

BAKING UPDATE

Variety Breads

Practical technology from Lallemand Inc., parent of American Yeast Sales, producers and distributors of Eagle® yeast, fresh and instant.



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Standards of Identity

United States and Canadian regulations define standards of identity for white pan bread and some types of variety breads. Both sets of regulations are quite detailed, including lists of mandatory ingredients, optional ingredients, and analytical methods. These excerpts are meant to provide a comparison between types, not to be a legal reference on the specific requirements.

U.S. STANDARDS

The U.S. standards of identity are found in Title 21 of the Code of Federal Regulations, Chapter 1, Part 136, Subpart B—Requirements for Specific Standardized Bakery Products. They cover breads, rolls, and buns, with breads defined as units weighing one-half pound (227 g) or more after cooling.

Bread or White Bread must contain a combination of the listed farinaceous, moistening, and leavening ingredients. The finished product must contain at least 62 percent total solids, with less than 8.2 percent being milk solids.

Egg Bread must contain at least 2.56 percent by weight of whole egg solids.

Enriched Bread must contain 1.8 mg thiamin, 1.1 mg riboflavin, 15 mg niacin, 0.43 mg folic acid, and 12.5 mg iron per pound.

Milk Bread must contain milk as the only moistening ingredient, or contain a specified combination of certain dairy ingredients that provides 8.2 percent by weight of milk solids.

Raisin Bread must contain 50 percent by weight of raisins and may contain icing or frosting.

Whole Wheat Bread must contain only whole-wheat flour as the flour ingredient.

CANADIAN STANDARDS

The Canadian standards of identity are found in the Food and Drug Regulations under The Food and Drugs Act in the Consolidated Regulations of Canada, Part B, Division 13—Grain and Bakery Products.

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Variety Bread Production

FOR MOST American wholesale bakers, variety bread refers to the products they make that are not white pan bread, buns, or rolls. Some of the more common types are raisin, wheat, rye, and French.

RAISIN BREAD

Raisin bread resembles white pan bread, except that it contains at least 50 percent (flour basis) of raisins and may also include cinnamon, icing, or frosting. The formula is somewhat richer than typical white pan bread, with higher levels of sweetener, shortening, and dairy products. Yeast is also increased to make up for the inhibitory effect of tartaric acid from the raisins.

Straight dough and sponge and dough processes are commonly used for raisin bread. The raisins are added at the last stages of mixing, after lowering mixing speed. Makeup is the same as for white pan bread, but the moulder may require adjustment to avoid damage to the raisins. Yeast levels are adjusted to give normal proof times of 60 to 70 minutes. Baking temperatures are 375° to 400°F, lower than for white pan bread to avoid making the crust too dark.

Commercial bulk raisins contain about

17 percent moisture, or about half the moisture content of bread after baking. To prevent them from drying out the finished product, they should be conditioned before use. Conditioning practices vary widely, but one common method is to wash and soak the raisins for one to four hours in water and drain thoroughly. Raisins can be stored for one year or longer when stored at 45°F (10°C) with 50 to 60 percent humidity. They should be used promptly after conditioning.

WHEAT BREAD

Unlike 100-percent whole-wheat bread, wheat bread or brown bread is made predominantly from white flour. Except for its color, the loaf appearance and crumb texture resemble white pan bread. Wheat bread formulas tend to be a little richer than white pan bread, with slightly higher levels of sweetener and shortening. They may also include ground, cracked, or rolled wheat or other grains to contribute texture or appearance.

Whole wheat normally makes up about 20 to 40 percent of the flour, which tends to weaken the gluten-forming ability of the dough. To make up for this, a strong (high protein) white flour is used or vital gluten

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TYPICAL VARIETY BREAD FORMULAS

INGREDIENT	WHITE	RAISIN	WHEAT	RYE	FRENCH
White flour	100%	100%	70%	70%	100%
Whole-wheat flour			30%		
Rye flour				30%	
Raisins		72%			
Sour				1%	optional
Gluten		1%	1%	1%	
Water	60%	68%	60%	64%	55%
Yeast	3%	4%	4%	2%	2%
Yeast food	varies				
Salt	2%	2%	2%	2%	2%
Sweetener	8%	9%	10%	2%	2%
Shortening	2%	4%	3%	2%	2%
Emulsifiers	1%	1%	1%	1%	1%
Nonfat dry milk	2%	3%			

Variety Bread Production (Continued)

is added. Straight dough and sponge and dough processes are common, and either a white or whole-wheat flour sponge stage can be used. Compared with white pan bread, some adjustments are usually made to accommodate the reduced dough strength and tolerance: higher yeast and water levels, shorter fermentation and proofing times, care to avoid overmixing.

RYE BREAD

Traditional rye breads come in a wide variety of ethnic styles, depending on the flour, process, and added flavorings. Rye flour types include dark, medium, and white, as well as cracked, flaked, and granular (meal) textures. The characteristic sour flavor can be obtained from either a traditional sour-dough fermentation or a commercial sour preparation, with or without caraway seeds added. Various loaf shapes are produced by pan and hearth baking.


The rye bread that is commonly produced by American wholesale bakeries usually has good loaf volume, relatively light crumb color, fine crumb structure, and a mild sour flavor. It is usually made from 20 to 40 percent medium rye flour, with the balance being white wheat flour. Rye protein does not form a gluten structure in the dough, so vital wheat gluten is usually added. Rye flour contains higher levels of protease and amylase enzymes than wheat flour, which produces more fermentable carbohydrates and can also break down gluten. Because of this, lower yeast levels are used along with acid-containing sours, which decrease amylase activity during baking by lowering the pH and thus avoid-

ing overdextrinization and gumminess.

Straight dough and sponge and dough processes are common for rye bread. With sponge and dough, the rye flour is usually added on the dough side and the sponge time is reduced to avoid overdevelopment. Compared with white pan bread, some adjustments are usually made to accommodate the higher enzyme activity, greater absorption, and reduced gluten strength. The water level is increased, mixing time is reduced, and proofing may also be reduced. Pan and hearth baking are both common, usually with steam.

FRENCH BREAD

The typical American wholesale French bread is usually similar in appearance to the traditional French baguette, but in general has a thinner, less "crusty" crust, a finer crumb, and a longer shelf life. The formula is lean compared to white pan bread with lower levels of yeast, sweetener, and shortening. Strong unbleached flour produces a more open crumb structure, and sometimes a commercial sour preparation is added to simulate the sourdough flavor of the traditional pain au levain.

The long shape of the bread requires an extensible dough and specialized makeup. Moulding is done in stages, first to produce an elongated dough piece, then after a rest period to produce the final shape. After final proofing the loaf is cut diagonally on top to produce the characteristic appearance and prevent the sides from bursting in the oven. Baking takes 25 to 40 minutes at 430° to 480°F (220° to 250°C) with generous steam to produce a thick crust. 

Variety Bread Ingredients and Dough Conditioners


VARIETY BREADS create unique problems for bakers. Lallemand and American Yeast offer a complete line of ingredients and dough conditioners backed with problem-solving support from experienced bakery technicians.

Fermaid® WM is an enzyme-based dough conditioner that can be used to replace bromate and improve processing in a wide range of applications, including wheat bread production. It contains hemicellulase enzymes that improve dough strength and tolerance by converting insoluble whole-wheat fiber to soluble.

Fermaid® Relax is a unique deactivated bakers yeast product that improves dough extensibility in applications like French

baguettes. It contains natural glutathione that reduces mix time and eliminates elasticity problems during moulding when using high-strength flour.

Lallemand Rye Flavor and LBI sour preparations are for use in American and European white and rye bread products. LBI 4060 is a dried sour product based on flour. LBI 4080 is a dried German rye sour. Lallemand Rye Flavor is a blend of food-approved acids with caraway spice.

Raisins, caraway spice, and a complete line of variety bread ingredients are also available from Lallemand Distribution and American Yeast Sales. Raisins are available as midguts or selects, oil-treated or non-oil-treated. Caraway is available whole and ground. 

Standards of Identity (Cont.)

Bread or White Bread is defined as baked yeast-leavened dough prepared with flour and water. Flours and grains other than white wheat flour are allowed at up to 5 percent by weight. There is a long list of optional ingredients, including various enzymes.


Enriched Bread must contain at least 2 percent skim milk solids, 4 percent dried whey powder, or 0.5 percent protein from peas or soybeans. It must also contain at least 0.24 mg thiamine, 0.18 mg riboflavin, 2.2 mg niacin or niacinamide, and 1.76 mg iron (per 100 g bread).

Milk Bread must meet the requirements for Enriched Bread and contain at least 6 percent by weight milk solids. It must also contain at least 0.14 mg vitamin B6, 0.024 mg folic acid, 0.6 mg d-pantothenic acid, 90 mg magnesium, and 66 mg calcium (per 100 g bread).

Raisin Bread must contain 50 percent by weight of raisins, or a mix of at least 35 percent raisins and 15 percent currants. It may also contain spices or peel.

Whole Wheat Bread must contain at least 60 percent whole-wheat flour and state the percentage used on the label.

Brown Bread obtains its color from whole-wheat flour, graham flour, bran, molasses, or caramel. If it is made with whole-wheat flour it must state the percentage on the label, and if it is made without whole-wheat flour it must state that on the label.

Specialty Bread may contain more than 5 percent by weight of the other flours and grains allowed in white bread. It may also contain fruit, nuts, seeds, and flavoring. 

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BAKING UPDATE

Lallemand Baking Update is produced by Lallemand Inc. to provide bakers with a source of practical technology for solving problems. If you would like to be on our mailing list to receive future copies, or if you have questions or comments, please contact us at:

LALLEMAND Inc.

1620 Préfontaine

Montréal, QC H1W 2N8 CANADA

tel: (800) 840-4047 (514) 522-2133

fax: (514) 255-6861

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