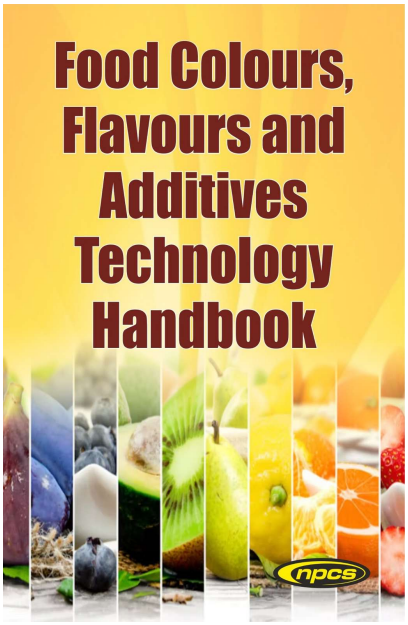
Entrepreneur India

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



Food Colours, Flavours and Additives Technology Handbook (2nd Edition)

Code	NI348
Format	paperback
Indian Price	₹1895
US Price	$150
Pages	536
ISBN	9788195830411

Publisher	NIIR PROJECT CONSULTANCY SERVICES

Description

Food Colours, Flavours and Additives Technology Handbook
About the book
Food colours are additives that can be natural or artificial. Natural food colours are obtained from fruits, vegetables, plants and minerals. Artificial food colours are made from coal tar dyes or petroleum byproducts. Food flavours are another type of additive that can be natural or artificial. Natural flavours come from herbs, spices and fruits while artificial flavours come from chemicals which have been artificially created to replicate natural flavours. Finally, additives are substances used in food processing as well as any substance added to foods either directly or indirectly for preservation, processing or improving their flavour. These substances may include nutrients like vitamins and mineral salts; biological controls such as yeasts; preservatives such as sulfur dioxide; antioxidants; emulsifiers; acidulants; anticaking agents and thickeners like guar gum; carrier solvents such as propylene glycol alginate, a thickener derived from seaweed. Carriers also function as stabilizers, preventing oils from separating out and appearing on top of a product. - substances that help other substances mix together smoothly -include carrier solvents such as propylene glycol alginate, a thickener derived from seaweed. Carriers also function as stabilizers, preventing oils from separating out and appearing on top of a product.
The beverage segment is anticipated to be the largest in the food flavors market. Due to rising discretionary budgets among consumers, various synthetic flavors, including chocolate fruit and floral flavors, are growing in popularity in developing economies in Asia Pacific and the Middle East. The dairy, confectionery, and bread sectors are anticipated to increase significantly. The global market for food colours, flavours, and additives has been growing steadily over recent years. The food colors market is expected to reach a market valuation of US$ 2.6 Bn, accelerating with a CAGR of 7.3%. Bakery, Cereal, and Snacks accounted for 18% of sales by volume in the food colors market. The global food colors market is driven by the highly growing demand for innovative, unique-looking food dishes, and altering taste and food appeal preferences due to the rise of social media among the populations worldwide. An increase in consumer awareness for clean-label food products and the additional health benefits that certain natural food colors possess is estimated to drive the market for food colors. The use of food additives has increased in recent years. This is because consumers are increasingly looking for foods that are healthier and more convenient. Food additives can help to improve the nutritional value of food and make it more appetizing. High demand for new flavors from the food & beverages industry and continuous innovation drive the growth of the market. In addition, increase in

requirement from the fast food industry is expected to provide growth opportunities in the food flavors market.
The food color industry has been booming for a while now as people are more conscious about what they put into their bodies. With so many flavors to choose from for different dishes, it's just not enough anymore to make food taste good - it also has to look good. That's where food color comes in. Not only does it make your food look more appetizing, but it also makes your cooking more fun!
The book covers a wide range of topics connected to Food Colours, Flavours and Additives, as well as their manufacturing processes. It also includes contact information for machinery suppliers, as well as images of equipment and plant layout. A comprehensive reference to manufacturing and entrepreneurship in the Food Colours, Flavours and Additives products business. This book is a one-stop shop for everything you need to know about the Food Colours, Flavours and Additives products manufacturing industry, which is ripe with potential for manufacturers, merchants, and entrepreneurs. This is the only comprehensive guide to commercial Food Colours, Flavours and Additives products manufacture. It provides a feast of how-to knowledge, from concept through equipment purchase.

Content

Contents
1. FOOD COLORIMETRY
1.1 The Determination of Strength
1.2 Colorant Identification
1.3 The CIE Method of Colour Measurement
1.4 Additive Colour Mixing
1.5 The CIE 1964 Supplementary Standard Colorimetric Observer
1.6 Illuminant D65
1.7 The Calculation of Tristimulus Values
1.8 Metamerism
1.9 The Nature of Perceived Colour
1.10 The Quantification of Colour Appearance
1.10.1 The X, Y, Z Method
1.10.2 The CIELAB Method
1.11 The Quantification of Colour Differences
1.12 The Quantification of Metamerism
1.13 Colour Measuring Instruments
1.13.1 Spectrophotometers
1.13.2 Optics
1.13.3 Plotting Facilities

1.13.4 Effective Band-Width
1.13.5 Speed of Operation
1.13.6 Tristimulus Colorimeters
1.13.7 Visual Colorimeters
2. SYNTHETIC ORGANIC COLOURS FOR FOOD
2.1 Synthetic Colours Used Food
2.1.1 Class of Synthetic Colours for Food
2.1.2 Description of Synthetic Colours for Food
2.1.3 Azo Food Colours
2.1.4 Triarylmethane Food Colours
2.1.5 Xanthene Food Colours
2.1.6 Quinoline Food Colours
2.1.7 Indigoid Food Colours
2.2 Manufacture of Synthetic Organic Colours for Food
2.2.1 Manufacture of Azo Food Colours
2.2.2 Manufacture of Triarylmethane Food Colours
2.2.3 Manufacture of Xanthene Food Colours
2.2.4 Manufacture of Quinoline Food Colours
2.2.5 Manufacture of Indigoid Food Colours
2.2.6 Manufacturing Plant Used for Food Colours
2.3 Quality Assurance of Food Colours
2.4 Blended Food Colours
2.5 Physical Form of Food Colours
2.6 Lake Colours
2.6.1 Legislation on Lake Colours
2.6.2 Manufacture of Lake Colours
2.6.3 Specifications for Lake Colours
2.6.4 Lake Colour Usage
2.7 Stability Properties of Food Colours
2.7.1 Action of Light
2.7.2 Affect of Food Processing Temperatures
2.7.3 Action of Alkalis and Acids
2.7.4 Action of Food Preservatives
2.7.5 Action of Ascorbic Acid
2.7.6 Action of Reducing and Oxidising Agents
2.7.7 Action of Proteins
2.8 Storage of Food Colours
2.9 Solubility of Food Colours
2.10 Applications of Food Colours
2.10.1 Soft Drinks and Non-Alcoholic Beverages
2.10.2 Sugar Confectionery

2.10.3 Desserts, Icings and Frozen Confectionery
2.10.4 Preserves and Table Jellies
2.10.5 Baked Goods
2.10.6 Canned Fruit, Vegetables and Soups
2.10.7 Meat and Fish Products and Analogues
2.10.8 Dry-Premix Convenience Foods
2.10.9 Milk Products
2.10.10 Snack Foods
2.10.11 Pickles, Sauces and Ketchups
2.10.12 Pet Foods
2.10.13 Pharmaceutical and Cosmetic Products
2.11 Polymeric Dyes
3. NOVEL SYNTHETIC COLOURS FOR FOOD
3.1 Polydye Concept (Dynapol)
3.2 Solubilising Groups
3.3 Use of Polymeric Colours in Food
3.4 Selection of Polymeric Dyes for Food Coloration
4. ANTHOCYANINS
4.1 Types of Anthocyanins
4.2 Occurrence and Distribution
4.3 Structural Transformations
4.4 Stabilisation and Augmentation by Physico-Chemical Effects
4.4.1 Effect of Acylation
4.5 Reactions of Anthocyanins in Model and Food
Systems
4.6 Anthocyanins as Food Colours
4.6.1 Extraction and Purification
4.6.2 Further Processing of Extracts
4.6.3 Stability of Anthocyanin Additives
4.7 Analysis
5. SOME SYNTHETIC CAROTENOIDS AS FOOD COLOURS
5.1 Synthesis
5.2 Properties
5.3 Carotenoids in Fat-Based Foods
5.3.1 Margarine and Butter
5.3.2 Other Shortenings, Fats and Oils
5.3.3 Processed Cheese
5.3.4 Other Fat-Based Products
5.4 Carotenoids in Water-Based Foods
5.4.1 Confectionery—Hard Candy
5.4.2 Confectionery—Fruit Jellies

5.4.3 Confectionery—Marzipan
5.4.4 Sugar-Coated Tablets
5.4.5 Confectionery—Fondant
5.4.6 Confectionery—Chocolate
5.4.7 Ice-Cream
5.4.8 Yogurt
5.4.9 Cheese
5.4.10 Bakery Products
5.4.11 Baked Goods-Icings and Fillings
5.4.12 Fruit Juices
5.4.13 Soft-Drink Powders
5.4.14 Soft Drinks
5.4.15 Tomato Products
5.4.16 Soups and other Canned Products
5.4.17 Dessert Products
5.5 International Legal Status
5.6 Vitamin a Activity
6. MISCELLANEOUS NATURALLY OCCURRING COLOURING MATERIAL FOR FOODSTUFFS
6.1 Carotenoid Pigments
6.2 Annatto, 1971 CI No 75120, E160(b)
6.3 Paprika
6.4 Saffron
6.5 Miscellaneous Carotenoid Colours
6.6 Melanoidin Pigments
6.6.1 Caramel, E150
6.6.2 Manufacture of Caramel
6.6.3 Processing Conditions for the Manufacture of the Major Caramels
6.6.4 Properties of Caramel
6.6.5 Composition of Caramel
6.6.6 Uses of Caramel
6.6.7 Other Melanoidin Pigments
6.7 Porphyrin Pigments
6.7.1 Extraction of Chlorophyll and Manufacture of Derivatives
6.7.2 Uses of Chlorophyll and Its Derivatives
6.7.3 Haem Pigments
6.8 Betalaine Pigments
6.8.1 Beetroot Red, E162
6.8.2 Extraction of Beetroot Red

6.8.3 Uses of Beetroot Red
6.8.4 Pokeberry
6.9 Quininoid Pigments
6.9.1 Cochineal and Cochineal Carmine, 1971 CI No 75470, E120
6.9.2 Extraction of Cochineal
6.9.3 Properties of Cochineal
6.9.4 Preparation of Cochineal Carmine
6.9.5 Properties of Cochineal Carmine
6.9.6 Kermes and Lac Pigments
6.9.7 Alkannet, 1971 CI No 75530
6.10 Miscellaneous Organic Pigments
6.10.1 Riboflavin and Riboflavin-5'-Phosphate, E 101
6.10.2 Turmeric (Curcumin, 1971 Cl No 75300, E100)
6.10.3 Orchil, E l21
6.10.4 Indigotin, 1971 CI No 75781, Formerly E132
6.10.5 Vegetable Carbon, El53
6.10.6 Other Miscellaneous Organic Colouring Materials
6.11 Inorganic Pigments of Natural Origin for Food
6.11.1 Titanium Dioxide, 1971 CI No 77891, E171
6.11.2 Iron Oxides and Hydroxides, 1971 CI Nos 77489, 77491, 77492, 77499; El72
6.11.3 Other Inorganic Pigments for Food
7. ANALYSIS OF SYNTHETIC FOOD COLOURS
7.1 Synthetic Dyes
7.1.1 Qualitative Identification
7.1.2 Quantitative Analysis of Major Components
7.1.3 Dye Content
7.1.4 Inorganic Salts
7.1.5 Moisture
7.1.6 Quantitative Analysis of Minor Components
7.1.7 Subsidiary Dyes
7.1.8 Synthetic Intermediates
7.1.9 Primary Aromatic Amines
7.1.10 Leuco-Base
7.1.11 Water-Insoluble Matter
7.1.12 Ether Extractable Matter
7.1.13 Trace Heavy Metals
7.2 Aluminium Lakes
7.2.1 Qualitative Identification
7.2.2 Quantitative Analysis of Major Components

7.2.3 Quantitative Analysis of Minor Components
7.3 Inorganic Pigments
7.3.1 Titanium Dioxide
7.3.2 Iron Oxides
7.3.3 Vegetable Carbon
8. THE INFLUENCE OF COLOUR ON SENSORY PERCEPTION AND FOOD CHOICES
8.1 Visual Appearance and Colour in Food Choices
8.2 Qualitative Indications of the Importance of Colour
8.3 Quantitative Indications of the Importance of Colour
8.4 Effect of Colour on Taste Thresholds
8.5 Colour-Flavour Investigations Utilising Quantitative Colour Measurement Techniques
8.6 Effect of Colour on Odour
8.7 Effect of Colour on ‘Pleasantness’ of Food
9. NATURAL COLOURS IN FOOD
9.1 Aim of Chapter
9.2 Natural Colourants
9.3 Natural Colours Presently Used in Food
9.4 Methods of Improving Natural Colourants
9.5 Novel Sources of Natural Colourants
9.5.1 Microbial Sources
9.6 Animal Sources
9.7 Plant Sources
9.7.1 General Reviews
9.7.2 Colourants from By-Products
9.7.3 Gardenia Extracts
9.7.4 Other Sources
9.8 Stability of Natural Colourants in Foods
9.8.1 Feasibility of Novel Sources
9.8.2 Effect of Additives
9.9 Stable Forms of Natural Colourants Found in Vivo
9.10 Stabilised Forms of Natural Colourants
9.10.1 Flavonoids
9.10.2 Porphyrins
9.10.3 Others
10. FOOD FLAVOURS
10.1 Food Acceptance
10.2 Taste
10.3 Odor

10.4 Flavor Chemistry
10.5 Flavor Materials
10.5.1 Natural Flavorings
10.5.2 Artificial Flavorings
10.5.3 Progressive Use of Synthetics
10.5.4 Typical Synthetics
10.6 Compounding
10.7 Economic Aspects
10.8 Flavor Precursors
10.9 Sensory Evaluation
11. THE CHARACTER OF ADDITIVES
11.1 Antioxidants
11.2 Preservatives
11.3 Emulsifiers and Stabilizers
11.4 Emulsifiers
11.5 Food Colours
11.6 Some Dyestuff Food Colours in Current Use
11.7 Natural or Nature-Identical Food Colours
11.8 Flavours
11.9 Toxicant Substances in Herbs/Spices
11.10 Flavour Components of Herbs and Spices
11.11 Sequestrants
11.12 Anticaking Agents
11.13 Acids, Buffers, and Bases
11.14 Humectants
11.15 Firming and Crisping Agents
11.16 Sweeteners
11.17 Enzymes
11.18 Nutritive Additives
11.18.1 Vitamins
11.18.2 Trace Elements
11.18.3 Minerals
11.18.4 Essential Amino Acids
11.19 Essential Amino Acids
11.20 Flour and Bread Additives
12. SAFETY TESTING
12.1 Acute Toxicity
12.2 Genetic Toxicology
12.3 Subchronic Toxicity Tests
12.4 Chronic Toxicity Tests
13. BIS SPECIFICATIONS

14. HOW TO START THE BUSINESS OF FOOD ADDITIVES MANUFACTURING?
14.1 Introduction
14.1.1 What Is a Food Additive?
14.1.2 Types of Food Additives
14.2 Start A Flavor Business by Following These Steps
14.2.1 Decide the Business Structure
14.2.2 Research the Market
14.2.3 Arrange for Funds
14.2.4 Decide on the Location
14.2.5 Get FSSAI Registration/License
14.2.6 Get Other Mandatory Licenses
14.2.7 Equipment and Staff
15. HOW TO START THE BUSINESS OF FOOD COLOUR MANUFACTURING?
15.1 Introduction
15.1.1 Types of Natural Colours
15.1.2 How are Natural Colors Made?
15.1.3 Raw Material Requirements
15.1.4 Manufacturing Process
15.2 Decide the Business Structure
15.3 Research the Market Well
15.4 Take Water Testing & an Organic Testing Certificate
15.5 Location of the Organisation
15.6 Get the Required Machinery
15.6.1 Main Machinery
15.7 Obtain Necessary Permits and License
15.8 Get Business Insurance
15.9 Create Your Business Website
16. HOW TO START THE BUSINESS OF FOOD FLAVOR MANUFACTURING?
16.1 Introduction
16.1.1 The Business Purpose of Flavor
16.2 Start A Flavor Business by Following These Steps
16.2.1 STEP 1: Plan Your Business
16.2.2 STEP 2: Form a Legal Entity
16.2.3 STEP 3: Register for Taxes
16.2.4 STEP 4: Open a Business Bank Account & Credit Card
16.2.5 STEP 5: Set up Business Accounting
16.2.6 STEP 6: Obtain Necessary Permits and License
16.2.7 STEP 7: Get Business Insurance

16.2.8 STEP 8: Define Your Brand
16.2.9 STEP 9: Create Your Business Website
16.2.10 STEP 10: Set up Your Business Phone System
17. THE TOXICANT RISKS OF NATURAL FOOD
17.1 Constituents of Natural Food Products
17.2 Microbiological Contaminants of natural Food
Products
17.3 Non-Microbiological Contaminants of Natural Food Products
18. FLOW CHART
19. PLANT LAYOUT
20. PHOTOGRAPHS OF PLANT AND MACHINERY WITH SUPPLIER'S CONTACT DETAILS
• Powder Blender Mixer Machine
• Food Additives Making Equipment Homogenizer High Shear Emulsifying Mixer
• Powder Mixing Machine with Screw Conveyor
• Grinding Machine
• Mixing Vessel / Mixing Tank
• Mixing Tank
• Thin-Film Evaporator
• Agitated Thin Film Evaporator
• Stainless Steel Storage Tank
• Liquid Filling Machines
• Commercial Food Dryer
• Food Dehydrator

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.