



# Clean Label Bread Production

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The term "clean label" is a category of food products containing a short list of consumer-recognizable ingredients. Health-conscious consumers are aware of ingredients that enter their bodies and are looking for more straightforward, natural food products. Clean label products often go hand in hand with natural, organic and gluten-free products. Therefore, with a clean label product, multiple consumer sectors can be targeted at the same time.

Bread is a staple food product, and so, clean label bread can create a durable customer allegiance. However, it does call for a fresh look at formula and production to rethink ingredients and processing technology. Clean label bread can not contain commonly used functional ingredients such as SSL, DATEM, genetically modified ingredients (corn syrup), and artificial preservatives (sorbates and propionates) in product formulation. However, ingredient substitution and adjusted processing makes production possible.

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# Clean Label Ingredients

- ✓ **Organic:** using natural and organic wheat, cane sugar, honey, milk, and eggs help claim bread as natural and even organic.
- ✓ **Gluten Free:** bakers can produce clean label gluten-free products using tree nuts, pseudo-cereals, and gluten-free ancient (heritage) wheat (e.g., Kamut, spelt, emmer, einkorn).
- ✓ **Vegan:** plant-based ingredients can replace animal-based ingredients to develop healthy vegan products.
- ✓ **Dough Improvers:** using 0.1 - 0.2% novel yeast-based dough improvers can replace chemical additives such as DATEM and SSL.
- ✓ **Shelf Life:** vinegar, prune juice concentrate, raisin concentrate, cultured wheat or whey, cinnamon or clove are natural solutions for anti-molding agents.
- ✓ **Antioxidants:** natural options for antioxidant additives include ascorbic acid (vitamin C) or enzymes.
- ✓ **Emulsifier:** lecithin can be used as a natural emulsifying agent.
- ✓ **Replacement Technology:** vital wheat gluten, an expensive but efficient ingredient, is often used to replace SSL and DATEM.

## Reformulating for a Clean Label

Changing your formula isn't enough to bake a quality clean label product. You'll need to make sure consumers get the same quality and shelf life they've come to expect from your bakery. This starts with a thorough understanding of the current ingredients used and how these affect the product. Then, find the right combination of clean label ingredients that meet or exceed the comparable functionality of traditional synthetic/artificial ingredients.



# Clean Label Processing

- ✓ **Hydration:** naturally hydrating dough by including a brewing process reduces the need for artificial ingredients in the formulation. It is possible to replace ingredients to hydrate dough by process modification, such as using a sponge or including a brewing process.
- ✓ **Stress-free:** the ingredient list can be shortened by replacing the need for dough conditioners by using stress-free dough systems.
- ✓ **Shelf life:** shelf life can be increased with the use of thermal profiling to ensure the product is not over baked, or incorporating easy to sanitize cooling systems and air filtration systems to slow mold growth. These process alterations also reduce the requirement for mold-inhibitor ingredients.
- ✓ **Enzymes:** enzymes are an innovative solution that are considered a processing aid and do not need to be added to the ingredient list. They can be used for the replacement of oxidizing agents, mono- and diglycerides, and emulsifiers like DATEM and SSL.

## Other Benefits of Enzymes

- Optimum gas production during the fermentation phase
- Increased product volume by the formation of a strong gluten matrix capable of withstanding expansion and retaining gas
- Avoiding dough collapse during proofing and baking processes through the product's colloidal stabilization
- Crumb softening for improved shelf-life
- Maintaining product's physical parameters such as pH, moisture content, and water activity



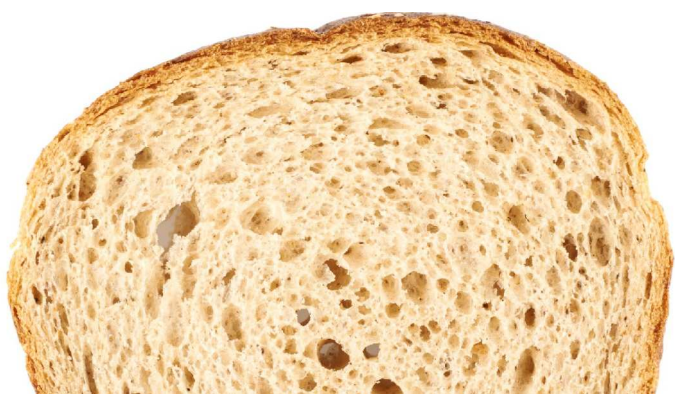
## HOW TO DEVELOP A CLEAN LABEL FORMULA

- 1 Select** a single ingredient to be replaced with a clean label solution.
- 2 Determine** the functionality of the ingredient. A single ingredient can have multiple functions and these should all be listed before starting with the new formulation.
- 3 Find** an alternative ingredient with a similar functionality and develop the product.
- 4 Compare** the product with the control sample (containing conventional ingredient).
- 5 After** achieving the desired functionality, move to the next ingredient.



## CLEAN LABEL BREAD FORMULA<sup>1</sup>

Ingredient	Baker's % (based on flour weight)	Function
Wheat flour (white from hard wheat)	85	Gluten formation
Whole wheat flour	10	Flavor and fiber inclusion
Rye flour	5	Flavor and fiber inclusion
Water	43.5	Hydration and dispersion
Milk (pasteurized), cold	21.0*	Hydration, flavor and nutrition
Compressed yeast	7	Leavening, volume and texture
Honey	6.0**	Food for yeast and flavor
Salt	2	Flavoring
Vegetable oil	2	Lubrication and nutrition
Saf Pro® Star-Zyme™ STR 701 R	0.1 to 0.2	DATEM, SSL, MDG, VEG and L-Cysteine replacement
Ascorbic acid	0.01	Gluten network reinforcement
Vinegar (11% acetic acid)	2	Natural preservative (mold inhibition)
<b>Total</b>	<b>176.5</b>	





## “ What is an enzyme or natural dough conditioner to replace EMG in a frozen dough product?

Saf Pro® Clean Label Frozen Dough Improver<sup>2</sup> is ideal for unbaked frozen good products. Such enzymes can be used for strengthening dough and incremented gas retention resulting in improved end-product volume and freezing tolerance.

Similarly, Saf Pro® Freezer to Oven Dough Improver<sup>3</sup> is used for products with a minimum thawing interval between the frozen state and baking steps. It improves hydration and strengthens the dough, resulting in a volume-enhanced product with a long shelf-life. It works optimally for baked foods that are moved directly from the freezer to the oven, such as croissants, brioche, and baguettes. It can also be used for partially or completely proofed products before freezing.

## “ What is the best clean label dough conditioner for a straight dough process?

Dough conditioners are used for their multifunctional product development characteristics, such as dough strength and volume.<sup>4</sup> Chemical dough conditioners and additives can be replaced using an enzymatic blend for dough strengthening, volume, and shelf-life stabilization.



## References & Further Reading

1. "Clean Label Bread | Baking Processes." BAKERpedia.  
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