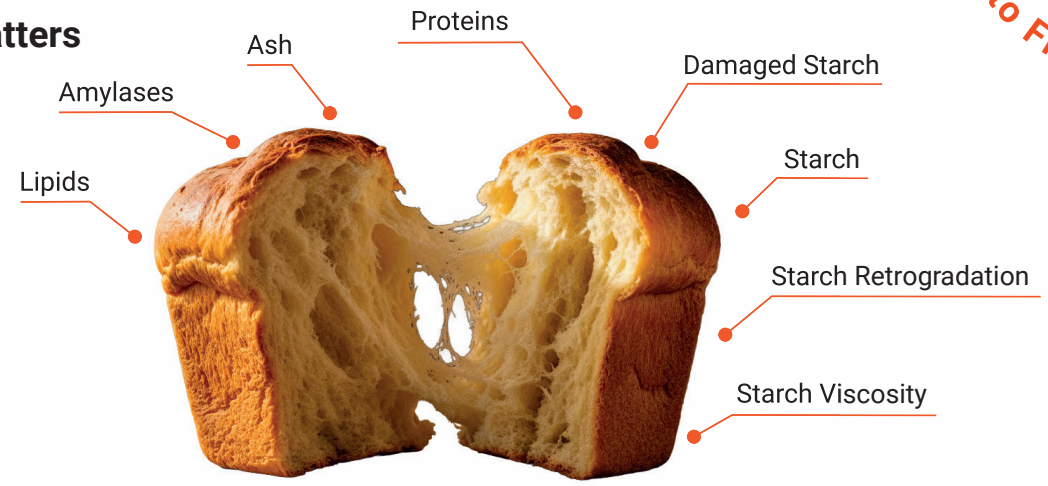
UNDERSTANDING WHAT IMPACTS TEXTURE OF BAKED PRODUCTS

Back to Flour Series

Why Texture Matters



• **Consumer Enjoyment & Satisfaction:** Texture strongly shapes the eating experience. When it does not meet expectations, it becomes a source of consumer disappointment.

• **Visual Appeal & Quality Perception:** Texture dictates how a product looks, especially through crumb structure. Even, airy textures signal freshness, while dense or irregular ones raise quality concerns.

• **Eating Convenience:** Well-balanced texture improves slicing, chewing, and handling. It enhances everyday usability and consumer comfort.

• **Moisture Retention & Freshness:** Texture is closely linked to moisture retention. Well-structured products stay fresh longer, while dry textures accelerate staling.

• **Signs of Proper Baking:** Good texture reflects proper mixing, fermentation, and baking. Poor texture often signals process or formulation issues.

• **Flavor Development:** Texture affects how flavors are released and perceived. Crispy and soft elements work together to enhance overall taste.

• **Functionality & Use:** Texture determines how products are used: soft breads suit sandwiches, while crispy baguettes are ideal for dipping. When texture is inappropriate, products fail their intended use.

• **Differentiation & Product Identity:** Each baked product has a signature texture. Matching it is essential for authenticity and market differentiation.

Key Flour Components Affecting Texture

Key Flour Components	Contribution to Texture	Mechanisms
Proteins	20%	Protein quantity and, more importantly, quality strongly impact texture. Some products require strong gluten, while others perform better with weaker networks.
Starch Viscosity	21%	Shapes crumb structure and tenderness by forming a gel during baking.
Amylase (Enzyme Activity)	14%	Proper enzymatic activity ensures steady gas production and a soft, open crumb, while excess weakens dough and makes it sticky.
Damaged Starch	21%	Damaged starch has a higher water-absorption capacity, softening and increasing dough stickiness. Moderate levels support structure, while excess leads to overhydration, uneven baking, and brittle or less crisp textures.
Lipids	11%	Lipids coat starch and gluten, promoting tenderness and reducing stickiness. Added fats enhance softness and slow staling.
Ash Content (Minerals)	6%	Higher fiber disrupts gluten development, leading to a denser crumb with irregular holes, while low-ash flours produce finer, more delicate crumbs.
Starch Retrogradation	3%	After cooling, starch retrogrades, leading to firmer textures typical of dry products.
Starch Native	3%	Contributes to smoothness and softness. Higher starch content supports a uniform texture.

Consistent Impact Across Most Products

Impact Varies Significantly by Product Type

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How Flour Components Impact Texture of Different Products ?

Texture	Starch Native	Starch Viscosity	Starch Retrogradation	Damaged Starch	Proteins	Amylase (Enzymatic Activity)	Ash Content (Minerals)	Lipids
Flat Bread		3		3	3	3	1	1
Pan Bread		3		2	3	3	1	1
Baguette		2	3	3	3	2	1	1
Hamburger Bun		3		3	3	3	1	2
Pizza Crust		3	2	3	3	3	1	2
Sponge Cake		2		2	3	2	1	1
Croissant		2		2	3	2	1	2
Steam Bread		3		3	3	3	1	1
Noodles		3		3	3	2	1	1
Cracker		3	2	3	3	2	1	2
Wafer		3		3	2	2	1	2
Wheat Tortilla	2	3		3	2	2	1	1
Biscuit		3		3	3	2	1	2

3: Strong Impact 2: Average Impact 1: Low Impact

Explore the Back to Flour Series
Connecting Flour Components With Bakery Product Excellence.

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KPM Equipment for Monitoring These Key Flour Components


SpectraStar


Alveograph


Mixolab


SDmatic


Rheo F4