The Complete Technology Book on Bakery Products (Baking Science with Formulation & Production) 4th Edition

Author: NIIR Board of Consultants & Engineers
Format: Paperback
ISBN: 9788193733974
Code: NI61
Pages: 664
Price: Rs. 1,995.00 US$ 200.00
Publisher: NIIR PROJECT CONSULTANCY SERVICES
Usually ships within 5 days

Baking, referred to as the oldest form of cooking, is used for producing everyday products like bread, cakes, pastries, pies, cookies, and donuts. These products are prepared using various ingredients like grain-based flour, water and leavening agents. They are considered fast-moving consumer goods (FMCG) and are consumed daily. Owing to their palatability, appearance and easily digestible nature, they are highly preferred for both formal and informal occasions. Nowadays, most traditional baking methods have been replaced by modern machines. This shift has enabled manufacturers to introduce innovative bakery products with different ingredients, flavors, shapes and sizes. The book is invaluable reading for those starting their own baking business or any baker looking to improve their existing business in order to increase profits.

The Global Bakery Market size is predicted to reach USD 4.36 billion by 2030 with a CAGR of 3.8% from 2020-2030. Bakery products are a part of the processed food class. They include cake, pastries, biscuits, bread, breakfast cereals, and customized baker products. The growing per-capita consumption trends of bakeshop products indicates the untapped growth potential. The market potential is high particularly in the growing markets of Asia and South America; whereby, client demand is increasing for ready to eat bakery products, as a results of the influence of Western culture and additionally for its convenience.

The book covers various aspects related to different bakery products with their manufacturing process and also provides contact details of raw material, plant and machinery suppliers with equipment photographs and their technical specifications. It provides a thorough understanding of the many new developments shaping the industry and offers detailed technical coverage of the manufacturing processes of bakery products.

Food Mixer, Cookie Extruder, Rotary Oven, Biscuit Sandwiching Machine, Tunnel Gas Oven, Flour Mixer, Cookies Rotary Moulder, Bun Divider Moulder, Planetary Mixer, Spiral Mixer, Pillow Packing Machine, Oil Spray Machine are the various equipments described in the book with their photographs and technical specifications.

A total guide to manufacturing and entrepreneurial success in one of today's most baking industry. This book is one-stop guide to one of the fastest growing sectors of the bakery industry, where opportunities abound for manufacturers, retailers, and entrepreneurs. This is the only complete handbook on the commercial production of bakery products. It serves up a feast of how-to information, from concept to purchasing equipment.

Contents

1. Ingredients Made From Wheat
Introduction
Wheat
Commercial Wheat Varieties
Composition of Wheat
Lipids
Utilization of Wheat
Determining the Quality of Wheat
2. Other Grains Ingredients
Introduction
Durum
Special Quality Considerations
Utilization
Rye
Chemical Physical Characteristics
Triticale
General Characteristics
Quality, Composition, and Nutritional Factors
Utilization
Rice
Structure and Composition
Quality Factors
Use of Rice in the Baking Industry
Millet
Varieties and Distribution
Structure of the Seed
Food Uses
Corn
Structure and Composition
Quality Factors
Traditional Food Products From Corn
Oats
Classification
Structure and Composition
Barley
Description of Plant and Seed
Utilization of Barley
Structure and Composition of Barley Kernels
Quality Factors
3. Shortenings, Emulsifiers and Antioxidants
Introduction
The Chemistry of Fats and Oils
Shortenings From Natural Sources
Animal Fats and Oils
Vegetable Shortenings
Quality Assurance of Fat and Oil Products
Tests
Specifications
Emulsifiers
Lecithin
Monoglycerides and Deglycerides
Other Food Emulsifiers
Antioxidants
Synthetic Antioxidants
Natural Antioxidants
Fat Substitutes and Replacements
4. Water and Salt
Introduction
Water
Regulations Affecting Potable Water
Water Treatment
Effects of Water Impurities on Bakery Products
Water Treatment Methods Used by Bakeries
Analyses of Water
Salt
Salt in the Human Diet
Containers and Storage
Types of Salt
Salt with Additives
Salt Substitutes in Bakery Products
Analytical Methods
5. Products of Bakery Industries
Bread
Introduction
Market Potential
Raw Materials
Flour
Yeast
Water
Salt
Sugar
Bulk Solids
Flavourings
Enrichment
Bread Manufacture
Straight Dough Method
Sponge Dough Method (Semi-Automatic)
Make Up
Comparison of Straight and Sponge Dough Method
Advantages and Disadvantages of two Methods
Automatic Process to Manufacture Bread
Recipes for Breads
White Pan Bread
Milk Bread
Sweet Bread
Rice Bread
Closed Pan Bread
Sponge Dough
Final Dough
Make up and Baking of the Bread
Egg Bread
French Bread
Straight Dough Method
Raisin Bread
Whole Wheat Bread (Straight Dough Method)
Rye Bread
Rye Bread (Leay Sow)
Vienna Bread
Special Breads
Date-Nut Bread
Low Sodium Bread
Cheese Bread
Specification for Various Types of Breads
White Bread
Other Requirements
Mass of the Bread
Wheat Meal Bread
Other Requirements
Crust and Crumb
(a) Optional Ingredients
(b) Mould Inhibitors
Bread Improver
Requirements
Biscuits
Introduction
Biscuit Raw Materials
Cereals
Sweetener
Shortening
Milk
Leavening Agents and Nutrients
Miscellaneous Products
Market Potential
Statewise Units of Biscuits in Organised Sector
Manufacturing Process
Recipes for Various Types of Biscuits
Arrowroot Biscuit
Shell Biscuits
Digestive Biscuits
Honey Comb or Crimp Biscuits
Almond Fruit Biscuits
Walnut Biscuits
Soda Biscuit
Coconut Biscuits
Nice Biscuits
Saltish Biscuits
Marie Biscuits
Ester Biscuits
Sandwich Type Biscuits
Cheese Biscuits
Rice Biscuits
Corn Flour Biscuits
Coffee Biscuits
Victoria Biscuits
Edinburg Biscuits
Snow Drop Biscuits
Luncheon Biscuits
Special Combination Wheat Biscuits
Simple All Purpose Biscuits
Soojee Biscuits
Special Nut Biscuits
Directions
Corn Flour Coconut Biscuit
Chocolate Vanilla Biscuit
For Icing
Peppermint Cream Biscuits
Biscuit Coatings
White Coating
Dark Chocolate Coating
Lemon Coating
Orange Coating
Malt Milk Coating
Few Points for Making Good Biscuits
Cookies
Basic Ingredients
Bonding Materials or Toughers
Tenderizing Materials
Floors
Shortening
Sugar
Lecithin
Milk
Eggs
Rotary Moulded Cookie
Cutting Machine Cookie
Wire Cut Cookie
Spread of the Cookies
Equipments For the Manufacture of Cookies
Wire Cut Machine
Stamping and Rotary Cutting Machines
Rotary Moulded Cookies
Formula for Sugar Wafer Butter
Processing of Sugar Wafer
Coatings for Cookies
Coatings for Cookies Enrobing
Vanilla Coating
Dark Chocolate
Dark Cocoa
Coconut
Peanut Coating
Pie Fillings
Fruit Fillings
Apple Pie Fillings
Banana Cream Starch-Based Gel Filling
Strawberry Flavoured Fillings
Cream Style Fillings
Pie Crusts
The Flour
The Shortening
The Salt
Sugar
Flaky Crusts
Mealy Crusts
Formulations and Procedures for Pie Crusts
Long Flake Pie Crusts
Dough for Fried Peas
Fruit Pie Dough
Mealy Crust Dough
Fried Pies
Faults in Pie Crusts
Soda Crackers
Flour
Water
Shortening
Salt
Yeast Food
Formulas for Soda Crackers
Fermentation
Manufacturing
Absorption
Salt
Sugars
Amylolytic Enzymes
Cakes
The Flour
Soft Straight Flour
Sugar
Shortening
Egg
Milk
Formulation Guidelines
Cake Processing
Common Faults in Cakes
Texture Defects
Defects of Crust Appearance
Too Low Volume
Irregular or Coarse Grain
Various Types of Cakes
Corn Flour Cake
Fruit Cake
Rece Cake
Petha Cake
Maize Floor Cake
Cream Cake
Cheese Cake
Sponge Cake
White Layer Cakes
Rich White Layer Cake
Universal Cake Mix
Yellow Layer Cake
Chocolate Cake
Devil's Food Cake
Chiffon Cake
Layer Cake
Pound Cake
Hard Rolls
Soft Rolls
Vienna (Kaiser) Rolls
Make up of the Rolls
Hamburger Rolls
Make up and Baking of the Rolls
Buns
Bath Buns
Saffron Buns
Cross Buns
German Buns
Sweet Crumb Buns
Round Shaped Filled Bun
Dough
Syrup Wash
Braid Buns
Square Buns
Figure 8 Shaped Buns
Muffins, Nankhati and Pizza
Mufins
Bran Muffins
Whole Wheat Muffins
Nankhatai
Pizzas
Recipe for Pizza
Icings
Some Guidelines for Icing Preparation
Flavours Development in Icings
Fluffy Icings
Recipes for Various Types of Icing
Chocolate Icing
Butter Icing
Water Icings
Royal Icings
Icing Paste (General)
Vanilla Icing
Butter Scotch Icing
Butter Scotch Paste Icing
Banana Icing
Caramel Boiled Icing
Honey Macaroon Icing
Spice Cake Icing
Orange Icing
Orange Sumshine Icing
Chocolate Fudge Icing
Butter Cream Icing

6. Milk and Eggs Ingredients
Introduction
Ingredients Derived From Milk
Composition of Milk
Types of Milk Ingredients
Milk Protein Concentrate
Dairy Blends and Milk Replacers
Cheese
Quality Tests for Milk and Milk Products
Ingredients From Eggs
Functional Properties
Composition
Commercial Products
Storage
7. Fruits, Vegetables and Nuts
Introduction
Nuts
Almonds, Almond Butter, and Almond Paste
Coconut
Kernel Paste
Peanuts and Peanut Butter
Pecans
Poppy Seeds
Walnuts
Nut Substitutes and Defetted Nuts
Fruits
Dried Fruits
Candied or Glace Fruit
Canned Fruits
Frozen Fruits
Fruit Jams, Jellies and Preserves
Vegetables
Potatoes
Onions
Tomatoes
Carrots
8. Bakery Machinery and Equipment
Weighing Equipment
Manual Scales
Automatic Weighing Equipment
Liquid Measuring Equipment
Mixing
Mixing Equipment
Dry Blenders
Ribbon Blenders
Tumbler with Agglomerate Breakers
Vertical Screw Mixer
Equipment Selection
Continous Pre-Mixing Equipment
Horizontal Dough Mixer
Banbury Mixers
Miscellaneous Horizontal Dough Mixing Equipment
Mixing Mechanism
Vertical Planetary Mixers
Continous Mixers
Temperature and Mixing
Make-up Equipment
Dividers
Effect of Dividing Action on Dough Properties
Divider
Rounders
Controlling and Adjusting the Rounder
Proofer
Tray Type Intermediate Proofer
Maintenance
Intermediate Proofers
Moulders
Moulders for Cookies
Biscuit Rolling Machine
Biscuit Cutters
Fermentation and Proofing Enclosures
Construction Details
Baking Equipments
Ovens
Chamber Type Oven
Draw Plate Oven
Reel Oven
Tunnel Oven
Oven Heating
Fuels
Slicing Equipment
Reciprocating Slicers
Blade Slicer
Packaging Equipment
9. Spices, Flavors and Colors
Introduction
Coloring Additives
Uncertified Color Additives
Certified Color Additives
Natural and Artificial Flavors
Vanilla
Cocoa Products
Spices and Herbs
General Considerations
Spices Used in Bakery Products
Cinnamon
10. Cookie and Cracker Production
Ingredients Handling
Mixing
Dough Relaxation and Fermentation
Dough Machining and Forming
Dough Relaxing
Cutting Stage
Scrap Return
Salter of Sugar Sprinkling
Rotary Molding
Extruder-Dough Formers
Wire Cut
Rout Press
The Fruit Bar Co-Extruder
Baking
Direct-Fired Ovens, Gas Fired
Convection (Indirect) Ovens
Post Conditioning
Secondary Process
Icings
Enrobing
Sandwiched Cookies and Crackers
Biscuit Packaging
11. Unleavened Bakery Products
Introduction
Pie Crusts
General Considerations
Types of Pie Crusts
Baked Pies
Long-Flake Crust
Short-Flake Crust
Mealy Crust
Pressed Crumb Crusts
Savory Pies
Fried Pies
Causes of Faults in Pie Crusts
Strudel, Phyllo and Egg Rolls
Unleavened Cookies
12. Products Leavened Primarily With Water Vapor
Puff Pastry
Theoretical Considerations Affecting Layering
Practical Methods of Puff Pastry Production
Traditional Puff Pastry method
Automated Puff Pastry Production
Formin and Baking Puff Pastry
Trouble Shooting Puff Pastry
Crispbread
Eclair Shells, Cream Puffs, and Popovers
Cookies and Crackers
Beaten Biscuits
Puff Biscuits
Sugar Wafers
13. Air-Leavened Products
Introduction
Angel Food Cakes
General Considerations
Ingredients and Formulas
Procedures
Meringue Layer for Tortes
Foam Type Angel Food Cake
Continuous Mix Angel Food Cake
Cakes Made With Foams of Whole Eggs or Egg Yolks
Effects of Whole Eggs
Pound Cakes
Sponge Cakes
Chiffon Cakes
Cheese Cakes
Snow White California Cheese Cake
Fruit Cakes
Cookies
14. Chemically Leavened Bread and Rolls
Experimental Studies
Ingredients and Formulas
Procedures
Examples of Products
Almond Crumb Coffee Cake
Apple Filled Coffee Cakes
Yeast-Leavened Cookies
Fried Yeast-Leavened Cookie

20. Preservation of Bakery Products
   Introduction
   Refrigerated Dough Products
   Freezing Preservation
   Freezing Equipment and Methods
   Freezing Doughs and Batters
   Freezing Baked Products and Adjuncts
   Heat Processing in Hermetically Sealed Containers
   Modified Atmosphere Packaging
   Chemical Preservation
   Irradiation
   Other Methods

21. Photographs of Machinery and Equipment
   Food Mixer
   Cookie Extruder
   Rotary Oven
   Pillow Packing Machine
   180º Layout Turning Machine
   Oil Spray Machine
   Biscuit Sandwiching Machine
   Tunnel Gas Oven
   Rotary Print Biscuit Forming Machine (Soft Biscuit)
   Tunnel Electric Oven
   Flour Mixer
   Cookies Rotary Moulder
   Bun Divider Moulder
   Bread Moulder
   Double Trolley Bakery Oven
   Cookie Dropping Machine
   Planetary Mixer
   Spiral Mixer

22. Raw Material Suppliers
   Starch
   Bakery Chemicals
   Baking Enzymes
   Baking Powder
   Bread Improver
   Cake Gel
   Egg Powder
   Flavouring Emulsion
   Flexible Packaging
   Glucose
   Lecithin
   Plastic Crates
   Milk Products
NIIR PROJECT CONSULTANCY SERVICES (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.


NPCS also publishes varies process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.