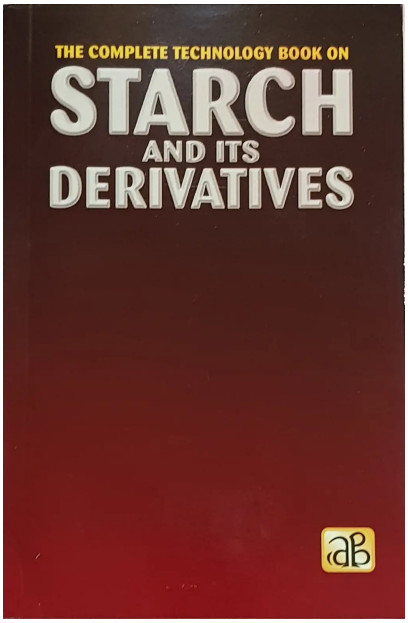
Entrepreneur India

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 Technology Book on Starch and Its Derivatives

Code	NI81
Format	paperback
Indian Price	₹1100
US Price	$125
Pages	540
ISBN	8178330733

Publisher	Asia Pacific Business Press Inc.

Description

Starch is a group of poly saccharides, composed of glucopyranose units joined together by glucosidric linkages. Starch is also metabolized for energy in plants and animals, and is used to produce a large number of industrial products. Starch is processed to produce many of the sugars in processed foods. The biggest industrial non food use of starch is as adhesive in the paper making process. Other important fields of starch application are textiles, cosmetic and pharmaceutical uses. Starch can be obtained from maize, sorghum, roots and tubers such as tapioca, arrow root, potatoes etc. Starch truly serves as a multifunctional ingredient in the food industry. Starch is one of the most present biomaterials has witnessed significant developments over the years. By products are obtained in the manufacture of different types of starch such as maize gluten has a number of interesting possible uses in industry, zein (by product of corn processing) is used in the preparation of stable glass like plastics, modification of zien is used as adhesives and in the preparation of coating compositions for paper, the most important by product from wheat starch manufacture is gluten which is used in preparing diabetic foods, for feeding cattle, thickening agent in textile printing and so on. The Global starch market is likely to get respite from deceleration in its market growth, with growth poised to receive a new lease of life in the next few years.
This book basically illustrates about the properties, structures, manufacturing process explained with flowcharts and diagrams, applications of starch and its derivatives etc. The major contents of the book are structure and chemical properties of starch, chemical composition, molecular structure, starch granule properties, water sorption and granule swelling as a function of relative humidity, factors affecting starch paste properties, the oxidation of starch etc.

This is a unique book, concise, up to date resource offering a valuable presentation of the subject. This book contains processes of starch and its derivatives. This book is an invaluable resource for new entrepreneurs, industrialists, consultants, libraries.

Content

1. Structure and Chemical Properties of Starch
Structure and Properties
Chemical Composition
Molecular Structure
Starch Granule Properties

Water Sorption and Granule Swelling as a Function of Relative Humidity
Factors Affecting Starch Paste Properties
2. The Swelling And Gelatinisation of Starch
The Swelling of Starch
The Gelatinisation of Starch
The Use of Swelling Agents to Study Gelatinisation
Methods of Following the Course of Gelatinisation of Starch : Optical Methods
Methods Depending on Viscosity
The Effect of Injury to Starch Granules before Gelatinisation on the Properties of the Pastes
Viscosity and Structure
The Rigidity of Starch Pastes
3. The Role of the Minor Constituents of Starch
The Role of Phosphorus in Starch
The Formation of 'Werner Complexes'
The Adsorption Theory
The Amylophosphoric Acid Theory
The Significance of Nitrogen in Starch
The Coacervation Theory
Fatty Acids Present in Certain Starches
Other Acids Present in Starch as Esters
4. The Retrogradation of Starch
'Retrogradation' of Starch by Freezing
'Retrogradation' by Solvents
Monomolecular Dispersion
Complete Retrogradation
The Explanation of Retrogradation
Practical Significance of Retrogradation in Industry
The Prevention of Retrogradation
Reactions with Formaldehyde
5. Starch and the Hydrogen Bond
6. The Reaction of Starch with Iodine
The Effect of Heat
Sensitivity of the Reaction
An Abnormal Starch-Iodide Reaction
The Composition of Starch Iodide
Use of Starch Iodide
The Starch-Iodide Reaction in the Spectro-photometric Determination of Starch

7. Root Starches
Manufacture of Potato Starch
Refining the Starch
Drying the Starch
Some Difficulties Occurring in the Manufacture of Potato Starch
Cassava Starch or Brazilian Arrowroot
The Manufacture of Sweet-Potato Starch
8. Cereal Starches
The Manufacture of Wheat Starch
Manufacture of Maize Starch
Early Process. Extracting the Starch
Treating the Starch
Drying
Modern Process
Rice Starch
9. The Oxidation of Starch
OXIDATION OF STARCH IN ACID MEDIA
Oxidation by Nitric Acid
Oxidation by Ammonium Nitrate
Oxidation by Chromic Acid
Oxidation by Permanganates
Oxidation by Hydrogen Peroxide
Oxidation by Halogens
Oxidation by Oxy-halogen Acids
Oxidation by other Per-compounds
Oxidation by Oxides in Acid Solution
Oxidation by Irradiation
Oxidation by Air in Acid Solution
Oxidation by Ozone
OXIDATION OF STARCH IN ALKALINE MEDIA
Oxidation by Hypohalites
Oxidation by Alkaline Chlorite
Oxidation by Alkaline Aktivin
Oxidation by Alkaline Permanganates
Oxidation by Alkaline Peroxides
Oxidation by Air in Alkaline Solution
Electrolytic Oxidation
Oxidation by Alkaline Mercuric Oxide
Oxidation by Alkaline Persulphates
OXIDATION OF STARCH IN NEUTRAL MEDIA
Oxidation by Bromine

Oxidation by Iodine
10. Glucose and Maltose
The Manufacture of Glucose
Raw Materials
Earlier Process
The More Recent Process
The Crystalline Forms of Anhydrous Dextrose and Dextrose Hydrate
Producing Anhydrous Dextrose
Uses of Glucose
The Manufacture of Maltose
11. Ethyl Alcohol and Acetone
The Manufacture of Ethyl Aclohol
The Amylo Process
The Production of Acetone
12. Dextrin and British Gums
Methods of Manufacture
Raw Materials
The Choice of Acid
Pre-treatment of Starch before Torrification
Main Steps in Dextrin Manufacture
Addition of Catalyst
Maturing the Starch
Drying the Starch before Roasting
The Roasting Process
Cooling and Re-moistening the Dextrin
Grinding and Bagging-off Operations
Conversion of Starch to Dextrin by the Wet Process
Acid Conversion in the Wet Process
The Conversion using Enzymes
13. Modified Starches
Physical Treatment to Modify Starch
14. Adhesives from Starch and Dextrin
Purpose and Applicability
The Application of Adhesives
Theoretical Considerations
Flour Pastes
Adhesives from Starch
Treatment with Caustic Alkalies
Treatment with other Alkaline Substances
Treatment with Acids

Treatment with Salts
Treatment with Oxidising Agents
Treatment of Starch with Swelling Agents
Addition of Various Compounds to Starch Adhesives
Dextrin Adhesives
15. The Foodstuff Industry
Potato Products in the Food Industry
Importance of the Storage History of Potatoes
Colour of Potato Chips
Cooking other then Frying
The Gelatinisation of Starch
The Effect of Various Factors on Gel-Strength of Starch Pastes
Uses of Starch on Various Foodstuff Preparations
Starch in the Baking Industry
Moisture Absorption by Dough
The Influence of Other Physical Properties of
Starch on Baking Quality
The Diastatic Activity of Flours
The Chemistry of certain Baking Faults
16. The Paper Industry
ENGINE SIZING
Tub Sizing
Coated Papers
Miscellaneous
17. The Textile Industry
Sizing of Yarns
Sizing
Considerations influencing Sizing
Mechanical Properties of Starch Films and
Sized Cloths Arranged in Order of Decreasing Magnitude
The Effect of Auxiliary Agents on the
Properties of Sizes and Finishes
Desizing
Enzymes
The Use of Enzymes in Desizing
The Finishing of Textile Fabrics
Adhesive Dressings
Characteristics of Individual Starches
Wheat Flour
Tinting and Blueing Agents
The Suitability of Starches and Dextrins

The Printing of Textile
Function of the Thickener
Colour Value
Starch Products used for Thickenings
Disadvantages attendant on the Use of Starch Thickenings
Thickenings of British Gums
18. Miscellaneous Uses of Starches and Dextrins
The Soap Industry
Laundry Starches
Cosmetic and Pharmaceutical Uses
Horticultural Uses
Fire-Proofing Preparations
Explosives and Fuels
Some Unclassified Uses
19. Utilisation of the By-Products of Starch Manufacture
20. Antiseptic Agents and Preservatives
21. General Features and Nomenclature of Amylases
Occurrence
Composition
22. Preparation of Enzymes used in the Starch Industry
Enzymes from Malt
Preparation of Individual Malt Enzymes
Enzymes from Moulds or Fungi
Enzymes from Animal Juices
Bacterial Enzymes
23. The Action of -Amylase on Starch
Soluble Starch
HYDROLYSIS OF STARCH BY -AMYLASE
-amylodextrin
Amyloamylose
Erythro Bodies
- and -Glucosides
The Mode of Action of -amylase
24. Analysis of Starch and its Derivatives
General Methods of Analysis
ANALYSIS OF CORN STARCH
ANALYSIS OF STARCH DERIVATIVES
ANALYSIS OF STARCH HYDROLYZATES
Dextrose
Saccharide Contents of Acid-Converted Starch Hydrolyzates
Reducing Sugars

Schoorl Method : Conversion of Titer Difference to Reducing Sugar
Assay by Specific Gravity
Conversion of Commercial Degrees BaumÃ© to % Dry
Substance for Commercial Corn Syrups and Dextrose Solutions
Trace Components
Calcium
Copper
Iron
Chloride
SULFATE
ANALYSIS OF FEED PRODUCTS
Starch
Crude Fiber
Lactic Acid
Xanthophylls
ANALYSIS OF CORN OIL
Iodine Value
Peroxide Value
Free Fatty Acids
Color
Cold Test
Smoke Point
25. List of Material Suppliers
List of Chemical Suppliers
LIST OF MACHINERY / EQUIPMENT SUPPLIERS

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.