARS AND UNSATURATED DERIVATIVES

Ether Derivatives (External)
Alkylation Methods
Trityl Derivatives
Anhydro Derivatives
Methods of Preparation
Reactions of Anhydro Sugars
Unsaturated Derivatives
Glycals
Glycoseens and Alditoleens

10. PANTOTHENIC ACID

Nomenclature and Survey
Names
Probably also identical with
Empirical formula
Structural formula
Chemical name
Efficacy
Occurrence
Isolation
Properties
Chemical Constitution
Synthesis
Industrial Methods of Preparation
Biogenesis
Specificity

Determination

Standards

Physiology of Plants and Microorganisms

Animal Physiology

Avitaminosis and Hypovitaminosis

Hypervitaminosis

Requirements

11. NICOTINIC ACID—NICOTINAMIDE

Nomenclature and Survey

Names

Chemical formulas

Chemical names

Empirical formulas

Occurrence of Nicotinic Acid and of Nicotinamide

Isolation of Nicotinic Acid and of Nicotinamide

Properties of Nicotinic Acid and of Nicotinamide

Constitution of Nicotinic Acid and of Nicotinamide

Synthesis

Industrial Methods of Preparing Nicotinic Acid and Nicotinamide

Biogenesis of Nicotinic Acid

Enzyme Systems Containing Nicotinamide

Coenzymes Containing Nicotinamide

Mechanism of the Nicotinamide Coenzyme Action

Specificity of Nicotinic Acid and Nicotinamide

Determination of Nicotinic Acid and Nicotinamide

Chemical Methods

Biochemical Methods

Biological Methods

Standard of Nicotinic Acid and Nicotinamide

Physiology of Plants and Microorganisms

Animal Physiology

General Physiology, Metabolism and Mechanism of the Vitamin Action

Avitaminosis

Clinical Test Methods

Hypervitaminosis

Nicotinic Acid Requirements

2. CELLULOSE

1. ANALYSIS

Properties and Composition

Manufacture of Chemical Cellulose

Specifications for Chemical Cellulose

Methods of Analysis

Identification

Determination of Polymer Composition

Determination of Carbohydrate Composition

Determination of Noncarbohydrate Impurities

Determination of Physical Properties

End-use Tests

2. DERIVATIVES OF CELLULOSE

Analysis of Cellulose Derivatives

Cellulose Nitrate

Properties

Methods of Manufacture

Methods of Analysis

Cellulose Acetate

Methods of Analysis

Cellulose acetate Butyrate and Cellulose Acetate Propionate

Properties

Methods of Analysis

Ethylcellulose

Properties

Methods of Manufacture

Methods of Analysis

Methylcellulose and Its Derivatives

Properties

Methods of Manufacture

Methods of Analysis

Hydroxyethylcellulose and Its Derivatives

Properties

Methods of Manufacture

Methods of Analysis

Sodium Carboxymethylcellulose

Properties

Methods of Manufacture

Commercial Grades and Specifications

Methods of Analysis

3. STRUCTURE AND MECHANICAL PROPERTIES OF CELLULOSE

Fine Structure

Internal Appearance of Fibres

Crystallinity

Orientation

Micellar and Intermicellar Structure
Mechanical Properties
Experimental Work
Correlation between Fine Structure and Mechanical Properties
Effect of Moisture

4. DECRYSTALLIZATION OF COTTON CELLULOSE
Methods of Decrystallization
Stability of Decrystallization
Effect of Decrystallization on the Properties of the Fibre
Mechanism of Amine Treatment

5. EFFECT OF CELLULOSE STRUCTURE ON
TENSILE PROPERTIES OF COTTON
Degree of Crystallinity
Degree of Fibrillar Orientation
Measurement of Orientation
Effect of Orientation on Tensile Properties
Degree of Polymerization
Determination of D.P.
Effect of D.P. on Physical Properties

6. CREASE RESISTANCE OF CELLULOSIC TEXTILES
IN RELATION TO FABRIC GEOMETRY
Poor Recovery in Cotton Fabrics
Background
Effect of Fabric Construction on Crease Recovery
Conclusion

7. MERCERIZED COTTON FIBRES
Preparation of Samples
Measurement of Crystalline Orientation
Mechanical Behaviour

8. ALKALI-SENSITIVE LINKAGES IN IRRADIATED
CELLULOSE
Materials and Methods
Results and Discussion

9. HYDRATED OXIDES AS BARRIERS AGAINST
ACTINIC DEGRADATION OF CELLULOSE
Experimental Procedure
Results and Discussion

10. HYDRATED OXIDES AS BARRIERS AGAINST
CELLULOSE DEGRADATION BY ULTRA-VIOLET IRRADIATION
Experimental Procedure
Results and Discussion

11. SODIUM METAPERIODATE OXIDATION OF CELLULOSE AND CELLOBIOSE

Experimental Procedure

Oxidation of Cellobiose

Preparation of Derivatives

Oxidation of Cellulose

Discussion

Summary

12. BIOSYNTHESIS OF CELLULOSE

Synthesis in Cotton Plant

Russian Work

Cellulose Accumulation in Cotton Boll and Fibre

American Work

Microorganisms

13. REACTIONS OF CELLULOSE WITH CROSS LINKING AGENTS

14. CHEMICAL MODIFICATION OF TEXTILE CELLULOSES

Structure of Cellulose

Properties of Textile Cellulose

Elongation and Elastic Properties

Flex Life, Tear Strength and Wear Life

Wet Strength, Dimensional Stability, Wash and Crease-resistance and Drape

Bulk Density and Warmth

Lustre

Slipperiness and Resistance to Clinging

Resistance to Soiling

Permeability

Water Repellency, Absorbency, Quick Drying, Electrical Insulation and Dye-receptivity

Mildew and Rot resistance

Heat and Flame Resistance

Ion-exchange Properties

15. CELLULOSE ETHERS

Hydroxyethyl Cellulose

Work at Shri Ram Institute

16. ANTI-CREASE AND ANTI-SHRINK FINISHES FOR VISCOSE RAYONS

Resin Finishes and Formaldehyde Treatment

Srifirset Process

Development

Outline of the Process

Properties of Treated Fabrics

Equipment

Large Scale Trials

Some Advantages

Cost of treatment

17. MICROBIAL DECOMPOSITION OF CELLULOSE
WITH SPECIAL REFERENCE TO COTTON AND
COTTON FABRICS

18. ROLE OF MOISTURE IN HEAT TREATMENT OF
RESIN-TREATED CELLULOSIC TEXTILES

Fibre Properties and Moisture Content

Modification of Fibre Properties During Heat Treatment

Temperature and Moisture Content

Migration of Solutes and Solvents during Heat Treatment Summary

About Niir

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Pre-feasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.