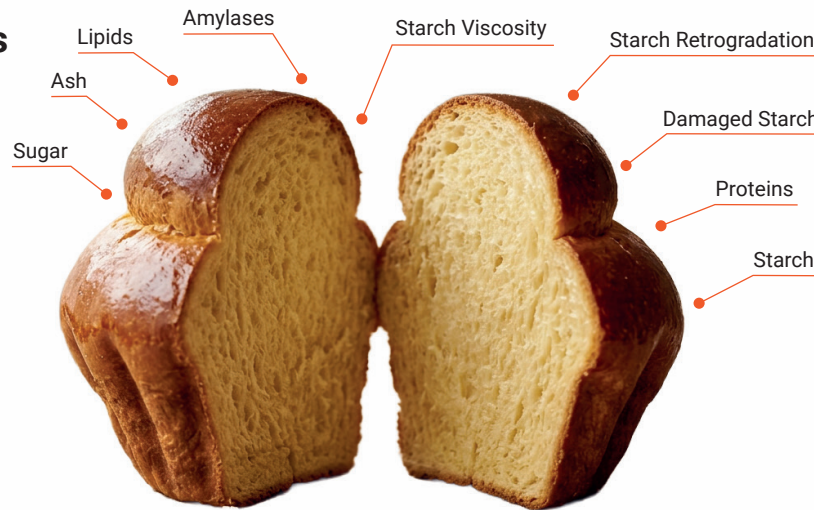


## Why Softness Matters



- Consumer Preference & Enjoyment:** Soft products such as bread, cakes, and rolls are favoured for their tender, easy-to-eat texture. A soft, pillowy bite is comforting and enjoyable.
- Texture & Eating Experience:** A smooth, light crumb contrasts with firmer crusts to create a satisfying bite. For breads, muffins, and cakes, the interior should feel airy and tender.
- Baking Process & Technique:** A soft result comes from correct mixing, proofing, and baking temperatures. Over- or under-baking causes hardness, while proper hydration and fermentation give softness.
- Versatility for Different Uses:** Softness is essential for sandwiches, burgers, and wraps that need easy cutting and chewing. Soft rolls and brioche suit sandwiches and breakfast items.
- Flavour Development:** Softness often reflects proper fermentation and the development of complex flavour profiles, helping enhance the sweetness or richness of cakes and breads.
- Packaging & Shelf Life:** Softness helps maintain freshness in packaged goods. Without it, bread or cakes can become too hard to eat within hours or days, shortening shelf life.
- Moisture Retention & Freshness:** Softness usually signals that the product holds moisture well, keeping it fresh longer. Dry or stale goods turn hard and become less pleasant to eat.
- Freshness Indicator:** Softness is a sign of freshness: freshly baked goods are tender, while stale items lose softness and turn tough. It is a key quality marker for bakeries.

## Key Flour Components Affecting Softness

Key Flour Components	Contribution to Softness	Mechanisms
Damaged Starch	19%	Damaged starch granules absorb more water, raising hydration that softens the crust, and they strengthen gel formation for a tender crust. Excessive damage, however, can over-hydrate the dough and make the crust sticky rather than soft.
Starch Retrogradation	18%	After baking, gelatinised starch crystallises as the product cools, which can firm both crust and crumb over time when not controlled.
Proteins	18%	Gluten proteins (gliadin and glutenin) give the dough structure and elasticity for even expansion while holding moisture to prevent a dry crust.
Amylase (Enzymatic Activity)	11%	Enzyme activity increases sugar content, and these sugars attract and hold water, improving moisture retention and softening the crust. They also inhibit retrogradation, keeping the crust soft longer.
Lipids	10%	Small amounts of naturally occurring lipids in wheat flour lubricate the starch and protein matrix, preventing excessive firmness and improving crust softness.
Starch Viscosity	8%	Under high heat and moisture, starch granules absorb water and swell into gelatinisation. This process builds the soft, smooth texture characteristic of the crust.
Ash Content (Minerals)	6%	Flours with higher ash content can give slightly coarser textures, which may reduce crust softness compared with lower-ash refined flours.
Sugars	6%	Sugars soften the crust by adding flexibility during caramelisation. They also bind water as humectants, reducing water loss and keeping the crust supple.
Starch (Native)	3%	Starch gelatinises during baking, absorbing water and swelling. On cooling, this contributes to the initial softness of the product.

Consistent Impact Across Most Products
  Impact Varies Significantly by Product Type

## How Flour Components Impact Softness of Different Products ?

Softness	Starch (Native)	Starch Viscosity	Starch Retrogradation	Damaged Starch	Proteins	Amylase (Enzymatic Activity)	Ash Content (Minerals)	Sugar	Lipids
Pan Bread	2	2	2	3	3	2		2	3
Wheat Tortilla			3	3	3	2	2		1
Hamburger Bun			3	3	2	2		2	1
Steamed Buns		3	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