



Fats in Baking

Development of Q-Bake training material

Q-bake Trainer

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Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - Because high level baking demands deep knowledge of every raw material used :
 - Bakery Product Technology
 - Functionality of fat in the product
 - Behavior of the fat in the product during its shelf life
 - Interactions with other materials of the formulation
 - Physical and Chemical characteristics of the material
 - Quality characteristics (Measurable Quality Indices)

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - Because high level baking demands deep knowledge of every raw material used :
 - Stability and shelf life properties
 - Receiving Conditions
 - Storage conditions
 - Shelf life
 - Availability and Cost
 - Uniformity and Repeatability (batch to batch)
 - Legal framework, Ethical Issues, Marketing Issues

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - Because it is the second more important raw material in bakery after flour.
 - As a percentage on the final product
 - Baking increases the percentage of the fat in the final product
 - Nutrition
 - Fats have more than double calories of every other raw material used
 - Because most of nutritional trends have to do either with the level or the type of fats in the product
 - Greatly affects the bakery processes

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?

- Greatly affects the bakery processes

- **Mixing Examples**

- Bread
- Cakes



Solid fat used at the beginning of mixing
Liquid fat used at the end of mixing

- Pies
- Puff Pastry



Level of mixing of solid fat with flour / dough
determines the properties of the final product

- **Forming Examples**

- Laminated Dough
- Fyllo



Incorporation of the fat in the dough determines
the set up of all the forming part of the processing
line

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - Greatly affects the bakery processes

- **Dough Rheology**  Structural material of the dough
Determines the level of water in the formula in order to achieve same rheology
- **Baking**  Higher fat – Less water to evaporate
Fat melting and when
Low specific heat compared to evaporation
- **Final form**  Product Spread, Crust
Softness and Tenderness
- **Processing Aid**  Fried Bakery
Release agents

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - Because the belief that “fat industry knows” what is needed is most of the times wrong.
 - Bakery industry is always a step ahead on demand for new type fats
 - Knowledge of fats in bakery is not a very spread
 - Excessive acquisition and accumulation of the production of fats in bigger plants with fewer commercial product codes
 - Big bakery companies have the opportunity to develop unique products on a B2B way with the fat producers
 - Small processors cannot have access neither to know how nor to specialized products

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - For business development
 - Problems coming from fats can be resolved only by bakery processor
 - New products and improvement of current products
 - Process improvement
 - A big cost factor of the product

Fats in Baking

- Why improving the level of understanding of fats in bakery will help the processor?
 - Because changes in this field are very rapid
 - Accumulation of the production in fewer and bigger units
 - Improvements of standards coming up of state of the art large scale production units
 - Prevalence of tropical oils (Palm Oil)
 - Nutritional issues for fats are changing rapidly

Fats in Baking

- Approach followed for the development of the Q-Bake training material for fats
 - Target 1
 - The development and understanding of a common language on technologies and quality between producers and consumers
 - Understanding how the final fat products is coming from the raw materials and processes applied for its formulation
 - Classification and correct nomenclature
 - Physical forms, supply and use in the production
 - Understanding the quality indices and the incorporation of them in a quality program for the supply, storage and final use in the product
 - That types and physical forms are understood and utilized show that the processor will take advantage and resolve issues

Fats in Baking

- Approach followed for the development of the Q-Bake training material for fats

- Task 2

- To understand the function of fats in the products per product class and per processing

- Methodology

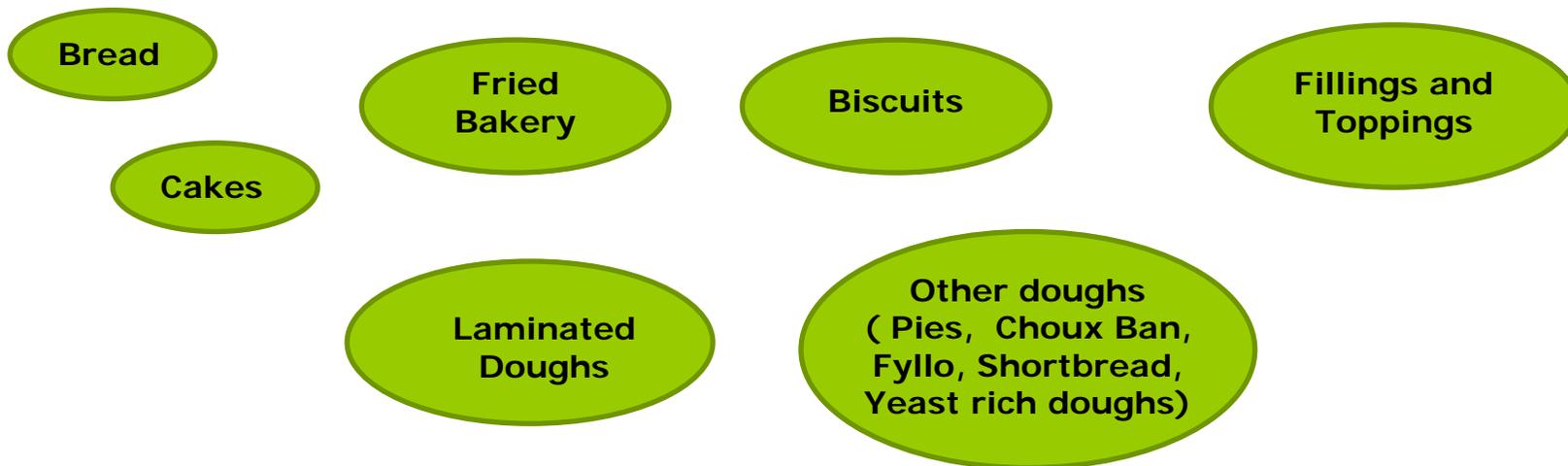


Classification of bakery products
Process description
Macroscopic Effects
Microscopic Effects
Suitable fat characteristics per product class and process

Fats in Baking

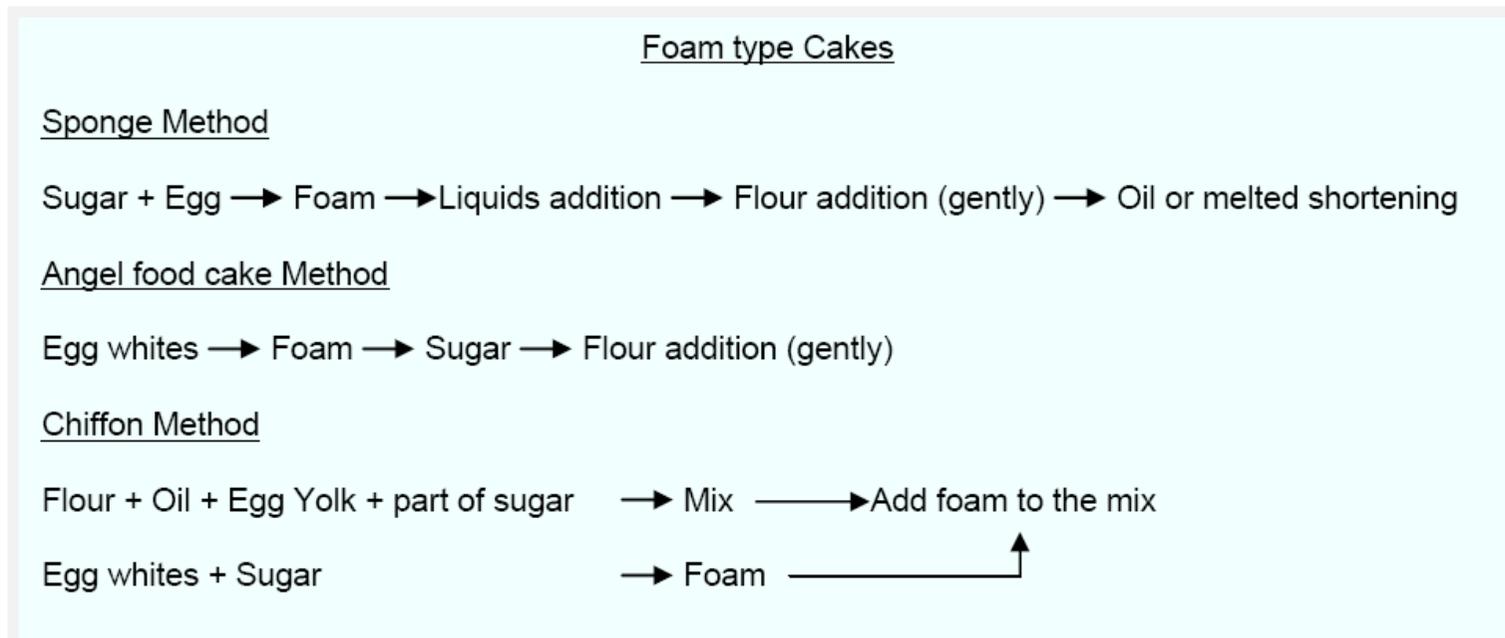
- Approach followed for the development of the Q-Bake training material for fats
 - Classification of products in families

Bakery Products Families



Fats in Baking

- Approach followed for the development of the Q-Bake training material for fats
 - Process Description (Example)



Fats in Baking

- Approach followed for the development of the Q-Bake training material for fats
 - Task 3
 - Issues related to fats in baking

 - Stability Issues
 - Rancidity
 - Oxidative
 - Hydrolytic
 - Migration
 - Re-crystallization and Fat Bloom

 - Nutrition Issues
 - "Good" versus "Bad" fats
 - The problem of Hydrogenated fats and Trans fats
 - Enrichment of products with "Good" fats

Fats in Baking

- Approach followed for the development of the Q-Bake training material for fats
 - Task 3
 - Issues related to fats in baking

 - Ethical Issues
 - GMO
 - Sustainability

 - Cost Issues

 - Task 4
 - Fat reduction : The methodology of substituting fat with other raw materials without affecting the characteristics of the products

Fats in Baking

Thank you for your attention !

Q-Bake Team

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