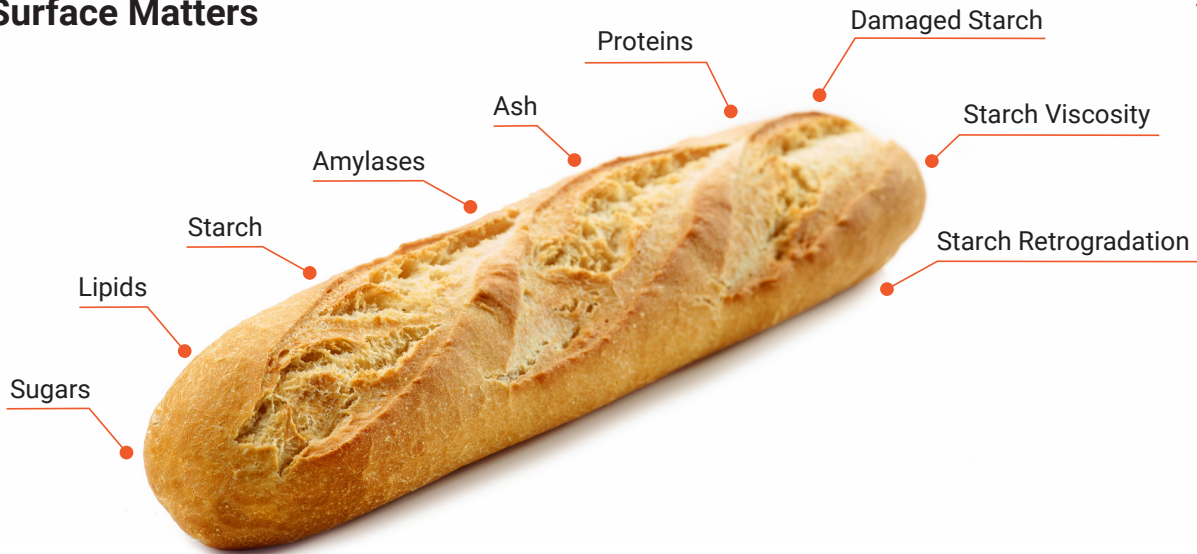


## Why Surface Matters



### • Visual Appeal & First Impressions:

The product's surface is what customers notice first. A smooth, golden, or glossy finish enhances attractiveness.

• **Texture & Eating Experience:** The crust affects mouthfeel — crispy for bread, flaky for pastries, smooth for cakes. A rough or cracked surface may indicate baking or ingredient issues.

### • Moisture Retention & Shelf Life:

A well-formed crust retains internal moisture and slows staling. Dry or cracked surfaces cause faster moisture loss.

### • Indication of Proper Baking

**Techniques:** A glossy, even surface shows correct egg wash and baking control. A matte or dry finish can signal overbaking or imbalance.

### • Brand & Quality Consistency:

Consumers link specific surfaces to product identity — smooth for macarons, crackly for baguettes. Consistency builds trust and brand reputation.

• **Functional & Structural Integrity:** An even crust supports soft interiors. Too many cracks or uneven areas suggest poor proofing or baking control.

## Key Flour Components Affecting Surface

Key Flour Components	Contribution to Surface	Mechanisms
Damaged Starch	19%	Moderate damaged starch smooths surface by aiding water absorption and gelatinization; excess causes stickiness or dullness.
Proteins	18%	Influence final appearance; optimal levels depend on product type.
Amylase (Enzyme Activity)	16%	Low activity causes pale crusts; excess leads to over-browning or stickiness.
Starch Viscosity	15%	During baking, starch gelatinizes and stabilizes surface texture; quality affects gloss or matte finish.
Ash Content (Minerals)	12%	High ash gives darker, rustic crusts; low ash yields lighter, uniform ones.
Lipids	8%	Natural lipids coat gluten, promoting a finer, uniform crumb. They improve heat distribution, reducing surface cracking.
Sugar	7%	Caramelize during baking, adding browning and gloss; lack of sugar causes pale surfaces.
Starch (Native)	3%	Intact starch granules form a cohesive structure that creates a smooth, uniform surface.
Starch Retrogradation	2%	During cooling, excessive retrogradation dulls crust shine.

## How Flour Components Impact Surface of Different Products ?

Surface	Starch (Native)	Starch Viscosity	Starch Retrogradation	Damaged Starch	Proteins	Amylase (Enzymatic Activity)	Ash Content	Sugars	Lipids
Noodles	3	2		3	2	3	2		1
Pan Bread		2	2	2	2	3	2	3	1
Wafer		2		3	3	3	2		1
Wheat Tortilla		2		3	3				1
Baguette		3		3	3	3	2	2	1
Sponge Cake		2		3	3	2	2	2	1
Steam Bread		3		3	3	3	2		2

3: Strong Impact

2: Average Impact

1: Low Impact

Explore the Back to Flour Series  
Connecting Flour Components With Bakery Product Excellence.  
**- Click here -**

## KPM Equipment for Monitoring These Key Flour Components



**SpectraStar**



**Alveograph**



**Mixolab**



**SDmatic**



**Rheo F4**