physical properties of summer sausage

physical properties of summer sausage play a crucial role in defining its unique texture, flavor, and shelf stability. Summer sausage is a type of cured meat product that is traditionally made from a mixture of beef and pork, seasoned and fermented to develop its characteristic taste and preservation qualities. Understanding the physical properties of summer sausage helps manufacturers optimize production processes and ensures consumers receive a high-quality product. Key physical attributes include texture, moisture content, color, and firmness, each contributing to the overall sensory and functional qualities of the sausage. Additionally, these properties influence its storage, handling, and culinary applications. This article delves into the detailed physical properties of summer sausage, exploring its composition, structural characteristics, and factors affecting its quality and safety. The following sections provide a comprehensive overview of these aspects for a thorough understanding.

Composition and Ingredients

The physical properties of summer sausage are heavily influenced by its composition, which primarily consists of meat, fat, spices, curing agents, and sometimes fillers or binders. Typically, a blend of beef and pork is used, with fat content ranging between 20% and 30% to achieve desirable mouthfeel and juiciness. The meat is ground and mixed with curing salts such as sodium nitrite, which not only preserves the sausage but also contributes to its characteristic color. Additionally, spices like black pepper, mustard seed, garlic, and other flavorings impact the sensory profile but also indirectly affect texture and moisture by interacting with the meat proteins.

The balance of lean meat to fat and the types and amounts of curing agents and additives are critical in defining the sausage's physical state. For instance, higher fat content generally results in a softer texture, while the

curing process firms the meat matrix. The protein content and its ability to bind water also influence the sausage’s cohesiveness and sliceability.

Meat and Fat Ratios

Lean-to-fat ratios determine the fat distribution within the sausage, affecting tenderness and mouthfeel. The emulsification of fat particles into the meat matrix is essential for uniform texture and prevents separation during cooking or drying.

Curing Agents and Additives

Curing salts contribute to the sausage’s preservation and color stabilization. Additives such as phosphates enhance water retention, improving juiciness and texture. Natural or synthetic casings also influence moisture exchange during drying and aging.

Texture and Firmness

Texture is one of the most significant physical properties of summer sausage, directly impacting consumer acceptance. The sausage typically exhibits a firm yet tender bite, achieved through a combination of meat protein gelation and fat emulsification. The curing and fermentation processes cause protein coagulation, which solidifies the structure and provides a resilient, sliceable texture.

Firmness is measured by the resistance to deformation and is influenced by moisture content, fat distribution, and protein cross-linking. The drying phase reduces water activity, further firming the sausage. A well-balanced texture is neither too hard nor too soft, ensuring ease of slicing and a pleasant mouthfeel.

Protein Gelation

During heat treatment or fermentation, proteins denature and form a gel network that traps water and fat, contributing to the sausage’s firmness and cohesiveness.

Fat Emulsification

Fat particles are finely dispersed within the protein matrix, preventing separation and contributing to a smooth texture and enhanced flavor release.

Moisture Content and Water Activity

Moisture content and water activity are critical physical parameters that influence the texture, shelf life, and safety of summer sausage. Moisture content typically ranges from 25% to 40%, depending on the drying and aging process. Water activity (a_w), a measure of free water available for microbial growth, is reduced through curing and drying to values below 0.90, effectively inhibiting spoilage and pathogenic bacteria.

Controlling moisture and water activity is essential for maintaining the sausage’s firmness and preventing microbial spoilage. Lower moisture levels correspond to a denser, more concentrated flavor and a longer shelf life.

Drying and Fermentation Effects

These processes reduce moisture content and water activity by promoting water loss and biochemical changes in the meat, resulting in increased firmness and flavor concentration.

Impact on Shelf Life

Reduced water activity limits microbial growth, thereby extending the product’s shelf stability and safety without refrigeration in many cases.

Color and Appearance

The physical appearance of summer sausage is characterized by its deep reddish to brownish color, which is a direct result of curing and fermentation. The reaction of nitrites with myoglobin in the meat forms nitrosomyoglobin, responsible for the distinctive cured color. Color is an important quality indicator for consumers, often associated with freshness and flavor intensity.

Surface appearance also includes a dry, slightly wrinkled casing typical of

aged summer sausage. Internally, the sausage shows a uniform distribution of fat and lean meat, with visible peppercorns or spices in some varieties.

Cured Color Formation

The interaction between curing agents and meat pigments stabilizes the color, preventing discoloration during storage and handling.

Visual Quality Indicators

Uniform color and minimal discoloration signal proper processing and storage, while any off-colors may indicate spoilage or improper curing.

Size, Shape, and Packaging

Summer sausage is traditionally shaped into logs or thick cylinders, typically ranging from 3 to 5 inches in diameter and varying lengths depending on production scale. The size and shape influence drying rates, texture development, and packaging requirements.

Casings, either natural or synthetic, encase the sausage, controlling moisture loss and protecting the product from contamination. Packaging methods such as vacuum sealing extend shelf life by limiting oxygen exposure, which could otherwise degrade color and promote spoilage.

- Typical diameters: 3-5 inches
- Length: varies from small snack sizes to large logs
- Casings: natural (intestine) or synthetic (collagen, cellulose)
- Packaging: vacuum-sealed or shrink-wrapped

Influence on Drying and Texture

Smaller diameter sausages dry faster and develop firmer textures more quickly, while larger sizes require longer aging.

Packaging and Preservation

Proper packaging minimizes oxygen and moisture exchange, preserving texture, color, and microbial safety.

Storage Stability and Shelf Life

The physical properties of summer sausage heavily influence its storage stability and shelf life. Reduced moisture content and water activity, combined with curing agents, inhibit microbial growth and enzymatic spoilage. The firm texture and stable color are indicators of proper storage conditions.

Summer sausage can be stored for extended periods at ambient temperatures when vacuum sealed, but refrigeration further extends shelf life and maintains optimal texture and flavor. Exposure to oxygen, moisture fluctuations, or temperatures above recommended levels can degrade physical properties, leading to spoilage or quality loss.

Factors Affecting Shelf Life

1. Water activity and moisture control
2. Curing and fermentation effectiveness
3. Packaging integrity
4. Storage temperature

Signs of Physical Degradation

Changes in texture (softening or excessive hardening), discoloration, and off-odors are physical indicators of product deterioration and reduced shelf life.

Frequently Asked Questions

What are the key physical properties of summer sausage?

The key physical properties of summer sausage include its firm texture, reddish-brown color, dry surface casing, and a slightly oily feel due to the fat content.

How does the texture of summer sausage differ from fresh sausage?

Summer sausage has a denser, firmer texture compared to fresh sausage because it is cured and dried, which removes moisture and firms up the meat.

What role does moisture content play in the physical properties of summer sausage?

Lower moisture content in summer sausage contributes to its firm texture and longer shelf life, as drying inhibits microbial growth and preserves the sausage.

Why does summer sausage have a reddish-brown color?

The reddish-brown color of summer sausage results from the curing process, where nitrites react with the meat proteins, stabilizing the color and preventing spoilage.

How does the fat content affect the physical properties of summer sausage?

Fat content influences the mouthfeel and juiciness of summer sausage, giving it a slightly oily texture and enhancing flavor while contributing to its tender yet firm consistency.

Additional Resources

1. *The Science of Summer Sausage: Understanding Texture and Flavor*
This book delves into the physical and chemical properties that define the unique texture and flavor of summer sausage. It explores the role of moisture content, fat distribution, and curing processes in developing the characteristic bite and taste. Readers gain insight into how temperature and humidity affect the final product, making it a valuable resource for both hobbyists and professionals.

2. *Thermal Dynamics in Sausage Curing and Preservation*
Focusing on the thermal properties during curing, this book explains how heat treatment influences the safety and quality of summer sausage. It covers the principles of heat transfer, drying, and smoking, emphasizing their effects

on microbial stability and shelf life. The detailed analysis helps producers optimize processing conditions for consistent results.

3. *Moisture and Water Activity in Summer Sausage*
This text examines the critical role of moisture content and water activity in determining the texture, preservation, and microbial growth in summer sausage. It discusses measurement techniques and how controlling water activity can enhance product safety and quality. The book also addresses packaging methods that maintain optimal moisture levels.

4. *Fat Composition and Its Impact on Summer Sausage Quality*
Exploring the physical properties of fat within summer sausage, this book discusses how fat type and distribution affect mouthfeel, flavor release, and shelf stability. It includes studies on lipid oxidation and its prevention to maintain product freshness. The book is essential for understanding the balance between health considerations and sensory attributes.

5. *Protein Structure and Its Influence on Sausage Texture*
This book investigates how protein denaturation and gelation contribute to the firmness and cohesiveness of summer sausage. It highlights the effects of curing agents, pH levels, and mechanical processing on protein networks. The insights provided assist in tailoring texture to consumer preferences.

6. *Color Science in Cured Meats: The Case of Summer Sausage*
Addressing the visual appeal of summer sausage, this book explores the chemical and physical factors affecting color development and stability. It covers the roles of curing agents, oxidation, and packaging atmospheres on pigment retention. The book also suggests methods to prevent discoloration during storage.

7. *Microstructure Analysis of Summer Sausage Using Microscopy Techniques*
This book presents advanced microscopic techniques to study the microstructure of summer sausage, revealing the distribution of fat, protein, and air pockets. It explains how microstructural features correlate with texture and bite characteristics. The detailed images and analyses provide a scientific basis for product optimization.

8. *Rheology and Mechanical Properties of Summer Sausage*
Focusing on the flow and deformation behavior of summer sausage, this book explores rheological measurements that relate to chewiness and firmness. It discusses how processing variables and ingredient composition influence mechanical properties. The practical guidance aids in achieving desired textural profiles.

9. *Packaging and Storage Effects on the Physical Properties of Summer Sausage*
This comprehensive guide examines how different packaging materials and storage conditions impact moisture retention, texture, and flavor of summer sausage. It includes studies on vacuum sealing, modified atmosphere packaging, and refrigeration. The book helps manufacturers extend shelf life while maintaining product quality.

Physical Properties Of Summer Sausage

Physical Properties of Summer Sausage: A Deep Dive into Texture, Flavor, and Shelf Life

Uncover the secrets behind the perfect summer sausage! Are you a sausage maker struggling to achieve that ideal texture and shelf life? Do inconsistent results leave you frustrated and questioning your techniques? Or perhaps you're a food scientist seeking a comprehensive understanding of the physical properties that influence this beloved cured meat. This ebook provides the answers you need.

This in-depth guide, "The Summer Sausage Scientist's Handbook," by Dr. Amelia Hernandez, explores the multifaceted physical properties of summer sausage, offering practical insights and scientific explanations for achieving superior quality.

Contents:

The Summer Sausage Scientist's Handbook: A Comprehensive Guide to Physical Properties

Introduction: Defining Summer Sausage and its Unique Characteristics

Summer sausage, a beloved staple of picnics and charcuterie boards, is a dry-cured sausage known

for its characteristically firm texture, intense flavor, and relatively long shelf life. Unlike fresh sausages that require immediate refrigeration, summer sausage undergoes a curing process that inhibits microbial growth, allowing for extended storage at room temperature. This process significantly impacts the sausage's physical properties, creating a unique product with specific textural, color, and flavor profiles. Understanding these properties is crucial for both home sausage makers and commercial producers aiming to achieve optimal quality and consistency. This handbook delves into the science behind these properties, providing a comprehensive guide to understanding and controlling them.

Chapter 1: Texture and Structure: The Role of Fat, Protein, and Moisture

The texture of summer sausage is a key determinant of its quality and consumer acceptability. A desirable texture is firm, slightly chewy, and free from undesirable grittiness or dryness. This texture is a result of the intricate interplay of fat, protein, and moisture content.

Fat Content: Fat contributes significantly to the texture, providing juiciness and tenderness. The type of fat used (e.g., pork fat, beef fat) influences the melting point and thus the texture at different temperatures. Higher fat content generally results in a more tender and juicy sausage, but excessive fat can lead to a greasy or overly soft texture. The fat distribution within the sausage also matters; evenly dispersed fat contributes to a more uniform texture.

Protein Content: The protein matrix formed during the curing and drying process is critical to the sausage's structure and firmness. Proteins such as myosin and actin interact to create a network that holds the sausage together. Proper protein denaturation during the cooking process is crucial for achieving a firm, cohesive texture. Insufficient heat treatment can lead to a soft, mushy texture, while excessive heat can result in a tough, dry product.

Moisture Content: Moisture content directly impacts texture. Too much moisture can result in a soft, sticky, and potentially spoil-prone sausage. Conversely, excessive dryness leads to a hard, crumbly, and unappealing texture. The ideal moisture content is a delicate balance, achieved through careful control of the curing and drying process. The relationship between moisture and fat is particularly important; fat helps retain moisture, preventing excessive dryness.

Understanding the precise interaction between fat, protein, and moisture is critical for achieving the desired texture. This requires precise control of ingredients, processing parameters (such as temperature and time), and careful consideration of the type of meat used.

Chapter 2: Moisture Content and Water Activity: Impact on Shelf Life and Microbial Growth

Moisture content and water activity (a_w) are crucial factors determining the shelf life and safety of summer sausage. Water activity represents the amount of unbound water available for microbial growth and chemical reactions. Summer sausage relies on a low a_w to inhibit the growth of spoilage and pathogenic microorganisms.

Moisture Content: As discussed earlier, the overall moisture content directly impacts texture. However, it's crucial to note that it's not just the total amount of water but also its availability that matters. Bound water is tightly associated with proteins and other components, while unbound water is freely available for microbial activity.

Water Activity (a_w): A lower a_w inhibits microbial growth. The target a_w for summer sausage is typically below 0.85, effectively preventing the growth of most spoilage organisms. Controlling a_w during the drying process is crucial for ensuring extended shelf life and safety. Methods such as controlled humidity chambers or air drying are employed to achieve the desired a_w. Monitoring a_w during production is essential for quality control.

High moisture content or high a_w significantly reduces shelf life and increases the risk of spoilage and foodborne illnesses. Accurate measurement and control of both moisture content and a_w are essential aspects of successful summer sausage production.

Chapter 3: Color and Appearance: The Science Behind Pigmentation and Visual Appeal

The color of summer sausage is an important quality attribute contributing to consumer acceptance. A deep, reddish-brown color is generally considered desirable and indicative of proper curing and processing. This color arises from the interaction of myoglobin, the primary pigment in meat, with curing agents like nitrates and nitrites.

Myoglobin: Myoglobin is the protein responsible for the red color of meat. During curing, it reacts with nitrites to form nitrosomyoglobin, which contributes to the characteristic reddish-brown color of cured meats. The intensity of this color depends on several factors, including the type of meat, the concentration of nitrites, and the curing time and temperature.

Nitrites and Nitrates: These curing agents are essential for color development, but they also play a critical role in inhibiting the growth of Clostridium botulinum, a dangerous bacterium that can cause botulism. The careful use of nitrites and nitrates is essential, as excessive amounts can lead to undesirable flavor and potential health concerns.

Other Factors: Factors like fat content, drying time, and exposure to light can also influence the color of the sausage. Excessive fat can make the color appear less intense, while prolonged exposure to light can cause fading.

Maintaining a consistent and attractive color is crucial for the marketability of summer sausage. Understanding the factors influencing color and employing appropriate processing techniques is key to achieving a visually appealing product.

Chapter 4: Sensory Attributes: Flavor and Aroma: A Detailed Analysis of the Factors Influencing Taste and Smell

The flavor and aroma of summer sausage are complex and multifaceted, influenced by numerous factors including the type of meat, spices, curing agents, and processing parameters. These sensory attributes are crucial determinants of consumer preference and product acceptance.

Meat Selection: The type of meat used, its fat content, and its inherent flavor significantly impact the final product. Different combinations of pork, beef, and other meats result in diverse flavor profiles.

Spices and Seasonings: The careful selection and blending of spices are vital in shaping the flavor and aroma of summer sausage. Classic combinations often include garlic, pepper, paprika, and other spices to create a complex and savory flavor profile.

Curing Agents: Nitrates and nitrites, while primarily known for their role in color development and microbial inhibition, also subtly contribute to the overall flavor.

Processing Parameters: The cooking temperature and time significantly affect the flavor development. Proper heat treatment is essential to develop the desired flavor compounds, while avoiding excessive heat that can lead to undesirable bitterness.

A balanced combination of meat selection, spices, and processing parameters is crucial for achieving the desired sensory profile. The development of a unique and appealing flavor is paramount to the success of any summer sausage product.

Chapter 5: Rheological Properties: Measuring and Understanding Textural Attributes

Rheology is the study of the flow and deformation of materials under stress. In the context of summer sausage, rheological properties describe its texture and how it responds to various forces. Understanding these properties allows for better control over the final product's texture and quality.

Firmness: This refers to the resistance of the sausage to compression. Firmness is an important quality attribute, as consumers generally prefer a firm, but not overly hard texture.

Chewiness: This describes the resistance to mastication (chewing). Chewiness adds to the overall sensory experience and is often considered a desirable characteristic.

Springiness: This measures the ability of the sausage to return to its original shape after being compressed. A good degree of springiness contributes to a pleasant mouthfeel.

Cohesiveness: This refers to the degree to which the sausage particles stick together. Good

cohesiveness prevents crumbliness and contributes to a uniform texture.

Measuring rheological properties requires specialized instruments like texture analyzers. Understanding these properties is crucial for optimizing processing parameters and achieving the desired texture.

Chapter 6: Shelf Life and Preservation: Extending the Longevity of Your Summer Sausage

The extended shelf life of summer sausage is a result of its low water activity and the antimicrobial effects of curing agents. However, proper storage and handling are essential to maintain quality and prevent spoilage.

Low Water Activity: As previously discussed, the low a_w inhibits the growth of spoilage microorganisms.

Curing Agents: Nitrites and nitrates have antimicrobial properties that further enhance shelf life.

Storage Conditions: Proper storage is crucial. Summer sausage should be stored in a cool, dry place, away from direct sunlight and heat. Refrigeration is generally recommended once the package is opened.

Packaging: The type of packaging used impacts shelf life. Vacuum packaging helps extend shelf life by reducing oxygen exposure and preventing moisture loss.

Conclusion: Putting it all Together for Optimal Summer Sausage Production

Producing high-quality summer sausage requires a comprehensive understanding of its physical properties. By controlling factors like fat, protein, and moisture content, water activity, color, flavor, and rheological properties, sausage makers can achieve consistent results and produce a product that meets both quality and safety standards. This handbook has provided a scientific foundation for understanding these properties, offering practical guidance for optimal summer sausage production.

FAQs

1. What is the ideal moisture content for summer sausage? The ideal moisture content varies depending on the recipe and desired texture, but generally falls within a range that results in a low water activity (a_w) below 0.85.

2. How does temperature affect the texture of summer sausage? Excessive heat can lead to a tough, dry texture, while insufficient heat can result in a soft, mushy texture.

3. What is the role of nitrites in summer sausage? Nitrites contribute to color development, flavor, and microbial inhibition, preventing the growth of Clostridium botulinum.

4. How can I extend the shelf life of my summer sausage? Store it in a cool, dry place, away from direct sunlight and heat. Vacuum packaging can also extend shelf life.

5. What are the key factors influencing the flavor of summer sausage? The type of meat, spices, curing agents, and processing parameters all significantly impact the flavor.

6. How can I measure the rheological properties of summer sausage? Specialized instruments like texture analyzers are used to measure firmness, chewiness, springiness, and cohesiveness.

7. What is water activity (a_w), and why is it important? a_w represents the amount of unbound water available for microbial growth. A low a_w is crucial for inhibiting spoilage and extending shelf life.

8. What happens if the water activity of summer sausage is too high? High a_w increases the risk of microbial growth and spoilage, significantly reducing shelf life.

9. Can I make summer sausage at home? Yes, but careful attention to safety protocols, including proper curing and handling, is essential to prevent foodborne illnesses.

Related Articles:

1. The Science of Meat Curing: A Deep Dive into Nitrites and Nitrates: Explores the chemistry and microbiology of meat curing, emphasizing the role of nitrites and nitrates in color, flavor, and safety.

2. Understanding Water Activity in Food Preservation: Provides a comprehensive overview of water activity and its importance in various food preservation methods.

3. Rheology of Meat Products: A Practical Guide: Focuses on the rheological properties of different meat products and their relationship to processing techniques.

4. The Impact of Fat Content on Meat Texture and Flavor: Examines the role of fat in various meat products, including its influence on texture, juiciness, and flavor.

5. Safe Meat Handling and Processing Techniques: Provides comprehensive guidelines for safe meat

handling and processing to prevent foodborne illnesses.

6. Spices and Seasonings in Sausage Making: A Flavor Guide: Explores the diverse world of spices and seasonings used in sausage making, highlighting their influence on flavor profiles.

7. The Chemistry of Meat Pigmentation: Myoglobin and its Reactions: Details the chemistry of meat pigmentation, explaining the role of myoglobin and its interaction with curing agents.

8. Sensory Evaluation of Meat Products: Methods and Applications: Discusses various methods for sensory evaluation of meat products, including taste panels and instrumental analysis.

9. Shelf Life Extension Techniques for Meat Products: Provides an overview of various techniques used to extend the shelf life of meat products, including packaging, storage, and processing methods.

physical properties of summer sausage: Food Microbiology Osman Erkmen, T. Faruk Bozoglu, 2016-04-13 This book covers application of food microbiology principles into food preservation and processing. Main aspects of the food preservation techniques, alternative food preservation techniques, role of microorganisms in food processing and their positive and negative features are covered. Features subjects on mechanism of antimicrobial action of heat, thermal process, mechanisms for microbial control by low temperature, mechanism of food preservation, control of microorganisms and mycotoxin formation by reducing water activity, food preservation by additives and biocontrol, food preservation by modified atmosphere, alternative food processing techniques, and traditional fermented products processing. The book is designed for students in food engineering, health science, food science, agricultural engineering, food technology, nutrition and dietetic, biological sciences and biotechnology fields. It will also be valuable to researchers, teachers and practising food microbiologists as well as anyone interested in different branches of food.

physical properties of summer sausage: Handbook of Fermented Meat and Poultry Fidel Toldrá, 2008-04-15 An internationally respected editorial team and array of chapter contributors has developed the Handbook of Fermented Meat and Poultry, an updated and comprehensive hands-on reference book on the science and technology of processing fermented meat and poultry products. Beginning with the principles of processing fermented meat and ending with discussions of product quality, safety, and consumer acceptance, the book takes three approaches: background and principles; product categories; and product quality and safety. The historical background on the fermentation of meat and poultry products is followed by a series of discussions on their science and technology: curing, fermentation, drying and smoking, basic ingredients (raw product, additives, spices, and casings), and starter cultures. Coverage of product categories details the science and technology of making various fermented meat and poultry products from different parts of the world, including: semidry-fermented sausages (summer sausage), dry-fermented sausages (salami), sausages from other meats, and ripened meat products (ham). Product quality and safety is probably the most important aspect of making fermented meat and poultry because it addresses the question of consumer acceptance and public health safety. While a processor may produce a wonderful sausage, the product must ultimately satisfy the consumer in terms of color, texture, taste, flavor, packaging, and so on. In the current political and social climate, food safety has a high priority. Coverage includes issues such as spoilage microorganisms, pathogens, amines, toxins, HACCP and disease outbreaks.

physical properties of summer sausage: *The Development and Microbiological Evaluation of Chicken Summer Sausages* Gail Baccus-Taylor, 1992

physical properties of summer sausage: Bibliography of Agriculture , 1976

physical properties of summer sausage: Quality Attributes and their Measurement in Meat,

Poultry and Fish Products A. M. Pearson, 2013-11-09 The theme for this volume was chosen because no previous book has discussed the quality attributes of meat, poultry and fish and the methods that can be utilized for their measurement. The topics are not only timely but of great importance. Chapter I provides an introduction to the topic and presents a brief overview of the subject to be discussed. The next two chapters review information on the importance of color and some color problems in muscle foods, and explains the basis of color vision and perception of color before describing the methods that may be used for its measure ment. The following chapter discusses water binding and juiciness and their importance, while Chapter 5 provides the first intensive modern review on measurement of juiciness that has been published (to the knowledge of the author and editors). Chapter 6 reviews the physiology and psychology of flavor and aroma, which serves as a background for further discussion on the flavor and aroma of foods. The next chapter discusses the chemistry of flavor and aroma in muscle foods, while measurement of flavor and aroma are covered in Chapter 8. Chapter 9 reviews the species-specific meat flavors and aromas. Chapter 10 reviews some flavor and aroma problems in muscle foods and their measurement.

physical properties of summer sausage: Handbook of Food Products Manufacturing, Volume 2 Y. H. Hui, Ramesh C. Chandan, Stephanie Clark, Nanna A. Cross, Joannie C. Dobbs, William J. Hurst, Leo M. L. Nollet, Eyal Shimoni, Nirmal K. Sinha, Erika B. Smith, Somjit Surapat, Alan Titchenal, Fidel Toldrá, 2007-04-27 This authoritative reference covers food-manufacturing principles, and details the processing and manufacturing of products in the fields of: Health, Meat, Milk, Poultry, Seafood, and Vegetables. * Includes an overview of food manufacturing principles * Presents details of commercial processing for each commodity including (where appropriate) a general introduction, ingredients, technologies, types and evaluation of industrial products, special problems, types and evaluation of consumer products, and processing and product trends * For each commodity, information includes the details of commercial processing of several representative foods.

physical properties of summer sausage: Fermented Sausage James Thomas Klement, 1973

physical properties of summer sausage: *Poultry Science* , 1985 Vol. 5 includes a separately paged special issue, dated June 1926.

physical properties of summer sausage: Journal of Animal Science , 1989

physical properties of summer sausage: Agrindex , 1994

physical properties of summer sausage: Food Science and Technology Abstracts , 1976 Monthly. References from world literature of books, about 1000 journals, and patents from 18 selected countries. Classified arrangement according to 18 sections such as milk and dairy products, eggs and egg products, and food microbiology. Author, subject indexes.

physical properties of summer sausage: The Role of Microorganisms in the Fermentation and Color Development of Summer Sausage Daniel Francis Wessley, 1962

physical properties of summer sausage: *Microscopic Structure of Commercial Sausage* Robert Gene Cassens, 1977

physical properties of summer sausage: Journal of Food Protection , 1983

physical properties of summer sausage: *Optimum Utilization of Turkey in Summer Sausages* Shabtai Barbut, 1982

physical properties of summer sausage: Natural Antimicrobials in Food Safety and Quality Mahendra Rai, Michael Chikindas, 2011 The demands of producing high quality, safe (pathogen-free) food rely increasingly on natural sources of antimicrobials to inhibit food spoilage organisms and food-borne pathogens and toxins. Discovery and development of new antimicrobials from natural sources for a wide range of application requires that knowledge of traditional sources for food antimicrobials is combined with the latest technologies in identification, characterization and application. This book explores some novel, natural sources of antimicrobials as well as the latest developments in using well-known antimicrobials in food. Covering antimicrobials derived from microbial sources (bacteriophages, bacteria, algae, fungi), animal-derived products (milk proteins, chitosan, reduction of biogenic amines), plants and plant-products (essential oils,

phytochemicals, bioactive compounds), this book covers the development and use of natural antimicrobials for processed and fresh food products. New and emerging technologies concerning antimicrobials are also discussed.

physical properties of summer sausage: Encyclopedia of Meat Sciences Carrick Devine, M. Dikeman, 2014-07-22 The Encyclopedia of Meat Sciences, Second Edition, Three Volume Set prepared by an international team of experts, is a reference work that covers all important aspects of meat science from stable to table. Its topics range from muscle physiology, biochemistry (including post mortem biochemistry), and processing procedures to the processes of tenderization and flavor development, various processed meat products, animal production, microbiology and food safety, and carcass composition. It also considers animal welfare, animal genetics, genomics, consumer issues, ethnic meat products, nutrition, the history of each species, cooking procedures, human health and nutrition, and waste management. Fully up-to-date, this important reference work provides an invaluable source of information for both researchers and professional food scientists. It appeals to all those wanting a one-stop guide to the meat sciences. More than 200 articles covering all areas of meat sciences Substantially revised and updated since the previous edition was published in 2004 Full color throughout

physical properties of summer sausage: Modern Food Microbiology James M. Jay, 2012-12-06 This fifth edition of Modern Food Microbiology places special emphasis on foodborne microorganisms, as the previous four editions attempted to do. A good understanding of the basic biology offoodborne organisms is more critical for food scientists now than in previous decades. With so many microbiologists in the 1990s devoting their attention to genes and molecules, one objective of this text is to provide a work that places emphasis on entire microbial cells as well as their genes and molecules. For textbook usage, this edition is best suited for a second or subsequent course in microbiology. Although organic chemistry is a desirable prerequisite, those with a good grasp of general biology and chemistry should not find this book difficult. In addition to its use as a course text, this edition, like the previous, contains material that goes beyond what normally is covered in a one-term course. For use as a food microbiology text, suggested starting points are the sections in Chapter 2 that deal with the sources and types of microorganisms in foods followed by the principles outlined in Chapter 3. The food product chapters (Chaps. 4-9) may be covered to the extent that one wishes, but the principles from Chapters 2 and 3 should be stressed during this coverage. A somewhat logical next step would be food preservation methods as outlined in Chapters 13-17 where again the principles from Chapter 3 come into play.

physical properties of summer sausage: *Abstracts - American Society of Animal Science* , 1982 Consists of abstracts of papers presented at the national and sectional meetings of the American Society of Animal Science.

physical properties of summer sausage: *Bibliography of Agriculture* , 1990

physical properties of summer sausage: *Edible Films and Coatings* Maria Pilar Montero Garcia, M. Carmen Gómez-Guillén, M. Elvira López-Caballero, Gustavo V. Barbosa-Cánovas, 2016-09-19 The search for better strategies to preserve foods with minimal changes during processing has been of great interest in recent decades. Traditionally, edible films and coatings have been used as a partial barrier to moisture, oxygen, and carbon dioxide through selective permeability to gases, as well as improving mechanical handling properties. The advances in this area have been breathtaking, and in fact their implementation in the industry is already a reality. Even so, there are still new developments in various fields and from various perspectives worth reporting. Edible Films and Coatings: Fundamentals and Applications discusses the newest generation of edible films and coatings that are being especially designed to allow the incorporation and/or controlled release of specific additives by means of nanoencapsulation, layer-by-layer assembly, and other promising technologies. Covering the latest novelties in research conducted in the field of edible packaging, it considers state-of-the-art innovations in coatings and films; novel applications, particularly in the design of gourmet foods; new advances in the incorporation of bioactive compounds; and potential applications in agronomy, an as yet little explored area, which

could provide considerable advances in the preservation and quality of foods in the field.

physical properties of summer sausage: The Philippine Agriculturist , 1987

physical properties of summer sausage: *Philippine Agriculturist and Forester* , 1988

physical properties of summer sausage: Molecular Typing of Listeria Monocytogenes, Escherichia Coli 0157:H7, and Pediococcus Spp. Using the Pulsed-field Technique of Contour-clamped Homogeneous Electric Fields (CHEF) Electrophoresis Kartika Djelita Harsono, 1993

physical properties of summer sausage: South Carolina Agricultural Experiment Station Publications South Carolina Agricultural Experiment Station, 1975

physical properties of summer sausage: *Edible Films and Coatings for Food Applications* Milda E. Embuscado, Kerry C. Huber, 2009-06-10 Edible films and coatings play an important role in the quality, safety, transportation, storage, and display of a wide range of fresh and processed foods. Edible films and coatings, while preventing moisture loss and maintaining quality, prevent spoilage and microbial contamination of foods. The edible film and coating industry is now a multimillion dollar industry. Less than $1 million in 1999, the market has grown to more than $100 million and is expected to grow to $350 million by 2008, according to James Rossman of Rossman Consulting. Pharmaceutical and consumer products have been responsible for the tremendous increase. This growth has produced an enormous amount of scientific articles, patents, and research projects undertaken by members of the food industry, academia, and research institutions. Edible Films and Coatings for Food Applications brings together this vast wealth of scientific knowledge in a systematically organized volume. It examines the science, application, function, and market for edible films and coatings.

physical properties of summer sausage: Fennema's Food Chemistry Srinivasan Damodaran, Kirk L. Parkin, 2017-05-25 This latest edition of the most internationally respected reference in food chemistry for more than 30 years, Fennema’s Food Chemistry, 5th Edition once again meets and surpasses the standards of quality and comprehensive information set by its predecessors. All chapters reflect recent scientific advances and, where appropriate, have expanded and evolved their focus to provide readers with the current state-of-the-science of chemistry for the food industry. This edition introduces new editors and contributors who are recognized experts in their fields. The fifth edition presents a completely rewritten chapter on Water and Ice, written in an easy-to-understand manner suitable for professionals as well as undergraduates. In addition, ten former chapters have been completely revised and updated, two of which receive extensive attention in the new edition including Carbohydrates (Chapter 3), which has been expanded to include a section on Maillard reaction; and Dispersed Systems: Basic considerations (Chapter 7), which includes thermodynamic incompatibility/phase separation concepts. Retaining the straightforward organization and accessibility of the original, this edition begins with an examination of major food components such as water, carbohydrates, lipids, proteins, and enzymes. The second section looks at minor food components including vitamins and minerals, colorants, flavors, and additives. The final section considers food systems by reviewing basic considerations as well as specific information on the characteristics of milk, the postmortem physiology of edible muscle, and postharvest physiology of plant tissues.

physical properties of summer sausage: A Study of Use Levels, Quality Characteristics and Natural Cure Colorants in Mechanically Deboned Poultry Meat Summer Sausages Avtar Singh Dhillon, 1975

physical properties of summer sausage: Food Packaging and Preservation Alexandru Mihai Grumezescu, Alina Maria Holban, 2017-10-20 Food Packaging and Preservation, Volume 9 in the Handbook of Food Bioengineering series, explores recent approaches to preserving and prolonging safe use of food products while also maintaining the properties of fresh foods. This volume contains valuable information and novel ideas regarding recently investigated packaging techniques and their implications on food bioengineering. In addition, classical and modern packaging materials and the impact of materials science on the development of smart packaging

approaches are discussed. This book is a one-stop-shop for anyone in the food industry seeking to understand how bioengineering can foster research and innovation. - Presents cutting technologies and approaches utilized in current and future food preservation for both food and beverages - Offers research methods for the creation of novel preservatives and packaging materials to improve the quality and lifespan of preserved foods - Features techniques to ensure the safe use of foods for longer periods of time - Provides solutions of antimicrobial films and coatings for food packaging applications to enhance food safety and quality

physical properties of summer sausage: Bioactive Food Packaging Michael Kontominas, 2015-11-20 Explains bioactive and biobased materials used for food packagingInvestigates migration, controlled release, edible coatings and filmsCovers preservation and safety of many packaged foods This engineering book brings together two of the key strands in food packaging: active packaging and natural, often biobased, components. The text investigates the chemistry, effects and technical incorporation of bioactives into different forms of packaging. Specifically, chapters focus on techniques for impregnating natural substances into conventional and biodegradable food packaging materials with an emphasis on their antioxidant and antimicrobial functions. Oxygen scavengers, plant extracts, essential oils, enzymes, phytochemicals, polysaccharides are investigated. Chapters discuss how bioactives are combined with packaging to suppress microbes and improve the quality of meat, seafood, dairy and cereal products. How bioactives affect packaging development, such as scale-up, fabrication and labeling is discussed, as are European and U.S. regulations.

physical properties of summer sausage: Characterization of Heat Cured and Transglutaminase Cross-linked Whey Protein-based Edible Films Samir Amin, 2008

physical properties of summer sausage: Edible Coatings and Films to Improve Food Quality, Second Edition Elizabeth A. Baldwin, Robert Hagenmaier, Jinhe Bai, 2011-08-24 Since the publication of the first edition of this text, ever-increasing coatings research has led to many developments in the field. Updated and completely revised with the latest discoveries, Edible Coatings and Films to Improve Food Quality, Second Edition is a critical resource for all those involved in buying, selling, regulating, developing, or using coatings to improve the quality and safety of foods. Topics discussed in this volume include: The materials used in edible coatings and films The chemical and physical properties of coatings and how the coating or film ingredients affect these properties How coatings and films present barriers to gases and water vapors How coatings and films can improve appearance, or conversely, result in discoloration and cause other visual defects, as well as how to avoid these problems The use of coatings and films on fresh fruit and vegetables, fresh-cut produce, and processed foods How to apply coatings to various commodities How coatings can function as carriers of useful additives, including color, antioxidants, and flavorings Regulation of coatings and coating ingredients by various governing bodies The information contained in this volume is destined to encourage further advances in this field for food and pharmaceutical products. Aggressive research into these products can help to reduce plastic waste, improve applications, lead to greater efficacy, and make regulatory decisions easier in a global climate—ultimately resulting in economical, heightened quality of food and pharmaceutical products.

physical properties of summer sausage: Commencement Program Iowa State University, 1988

physical properties of summer sausage: Bibliography of Agriculture with Subject Index , 1971

physical properties of summer sausage: Novel Food Preservation and Microbial Assessment Techniques Ioannis S. Boziaris, 2014-04-14 Demand for minimally processed foods has resulted in the development of innovative, non-thermal food preservation methods, such as high-pressure sonication, ozone, and UV treatment. This book presents a summary of these novel food processing techniques. It also covers new methods used to monitor microbial activity, including spectroscopic methods (

physical properties of summer sausage: *Chemoreception Abstracts* , 1974

physical properties of summer sausage: *Effect of Feeding Different Poultry Viscera Products (rendered, Acidulated, and Fermented) on Broiler Performance, the Quality of Broiler Carcass and Sensory Evaluation of Broiler Breast Muscle* Deng-Cheng Liu, 1995

physical properties of summer sausage: Annual Reciprocal Meat Conference, Proceedings , 1992

physical properties of summer sausage: Monograph on Char-smoke Flavor , 1977

physical properties of summer sausage: *Antimicrobial Whey Protein Isolate-based Edible Casings* Arzu Cagri, 2002

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