

The Complete Technology Book on Bakery Products Baking Science with Formulation & Production (Biscuit, Bagel, Bread, Gluten-Free Bread, Rusk, Cookie, Cracker, Pie Crusts, Cakes with Production Process, Machinery, Equipment Details and Factory Layout)

Author: NIIR Board of Consultants & Engineers

Format: paperback

Code: NI61

Pages: 488

Price: Rs 1895 | US\$ 0

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Shipping: 5 days

About the Book

The Complete Technology Book on
Bakery Products

Baking Science with Formulation & Production

(Biscuit, Bagel, Bread, Gluten-Free Bread, Rusk, Cookie, Cracker, Pie Crusts, Cakes with Production Process, Machinery, Equipment Details and Factory Layout) 5th edition

Bakery products refer to a wide range of baked goods that are typically made using flour as the main ingredient. These delicious treats come in various forms, such as cakes, cupcakes, bread, pastries, cookies, and more. They are usually made by combining flour with other ingredients such as sugar, butter, eggs, and flavorings, which are then baked to perfection. Bakery products have a universal appeal and are enjoyed by people of all ages and cultures. They are a staple in many households, providing a sweet and indulgent treat for special occasions or everyday enjoyment. The diversity of bakery products is vast, ranging from delicate pastries filled with creamy custard to crusty loaves of bread that make the perfect sandwich.

The global bakery products market size to be valued at USD 251.1 billion, expanding at a compound annual growth rate (CAGR) of 3.2%. Increasing consumption of ready-to-eat foods across the globe owing to hectic lifestyle is expected to fuel the product demand over the coming years. Growing preference for ethnic food along with the success of Thai and Mexican food in restaurants has resulted in increased demand for bakery products in Europe. The bakery industry has been experiencing significant growth and success in recent years. There are several reasons behind this booming industry. There has been a rise in consumer demand for healthier and high-quality baked goods. With the growing focus on wellness and clean eating, bakeries are now offering a variety of options that cater to different dietary needs, including gluten-free Bread.

This book consists of in-depth details about Bakery Products, Biscuit, Bagel, Bread, Gluten-Free Bread, Rusk, Cookie, Cracker, Pie Crusts, Cakes, Cupcakes, Doughnuts, Buns, Pizzas, and Icings with Production Process, Equipment Tools Information and also Factory Layouts.

Profitable and viable business opportunities exist in the Bakery products sector. As a result, creating your own business is a good way to get into it. To learn more about Bakery products industry in depth, read this book. It will assist you in figuring out how to establish your own Bakery Business. Because of the increasing demand for Bakery products in today's market, it's a terrific method to earn money.

Contents

Contents

1. INTRODUCTION

1.1 History

1.2 Principles of Baking

1.3 Physical & Chemical Changes during Baking

1.3.1 Formation and Expansion of Gases

1.3.2 Trapping of the Gases in Air Cells

1.3.3 Gelatinization of Starches

1.3.4 Coagulation of Proteins

1.3.5 Evaporation of Some of the Water

1.3.6 Melting of Shortenings

1.3.7 Crust Formation and Browning

1.4 Bakery Products Market

2. HOW TO START A BAKERY BUSINESS

2.1 10 Steps To Open A Successful Bakery Business

2.1.1 Create a Bakery Business Plan

2.1.2 Choose a Location for Bakery Business

2.1.3 Get All Licenses Required to Open a Bakery Business in India

2.1.4 Get Manpower Required to Open a Bakery

2.1.5 Buy Equipment Needed to Start a Bakery Business

2.1.6 Design the Display Area of Bakery Business

2.1.7 Install a POS & Billing Software in Bakery

2.1.8 Do Right Marketing & Branding of Bakery Business

2.1.9 Decide on the Staff Uniform of Employees

2.1.10 Partnering with Online Food Aggregators

3. BAKERY INGREDIENTS

3.1 Introduction

3.2 Baking Powder

3.3 Baking Soda

3.4 Eggs

3.5 Fats and Oils

3.6 Flour

3.6.1 Standard or Plain Flour

3.6.2 Self-Raising Flour

3.6.3 High Grade or "Strong" Flour

3.6.4 Pastry Flour

3.6.5 Wholemeal Flour

3.6.6 Bleached Flour

3.7 Milk

3.8 Salt

3.9 Sugar

3.10 Yeast

4. SPICES, FLAVORS AND COLORS

4.1 Introduction

4.2 Coloring Additives

4.3 Uncertified Color Additives

4.3.1 Carotenoids

- 4.3.2 Caramel Colors
- 4.3.3 Carmine
- 4.3.4 Fruit and Vegetable Extracts
- 4.3.5 Riboflavin
- 4.3.6 Spices
- 4.3.7 Titanium Dioxide
- 4.4 Certified Color Additives
- 4.5 Natural and Artificial Flavors
 - 4.5.1 Vanilla
 - 4.5.2 Cocoa Products
- 4.6 Spices and Herbs
 - 4.6.1 General Considerations
 - 4.6.2 Spices Used in Bakery Products
 - 4.6.2.1 Allspice
 - 4.6.2.2 Anise Seed
 - 4.6.2.3 Basil
 - 4.6.2.4 Caraway
 - 4.6.2.5 Cardamom
 - 4.6.2.6 Celery Seed
 - 4.6.3 Cinnamon
 - 4.6.3.1 Cloves
 - 4.6.3.2 Coriander
 - 4.6.3.3 Dill Seed
 - 4.6.3.4 Fennel
 - 4.6.3.5 Fenugreek
 - 4.6.3.6 Garlic
 - 4.6.3.7 Ginger
 - 4.6.3.8 Mace
 - 4.6.3.9 Mint
 - 4.6.3.10 Nutmeg
 - 4.6.3.11 Paprika
 - 4.6.3.12 Pepper
 - 4.6.3.13 Saffron
 - 4.6.3.14 Sesame Seed
 - 4.6.3.15 Turmeric
- 5. COOKIE AND CRACKER PRODUCTION
 - 5.1 Ingredients Handling
 - 5.2 Mixing
 - 5.3 Dough Relaxation and Fermentation
 - 5.4 Dough Machining and Forming
 - 5.5 Dough Relaxing
 - 5.6 Cutting Stage
 - 5.7 Scrap Return
 - 5.8 Salter or Sugar Sprinkling
 - 5.9 Rotary Molding
 - 5.10 Extruder-Dough Former
 - 5.11 Wire Cut
 - 5.12 Rout Press
 - 5.13 The Fruit Bar Co-Extruder
 - 5.14 Baking
 - 5.15 Direct-Fired Ovens, Gas Fired

- 5.16 Convection (Indirect) Ovens
- 5.17 Post Conditioning
- 5.18 Secondary Processes
- 5.19 Icings
- 5.20 Enrobing
- 5.21 Sandwiched Cookies and Crackers
- 5.22 Biscuit Packaging
- 6. UNLEAVENED BAKERY PRODUCTS
 - 6.1 Introduction
 - 6.2 Pie Crusts
 - 6.2.1 General Considerations
 - 6.2.2 Types of Pie Crusts
 - 6.2.3 Baked Pies
 - 6.2.3.1 Ingredients and Formulation Principles
 - 6.2.3.2 Practical Formulas and Procedures
 - 6.2.4 Long-Flake Crust
 - 6.2.5 Short-Flake Crust
 - 6.2.6 Mealy Crust
 - 6.2.6.1 Variations
 - 6.2.6.2 Pate Brisée and Pate Sucrée
 - 6.2.6.3 Fillings and Washes
 - 6.2.7 Pressed Crumb Crusts
 - 6.2.8 Savory Pies
 - 6.2.9 Fried Pies
 - 6.2.10 Causes of Faults in Pie Crusts
 - 6.3 Strudel, Phyllo and Egg Rolls
 - 6.4 Unleavened Cookies
- 7. PRODUCTS OF BAKERY INDUSTRIES
 - 7.1 Bread
 - 7.2 Raw Materials
 - 7.2.1 Flour
 - 7.2.2 Yeast
 - 7.2.3 Water
 - 7.2.4 Salt
 - 7.2.5 Sugar
 - 7.2.6 Bulk Solids
 - 7.2.7 Flavourings
 - 7.2.8 Enrichment
 - 7.3 Bread Manufacture
 - 7.4 Straight Dough Method
 - 7.5 Sponge Dough Method (Semi-Automatic)
 - 7.5.1 Mixing and Fermentation
 - 7.5.2 Make Up
 - 7.5.3 Proofing and Baking
 - 7.5.4 Cooling, Slicing and Wrapping
 - 7.6 Advantages and Disadvantages of Two Methods
 - 7.7 Automatic Process to Manufacture Bread
 - 7.8 Recipes for Breads
 - 7.8.1 White Pan Bread
 - 7.8.2 Milk Bread
 - 7.8.3 Sweet Bread

- 7.8.4 Rice Bread
- 7.8.5 Closed Pan Bread
- 7.8.6 Egg Bread
- 7.8.7 French Bread
- 7.8.8 Rye Bread
- 7.8.9 Vienna Bread
- 7.8.10 Special Breads
 - 7.8.10.1 Date-Nut Bread
 - 7.8.10.2 Low Sodium Bread
 - 7.8.10.3 Cheese Bread
- 7.9 Specification for Various Types of Breads
 - 7.9.1 White Bread
- 7.10 Other Requirements
 - 7.10.1 Mass of the Bread
 - 7.10.2 Wheat Meal Bread
 - 7.10.3 Crust and Crumb
 - 7.10.4 Bread Improver
- 7.11 Biscuits
- 7.12 Biscuit Raw Materials
 - 7.12.1 Cereals
 - 7.12.2 Sweetener
 - 7.12.3 Shortening
 - 7.12.4 Milk
 - 7.12.5 Leavening Agents and Nutrients
 - 7.12.6 Miscellaneous Products
- 7.13 Manufacturing Process
- 7.14 Recipes for Various Types of Biscuits
 - 7.14.1 Arrowroot Biscuit
 - 7.14.2 Shell Biscuits
 - 7.14.3 Digestive Biscuits
 - 7.14.4 Honey Comb or Crimp Biscuits
 - 7.14.5 Almond Fruit Biscuits
 - 7.14.6 Walnut Biscuits
 - 7.14.7 Soda Biscuit
 - 7.14.8 Coconut Biscuits
 - 7.14.9 Nice Biscuits
 - 7.14.10 Saltish Biscuits
 - 7.14.11 Marie Biscuits
 - 7.14.12 Ester Biscuits
 - 7.14.13 Sandwich Type Biscuits
 - 7.14.14 Cheese Biscuits
 - 7.14.15 Rice Biscuits
 - 7.14.16 Corn Flour Biscuits
 - 7.14.17 Coffee Biscuits
 - 7.14.18 Victoria Biscuits
 - 7.14.19 Edinburg Biscuits
 - 7.14.20 Snow Drop Biscuits
 - 7.14.21 Luncheon Biscuits
 - 7.14.22 Special Combination Wheat Biscuits
 - 7.14.23 Simple All Purpose Biscuits
 - 7.14.24 Soojee Biscuits

- 7.14.25 Special Nut Biscuits
- 7.14.26 Corn Flour Coconut Biscuit
- 7.14.27 Chocolate Vanilla Biscuit
- 7.14.28 Peppermint Cream Biscuits
- 7.15 Biscuit Coatings
 - 7.15.1 White Coating
 - 7.15.2 Dark Chocolate Coating
 - 7.15.3 Lemon Coating
 - 7.15.4 Orange Coating
 - 7.15.5 Malt Milk Coating
 - 7.15.6 Few Points for Making Good Biscuits
- 7.16 Cookies
- 7.17 Basic Ingredients
 - 7.17.1 Bonding materials or Toughers
 - 7.17.2 Tenderizing materials
 - 7.17.3 Floors
 - 7.17.4 Shortening
 - 7.17.5 Sugar
 - 7.17.6 Lecithin
 - 7.17.7 Milk
 - 7.17.8 Eggs
 - 7.17.9 Rotary Moulded Cookie
 - 7.17.10 Cutting Machine Cookie
 - 7.17.11 Wire Cut Cookie
 - 7.17.12 Spread of the Cookies
- 7.18 Equipments for the Manufacture of Cookies
 - 7.18.1 Wire Cut Machine
 - 7.18.2 Stamping and Rotary Catting Machines
 - 7.18.3 Rotary Moulded Cookies
- 7.19 Formula for Sugar Wafer Butter
 - 7.19.1 Processing of Sugar Wafers
 - 7.19.2 Coatings for Cookies
- 7.20 Coatings for Cookies Enrobing
 - 7.20.1 Vanilla Coating
 - 7.20.2 Dark Chocolate
 - 7.20.3 Dark Cocoa
 - 7.20.4 Coconut
 - 7.20.5 Peanut Coating
 - 7.20.6 Pie Fillings
 - 7.20.7 Fruit Fillings
 - 7.20.8 Apple Pie Fillings
 - 7.20.9 Cream Fillings
 - 7.20.10 Procedure
 - 7.20.11 Banana Cream Starch-based Gel Filling
 - 7.20.12 Strawberry Flavoured Fillings
 - 7.20.13 Cream Style Fillings
 - 7.20.14 Procedure
 - 7.20.15 Procedure
- 7.21 Pie Crusts
 - 7.21.1 The Flour
 - 7.21.2 The Shortening

- 7.21.3 The Salt
- 7.21.4 Sugar
- 7.21.5 Flaky Crusts
- 7.21.6 Mealy Crusts
- 7.21.7 Processing
- 7.22 Formulations and Procedures for Pie Crusts
 - 7.22.1 Long Flake Pie Crusts
 - 7.22.2 Dough for Fried Peas
 - 7.22.3 Fruit Pie Dough
 - 7.22.4 Mealy Crust Dough
 - 7.22.5 Fried Pies
 - 7.22.6 Faults in Pie Crusts
- 7.23 Soda Crackers
 - 7.23.1 Flour
 - 7.23.2 Water
 - 7.23.3 Shortening
 - 7.23.4 Salt
 - 7.23.5 Yeast Food
- 7.24 Formulas for Soda Crackers
 - 7.24.1 Fermentation
 - 7.24.2 Manufacturing
 - 7.24.3 Absorption
 - 7.24.4 Salt
 - 7.24.5 Sugars
 - 7.24.6 Amylolytic Enzymes
- 7.25 Cakes
 - 7.25.1 The Flour
 - 7.25.2 Sugar
 - 7.25.3 Shortening
 - 7.25.4 Egg
 - 7.25.5 Milk
- 7.26 Formulation Guidelines
- 7.27 Cake Processing
- 7.28 Common Faults in Cakes
 - 7.28.1 Texture Defects
 - 7.28.2 Defects of Crust Appearance
 - 7.28.3 Too Low Volum
 - 7.28.4 Irregular or Coarse Grain
- 7.29 Various Types of Cakes
 - 7.29.1 Ingredients
 - 7.29.2 Process
 - 7.29.3 Ingredients
 - 7.29.4 Process
 - 7.29.5 Ingredients
 - 7.29.6 Process
 - 7.29.7 Ingredients
 - 7.29.8 Process
 - 7.29.9 Corn Flour Cake
 - 7.29.10 Process
 - 7.29.11 Fruit Cake
 - 7.29.12 Process

- 7.29.13 Rice Cake
- 7.29.14 Process
- 7.29.15 Yeast Cakes
- 7.29.16 Process
- 7.29.17 Petha Cake
- 7.29.18 Process
- 7.29.19 Maize Floor Cake
- 7.29.20 Process
- 7.29.21 Cream Cake
- 7.29.22 Process
- 7.29.23 Chocolate Cake
- 7.29.24 Directions
- 7.29.25 Cheese Cake
- 7.29.26 Directions
- 7.29.27 Sponge Cake
- 7.29.28 White Layer Cakes
- 7.29.29 Rich White Layer Cake
- 7.29.30 Universal Cake Mix
- 7.29.31 Process
- 7.29.32 Yellow Layer Cake
- 7.29.33 Yellow Layer Cake
- 7.29.34 Chocolate Cake
- 7.29.35 Devil's Food Cake
- 7.29.36 Chiffon Cake
- 7.29.37 Process
- 7.29.38 Layer Cake
- 7.29.39 Process
- 7.29.40 Pound Cake
- 7.29.41 Process
- 7.30 Hard Rolls
- 7.31 Soft Rolls
- 7.31.1 Vienna (Kaiser) Rolls
- 7.31.2 Make Up of the Rolls
- 7.31.3 Hamburger Rolls
- 7.31.4 Make Up and Baking of the Rolls
- 7.32 Buns
- 7.32.1 Bath Buns
- 7.32.2 Saffron Buns
- 7.32.3 Cross Buns
- 7.32.4 German Buns
- 7.32.5 Sweet Crumb Buns
- 7.33 Round Shaped Filled Bun
- 7.33.1 Dough
- 7.33.2 Syrup Wash
- 7.33.3 Braid Buns
- 7.33.4 Square Buns
- 7.34 Figure 8 Shaped Buns
- 7.34.1 Muffins, Nankhatai and Pizza
- 7.35 Muffins
- 7.35.1 Bran Muffins
- 7.35.2 Whole Wheat Muffins

- 7.36 Nankhatai
 - 7.36.1 First Method
 - 7.36.2 Second Method
 - 7.36.3 Third Method
- 7.37 Pizzas
 - 7.37.1 Recipe for Pizza
- 7.38 Icings
- 7.39 Some Guidelines For Icing Preparation
 - 7.39.1 Flavours Development in Icings
 - 7.39.2 Fluffy Icings
- 7.40 Recipes for Various Types of Icing
 - 7.40.1 Chocolate Icing
 - 7.40.2 Butter Icing
 - 7.40.3 Water Icings
 - 7.40.4 Royal Icing
 - 7.40.5 Icing Paste (General)
 - 7.40.6 Vanilla Icing
 - 7.40.7 Butter Scotch Icing
 - 7.40.8 Butter Scotch Paste Icing
 - 7.40.9 Banana Icing
 - 7.40.10 Caramel Boiled Icing
 - 7.40.11 Honey Macaroon Icing
 - 7.40.12 Spice Cake Icing
 - 7.40.13 Orange Icing
 - 7.40.14 Orange Sumshine Icing
 - 7.40.15 Chocolate Fudge Icing
 - 7.40.16 Butter Cream Icing
- 8. CREAM ROLLS MAKING PROCESS
 - 8.1 Ingredients
 - 8.2 Making Process
- 9. CROISSANT MAKING PROCESS
 - 9.1 Ingredients for the Croissant Dough
 - 9.2 Other Ingredients
 - 9.3 What is Laminated Dough?
 - 9.4 Making Process
 - 9.4.1 Making the Croissant Dough
 - 9.4.2 Laminating the Dough
 - 9.4.3 Dividing the Dough
 - 9.4.4 Shaping the Croissants
 - 9.4.5 Proofing and Baking
- 10. HOW TO MAKE CUPCAKES
 - 10.1 History
 - 10.2 Making Process
 - 10.2.1 Prepare Ingredients
 - 10.2.2 Combine Butter and Sugar
 - 10.2.3 Add Eggs and Vanilla
 - 10.2.4 Alternate Adding Dry and Wet Ingredients
 - 10.2.5 Fill the Cupcake Liners
 - 10.2.6 Bake and Cool Cupcakes
 - 10.2.7 Frost and Decorate
 - 10.3 Cupcake Kits

11. HOW TO MAKE DOUGHNUTS

11.1 History

11.2 Raw Materials

11.3 Making Process

11.3.1 Acquiring the Ingredients

11.3.2 Measuring the Ingredients

11.3.3 Mixing and Kneading

11.3.4 Resting the Yeast

11.3.5 Shaping the Doughnuts

11.3.6 Proofing

11.3.7 Frying

11.3.8 Glazing and Drying

11.3.9 Further Finishing and Sale

11.4 Quality Control

12. BAGEL PRODUCTION PROCESS

12.1 Raw Materials

12.2 Design

12.3 Manufacturing Process

12.3.1 Mixing the Ingredients

12.3.2 Dividing the Dough

12.3.3 Forming the Bagel Shape

12.3.4 Proofing the Yeast and Stopping the Proofing

12.3.5 Ready for Transport to the Stores

12.3.6 Distribution to the Store

12.3.7 Kettling

12.3.8 Baking

12.4 Quality Control

13. BISCUIT PRODUCTION

13.1 Origin

13.2 Fundamental Raw Materials Required for Biscuit Production

13.3 Essential Equipment for Biscuit Factory Unit

13.4 Biscuit Production Process

13.4.1 Pre-Mixing

13.4.2 Mixing

13.4.3 Moulding

13.4.4 Fermenting

13.4.5 Baking

13.4.6 Cooling

13.4.7 Packing

14. GLUTEN-FREE BREAD PRODUCTION

15. RUSK MAKING PROCESS

15.1 Ingredients Used in Preparation of Rusk

15.2 Preparation of Rusk

15.2.1 Sponge Preparation

15.2.2 Dough Preparation

15.2.3 Dividing & Moulding

15.2.4 Proofing

15.2.5 First Baking

15.2.5.1 Rack Oven

15.2.5.2 Tunnel Oven

15.2.6 Depending & Cooling

- 15.2.7 Slicing
- 15.2.8 Second Baking
 - 15.2.8.1 Rack Oven
 - 15.2.8.2 Tunnel Oven
 - 15.2.8.3 Metal Detector
- 15.2.9 Cooling & Packing
- 15.3 Types of Packs for Rusk
- 15.4 Plant & Machinery Required for Rusk Industry
- 15.5 Shelf Life of Product
- 15.6 Rusk Packaging
- 15.7 Characteristics of Packaging Material
- 15.8 Packaging
- 15.9 Material of Packaging
- 16. CHEMICALLY LEAVENED SWEET GOODS
 - 16.1 Composition
 - 16.2 General Rules for Developing Formulas
 - 16.3 Layer Cakes
 - 16.3.1 Examples of Cake Formulas
 - 16.3.2 Processing Chemically Leavened Sweet Goods
 - 16.3.3 Trouble Shooting Cake Faults
 - 16.3.3.1 Volume too Low
 - 16.3.3.2 Defects of Texture
 - 16.3.3.3 Defects of Crust Appearance
 - 16.3.3.4 Coarse or Irregular Grain
 - 16.4 Cup-Cakes
 - 16.5 Cake Doughnuts
 - 16.5.1 Formulation and Processing
 - 16.5.2 Doughnut Trouble Shooting
 - 16.6 Cookies
 - 16.6.1 Relationship of Formula to Processing Method
 - 16.6.2 Ingredients
 - 16.6.2.1 Basic Concepts
 - 16.6.2.2 Specifications and Functions
 - 16.6.3 Representative Formulas
 - 16.6.3.1 Cutting Machine Cookies
 - 16.6.3.2 Wire-Cut Cookies
 - 16.6.3.3 Rotary Molded Cookies
 - 16.6.3.4 Brownies Baked in Sheet Form
- 17. YEAST-LEAVENED PLAIN BREAD AND ROLLS
 - 17.1 Principles of Plain Bread and Roll Production
 - 17.1.1 White Bread
 - 17.2.1 Wheat Bread
 - 17.2 Two Traditional Bread Processing Schemes
 - 17.2.1 Straight Dough Method
 - 17.2.2 Sponge-and-Dough Method
 - 17.3 Reactions During Mixing
 - 17.3.1 Dough Development
 - 17.3.2 Establishing Vesicle Size
 - 17.3.3 Conditioning the Dough
 - 17.4 Temperature Rise During Mixing
 - 17.5 Fermentation

- 17.5.1 Bulk Fermentations
- 17.5.2 Proofing
- 17.5.3 Pan Proofing
- 17.5.4 Dividing and Rounding
- 17.5.5 Bread-Molding Processes
- 17.5.6 Roll-Forming Processes
- 17.6 Baking
 - 17.6.1 Radiated Heat
 - 17.6.2 Convected Heat
 - 17.6.3 Conducted Heat
 - 17.6.4 Summary of Heat Transfer
 - 17.6.5 Effect of Form and Size of the Dough Piece
 - 17.6.5.1 Hearth Breads
 - 17.6.5.2 Pan Breads
 - 17.6.5.3 Rolls
 - 17.6.6 Cooling and Depanning
 - 17.6.7 Defects of the Crust
 - 17.6.7.1 Blistering of the Crust
 - 17.6.7.2 Cracking of the Crust
 - 17.6.7.3 Crust too Thick
 - 17.6.7.4 Crust too Tough
 - 17.6.7.5 No Shred
 - 17.6.7.6 Shelling
 - 17.6.7.7 Crust Color too Pale
 - 17.6.8 Defects in the Crumb
 - 17.6.8.1 Coarse Texture
 - 17.6.8.2 Streaks or Hard Spots
 - 17.6.8.3 Holes in the Bread
 - 17.6.8.4 Dark or Dull Crumb Color
 - 17.6.9 Defects of Volume
 - 17.6.9.1 Inadequate Volume
 - 17.6.9.2 Excessive Volume
 - 17.6.10 Defects of Taste or Odor
 - 17.6.11 Defects in Shelf-Life
- 18. DOUGHS
 - 18.1 Introduction
 - 18.2 Continuous Processing of White Bread and Rolls
 - 18.2.1 Principles of Operation
 - 18.2.1.1 Processing the Fermentation Mixture
 - 18.2.1.2 Assembling and Mixing the Dough
 - Ingredients
 - 18.2.1.3 Developing the Dough
 - 18.2.1.4 Forming and Panning the Dough Piece
 - 18.2.1.5 Present Status of Continuous Processing
 - 18.2.2 Formulating White Bread for Continuous Plants
 - 18.3 Making Fermentation Processes More Efficient
 - 18.3.1 Three Kinds of Sponge Replacement Systems
 - 18.3.1.1 Brews with no Flour
 - 18.3.1.2 Broths Containing Flour
 - 18.3.1.3 Dehydrated Ferments
 - 18.4 Conditioning by Mechanical or Chemical Means

18.4.1 Systems Relying Principally on Chemical Modification

19. BREADS

19.1 Sour Dough Breads

19.1.1 Microflora of Sour Doughs

19.1.2 San Francisco (Pacific Slope) Sour dough Bread

19.1.3 Sour Dough French Bread

19.1.4 Panettone

19.1.5 Salt-Rising Bread

19.2 Rye and Multi-Grain Breads

19.2.1 Multi-Grain Breads

19.2.2 Rye Bread

19.2.2.1 Processing

19.2.2.2 Trouble Shooting

19.2.2.3 Examples of Formulas and Procedures

19.3 Rye Bread Formula and Process

19.3.1 Pumpernickel

19.4 Other Variety Breads

19.4.1 Breads with Vegetable Ingredients

19.4.1.1 General considerations

19.4.1.2 Potato Bread

19.4.2 Breads with Dairy Ingredients

19.5 Dietetic Bakery Products

19.5.1 General Considerations

19.5.2 Reduced Salt

19.5.3 Reduced Fat

19.5.4 Gluten-Free

19.5.5 "Diabetic" or Sugar-Free

19.5.6 Reduced Calorie

19.5.7 No Cholesterol

20. YEAST-LEAVENED SWEET DOUGHS

20.1 Plain and Roll-in Sweet Doughs

20.1.1 Ingredients

20.2 Formulas, General

20.2.1 Straight Sweet Dough Formula and Procedure

20.2.2 Sponge Sweet Dough Formula and Procedure

20.2.3 Roll-in Sweet Dough Formula and Procedure

20.2.4 Procedures

20.2.4.1 Traditional Methods

20.2.4.2 Other Methods

20.3 Fruited Rolls and Stollen

20.3.1 Stollen Formula and Procedure

20.4 Doughnuts and Other Fried Goods

20.4.1 General Formulas

20.4.2 Ingredient Specifications and Functions

20.4.3 Procedures

20.4.3.1 Mixing

20.4.3.2 Fermentation

20.4.3.3 Make-up

20.4.3.4 Proofing

20.4.3.5 Frying

20.4.3.6 Finishing

20.4.4 Variations

20.5 Danish Pastry

20.5.1 History

20.5.2 Experimental Studies

20.5.3 Ingredients and Formulas

20.5.4 Procedures

20.5.5 Examples of Products

20.5.6 Almond Crumb Coffee Cake

20.5.7 Apple Filled Coffee Cakes

20.6 Yeast-Leavened Cookies

20.6.1 Fried Yeast-leavened Cookie

21. PACKAGING OF BAKERY PRODUCTS

21.1 What are the Best Packaging Materials for Bakery Products?

21.2 What Material Should Use For Bakery Product Packaging?

21.2.1 Brown Paper

21.2.2 Parchment Paper

21.2.3 Metallized Films

21.2.4 Polypropylene Films

21.2.5 Plastic Sheeting

21.2.6 Metalized Mylar Bags

21.2.7 Custom Food Paper

21.3 Techniques for Packaging of Bakery Products

21.3.1 Flexible Packaging

21.3.1.1 Wrapping Styles

21.3.1.2 Endfold Wrapping

21.3.1.3 Pillow Pack Wrapping

21.3.1.4 Packing for Odd-sized Biscuits

21.3.2 Modified Atmosphere Packaging (MAP)

21.3.3 Shelf Life of Packaged Bakery Goods

21.4 Transport and Storage

21.5 Packaging Equipment

21.6 How Does it Work?

21.6.1 Wrapping Equipment

21.6.2 Bagging Equipment

21.6.3 Wire Twist-Tie Closure

21.6.4 Plastic-Clip Closure

22. FOOD SAFETY REGULATIONS AND STANDARDS

22.1 Introduction to FSSAI

22.1.1 Highlights of the Food Safety and Standard Act, 2006

22.1.2 Establishment of the Authority

22.2 FSSAI Registration & Licensing Process

22.2.1 FSSAI Registration is done Online on the FSSAI

Website through Food Safety Compliance System (FoSCoS)

22.2.2 FSSAI License - Two Types - State FSSAI License and Central FSSAI License

22.2.3 Sanitary and Hygienic Requirements for Food Manufacturer/Processor/Handler

22.3 Labelling Standards (Regulation 2.5 of FSS)

30. BIS STANDARDS

32. FACTORY LAYOUT AND PROCESS FLOW CHART & DIAGRAM

33. PHOTOGRAPHS OF PLANT AND MACHINERY WITH SUPPLIERS CONTACT DETAILS

- Flour Sifting Machine

- Sugar Grinder

- Spiral Mixer
- Dough Moulder Machine
- Cookie Making Machine
- Dough Sheeter Machine
- High Speed Slicer
- Baked Goods Cooling Tunnel
- Automatic Cookie Dropping Machine
- Rotary Oven
- Biscuit and Cookie Extruder
- Tunnel Ovens
- Bakery Foods Packaging Machine
- Dough Divider
- Planetary Mixer
- Cream Biscuit Sandwiching Machine
- Laminator Machine
- Biscuit Packaging Machine
- Rusk Packaging Machine
- Bread Packing Machine
- Rotary Biscuit Cutting Machine

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.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Market Research, Manufacturing Process, Machinery, Raw Materials, Project Feasibility, Investment Opportunities, Technical Consultancy and Startup Help.

NPCS also publishes process technology books, technical books, startup books, directory, business database, detailed project reports and market research reports.

Our Detailed Project Report aims at providing all the critical data required by entrepreneurs for starting new business ventures.

NIIR PROJECT CONSULTANCY SERVICES

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

Email: npcs.india@gmail.com **Website:** <https://www.niir.org/>