Hamburger Bun Production

Buns are the most popular type of bread served at Quick Service Restaurants (QSR) because they are versatile and portable. Their consumption surges during the summer months due to cookouts and road trips. Nowadays, buns must also compete against perceived healthier options with lower carbohydrate counts and other nutritional advantages. These variables have produced an unpredictable environment for bun manufacturers recently. There are three main factors affecting the hamburger bun market:

- QSR chains moving away from emulsifiers like SSL and DATEM to cleaner label solutions
- A shortage of ingredients like gluten, emulsifiers and starches have prompted many bakeries to seek better flour and clean label solutions
- A demand for healthier versions of hamburger buns like sourdough and keto

Hamburger bun Production

Bun producers are now more focused on targeting premium-type hamburger buns made out of whole grain dough and indulgent ingredients like butter and eggs. Being creative but also offering cost-effective alternatives has become a priority now. Finally, ensuring a clean label and cost affordable hamburger bun is essential for this market.

Hamburger buns are soft, round and sliced rolls with an overall weight less than 8 oz or 227 g. Depending on the customer and fast food chain, hamburger buns may have a diameter range of 4 in (10 cm) to 5 inches (13 cm) and a total height of 1.5 in (4 cm) to 2.5 in (6 cm).

Hamburger bun production is a straightforward process that is usually accomplished on a high output line. Depending on the customer or QSR chain, the type of sandwich build, shelf-life expectations and market trend, formulations may highly vary.

Extending Shelf Life

If buns are not used within three days of production, calcium propionate or natural mold inhibitors can be used. In addition, shelf-life extension can be achieved through enzymes. Alpha-amylase, xylanase, and lipase have significant anti-staling effects.

Formulation
Sponge & Dough Whole Wheat Bun

The best way to make a good loaf of multigrain bread is by using the sponge and dough system. It intensifies flavors and aroma while producing a very soft and moist crumb texture.

SPONGE (70% pre-fermentation of flour):

Ingredients	% Dry Flour Weight
Whole wheat bread flour	70
Vital wheat gluten	1
Water	42.0 (60)*
Yeast (compressed)	3.0**
Total	**116**

*Hydration level, based on the weight of flour and grains used in the sponge
**Yeast amount for an 4-hour sponge fermentation

DOUGH (65% total flour hydration):

Ingredients	% Dry Flour Weight
Whole wheat bread flour	30
Milk (refrigerated)	15
Yeast (compressed)	2
Salt	2
Granulated sugar	8
Butter (melted)	12
Liquid whole eggs	10
Sponge	116
Total	**195**

Tips for Quality Hamburger Buns

1 A High Output Precise Dough Divider

High-speed dough dividers are necessary mechanical equipment for separating a weighed portion of bulk dough into a certain number of equal dough pieces of about 2.5 oz (70 g) each. It needs to be done on a highly repeatable scale with the least stress on the dough. An efficient and fully functioning dough divider would eliminate a person positioned at this station. This cuts the cost of operating the line, and improves quality due to accurate weights.

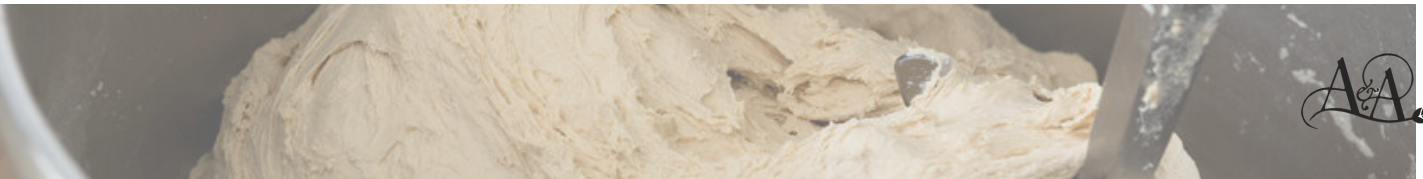
2 Glossy Crowns

A glossy crown can either be obtained through a 10 second steam at the beginning of the baking process, and/or a bun glaze. Bun glazes are egg wash or egg wash substitutes applied over hamburger buns to make their surfaces glossy. Depending on the type of glaze, egg wash can be applied before the baking process, or egg wash substitutes can be applied after the baking process. Substitutes can contain pea protein, gluten, starches, emulsifiers, oils, preservatives and acids.

3 Proper Pans

Pans are critical for a consistent product shape and size, batch after batch. Properly preserved aluminum steel pans with no indentations and cracks should be used. Hamburger bun pans are flared sheets with round cavities embossed into them that match final product width to restrict shifting of dough pieces during proofing and baking.

Do not use spray oil. Wash your pans or store it away with seeds and debris on them. These would quickly degrade the quality of the pans. Vacuum clean or lightly dry wipe your pans to preserve them, for the need for less reglazing further on.



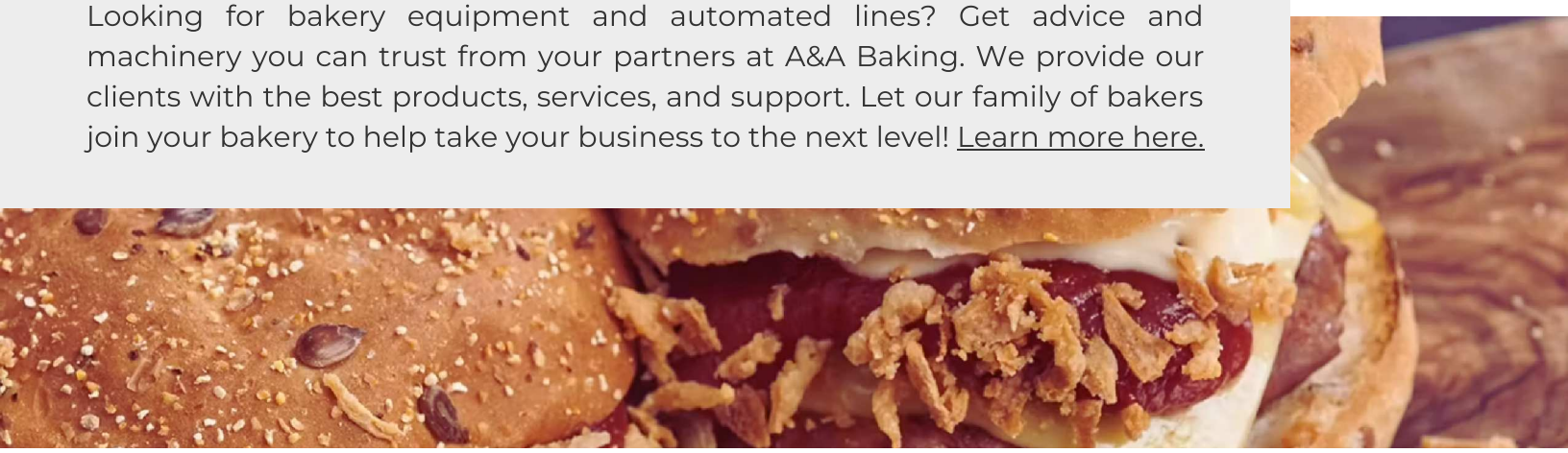
Tips for Quality Hamburger Buns (cont.)

4 Effective Slicing at a High Output Rate

Improperly sliced buns go directly to the trash so perfect slicing is a must for every single product unit. On high output lines, an automatic slicer is the correct choice. This equipment utilizes a serrated blade on a horizontal plane that slices the buns as they pass through the slicing zone. Don't forget to change out the slicer blades frequently to reduce the crumbs in the slicing area!

ADDING AUTOMATION & BAKERY EQUIPMENT

Small to mid-sized bakeries are faced with an incredible challenge because, at some point, manual processes start to be less viable and must evolve into a more efficient production process. Most bakers have adequate mixers and oven equipment, but to improve efficiency and grow their business, they would also need a dough divider, rounder, intermediate proofer, and bread molder—all working in line with together. This line of equipment can be added one piece at a time, based on the bakery's cash flow.



What is a good flour quality for hamburger buns?

Bread flour from either Hard Red Winter or Canadian Western Red Spring wheat is perfect for buns. It has both a high quantity and quality of gluten-forming proteins, gliadin and glutenin. Lower protein quantity aged flours can be used, but a longer fermentation time in a sponge would be required for it to fully hydrate and function on the high output line.

What is the ideal temperature required for hamburger buns in a rotary oven and how many seconds of steam?

Buns can be both baked in any type of oven, at about 190- 200°C (375-392°F). The only difference is the time it takes for the heat to fully bake the product. Hamburger buns can be ready in 11 to 13 minutes at 200°C (392°F), regardless of the oven as long as there is enough convective air current as a major heat transfer mechanism within the oven chamber.

The amount of steam applied should be around 10–20 seconds. You can use a thermal profiler to determine how the steam affects the heat transfer. Use the yeast kill and arrival information, together with the final look of the product, to determine the length of time the steam needs to be applied.

What dough conditioners or enzymes should I use to get soft, fluffy buns with a high volume?

DATEM works best for getting a homogenous crumb grain with a fluffy interior. If you want a clean label, a combination of alpha-amylase and xylanase (both fungal and bacterial) does magic. Check your flours specs, especially the % dry gluten and W - P/L values of the alveograph rheological test. If using stronger flours, a higher solids hydration is required for extensible and soft dough. A good flour for high quality buns usually has a dry gluten content of 11 to 12%, alveograph W values of about 300 to 350 and P/L values of 0.6 to 0.9.

What is the cause of blisters, white spots, or wrinkling on hamburger buns?

Wrinkling of the bun's crust is usually a consequence of either insufficient baking (crumb-setting) or excessive volume (over-stretching) which causes the internal structure to collapse upon cooling after the product has compressed slightly in volume. If using a deck oven, open dampers at the beginning of baking to let water vapor escape. This way the surface will dry and set faster, preventing wrinkling. Use a thermal profiler to make sure your yeast kill is less than 50% to prevent over expansion. Targeting an arrival of over 20% will also help set the structure properly and prevent wrinkling.

Blisters are caused by many factors, such as formulation and process. White spots are usually seen at the end of dough or the tail end of the product. This indicates an over-fermented or over-oxidized dough. You can cut the dough size down, adjust your dough conditioners appropriately to your flour strength, or adjust water absorption to reduce over oxidation.

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