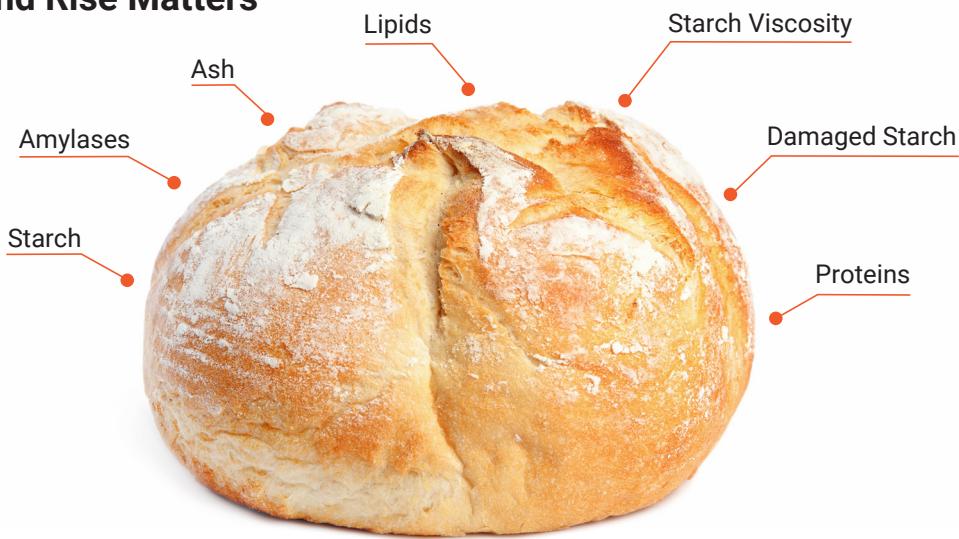


Why Volume and Rise Matters



- **Proper Structure & Crumb Formation:**

Formation: Volume defines crumb quality— well-risen bread shows an open, even structure, while poor rise produces a dense, heavy texture.

- **Even Baking & Moisture Retention:**

Adequate rise ensures even baking and helps retain moisture, preventing dryness.

- **Texture & Mouthfeel:**

Proper rise creates a light, airy crumb. Low volume makes products dense, tough, or gummy.

- **Consumer Expectations & Quality Standards:**

Standards: Customers expect fluffy bread, spongy cakes, and light pastries. Consistency strengthens trust and brand reputation.

- **Ingredient & Cost Efficiency:**

Proper rise maximizes ingredient efficiency, while poor rise requires additional improvement.

- **Sign of Proper Fermentation & Leavening:**

Good rise confirms proper yeast fermentation or correct chemical leavening.

- **Texture & Mouthfeel:**

Proper rise creates a light, airy crumb. Low volume makes products dense, tough, or gummy.

- **Visual Appeal:**

A well-risen loaf or cake looks appetizing, while flat or collapsed goods signal poor quality.

Key Flour Components Affecting Volume and Rise

Key Flour Components	Contribution to Volume and Rise	Mechanisms
Proteins	21%	Retain gas and drive product rise; required levels depend on product type.
Damaged Starch	20%	Slightly damaged starch boosts fermentation by making more substrate available for enzymes to release sugars, while excess weakens structure and reduces rise.
Amylase (Enzymatic Activity)	18%	Proper enzymatic activity ensures steady gas production and supporting rise.
Starch Viscosity	15%	During baking, starch absorbs water, swells, and gelatinizes, trapping steam and gas for expansion.
Starch Native	9%	Absorbs water, stabilizes dough, and indirectly supports fermentation by creating a stable dough environment.
Ash Content (Minerals)	9%	High ash can slow gluten, but improves yeast nutrition and fermentation.
Lipids	7%	Lubricate gluten, enhance elasticity and gas retention, and stabilize air bubbles.

 Consistent Impact Across Most Products

 Impact Varies Significantly by Product Type

How Flour Components Impact Volume and Rise of Different Products ?

Volume and Rise	Starch (Native)	Starch Viscosity	Damaged Starch	Proteins	Amylase (Enzymatic Activity)	Ash Content (Minerals)	Sugars	Lipids
Pan Bread		3	3	3	3	1	1	
Baguette	3	3	3	3	3	1	1	
Hamburger Bun	3		3	3	3		1	1
Pizza Crust	3	3	3	3	3	1	1	
Sponge Cake		3	3	3	1	1	1	
Biscuit		3	3	3	3	2	1	
Croissant	2		3	3	3	2	1	
Steam Bread		3	3	3	2	2	1	

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