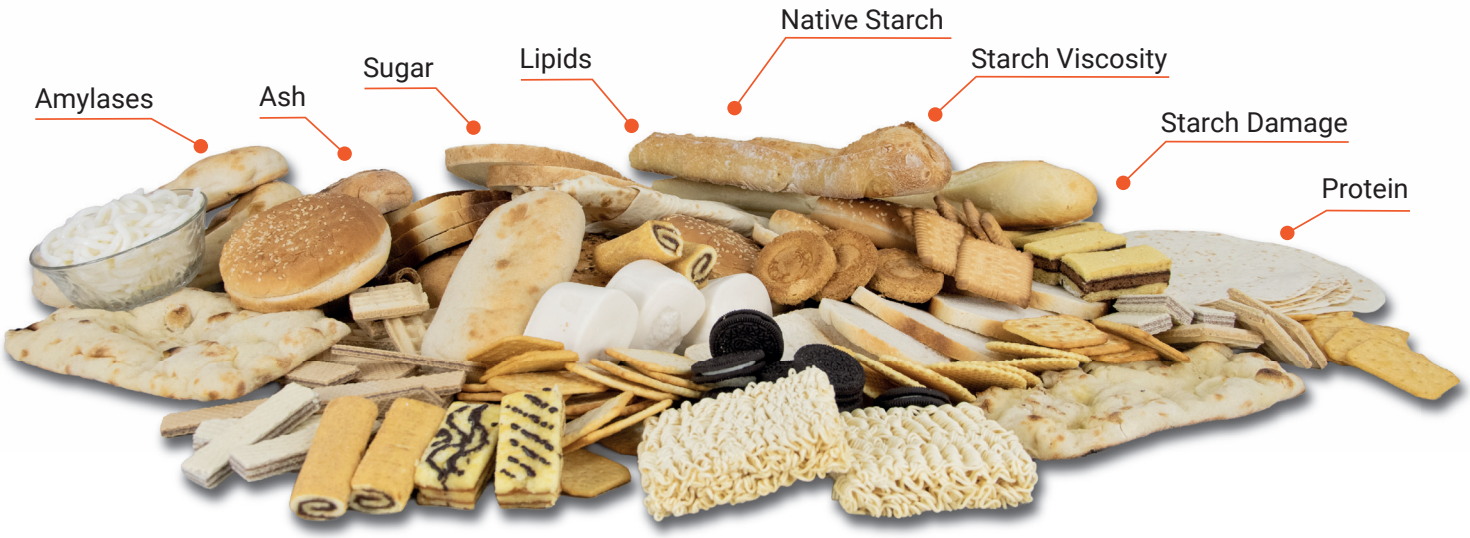
UNDERSTANDING WHAT IMPACTS 100% OF BAKED PRODUCT COLOR

Back to Flour Series

Why Color Matters



- **Indicator of Doneness:** Too light suggests underbaking; too dark may mean overbaking or burning.
- **Aesthetic Appeal:** A uniform, appealing color makes products more attractive and appetizing.
- **Flavor Development:** A well-baked crust enhances both taste and texture.
- **Texture and Crispiness:** Soft, pale baked goods may feel doughy, while overly dark ones can be too dry.
- **Consumer Expectations & Quality Control:** Any deviation in color accross batches may indicate issues with baking time, temperature, or ingredient ratios.

Key Flour Components Affecting Color

Key Flour Components	Contribution to Color	Mechanisms
Damaged Starch	22%	Absorbs more water, hydrolyzes easily, releasing sugars that enhance even browning.
Amylase (Enzymatic Activity)	18%	Converts damaged starch into sugars, fueling Maillard reaction and caramelization.
Starch Viscosity	15%	More accessible to amylase, intensifying browning.
Proteins	15%	Higher levels deepen crust color via Maillard reactions; lower protein yields a lighter crust.
Ash Content (Minerals)	10%	Higher ash darkens products; low-ash flour ensures a lighter, uniform color.
Sugars	10%	Caramelize and fuel the Maillard reaction, creating a golden-brown crust. Increased enzymatic activity boosts sugar availability, intensifying browning.
Starch (Native)	7%	Starch contributes to the white color of some products.
Lipids	3%	Aid in heat distribution, ensuring even browning.

Consistent Impact Across Most Products

Impact Varies Significantly by Product Type

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How Flour Components impact Color of Different Products ?

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

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

KPM Equipment for Monitoring These Key Flour Components

SpectraStar

Alveograph

Mixolab

SDmatic

Rheo F4