LALLEMAND
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Pizza Crusts

Practical technology from Lallemand Inc.

Pizza Crust Production

TO DISCUSS pizza crust production, we have to approach the subject from two aspects. First, we can divide the pizza industry by the type of pizza desired, whether it be a thin crust pizza or a thick crust, "deep dish," pizza. Second, we can segregate the industry based on the production process used to make the pizza.

PRODUCTION PROCESSES

Pizza production on the large scale generally produces frozen pizza dough, frozen parbaked pizza shells, and frozen fully topped parbaked pizza shells. In the production of shells and topped pizza shells, automated lines are the trend.

Sheeting is the process normally used by wholesale bakeries to produce thick pizza crust. Mixed dough is sheeted through a series of progressive rollers, and the pizza shells are die-cut to the appropriate shape. Proper handling characteristics are important to the dough to maintain a consistent thickness and texture without tearing. Equally important is the absence of any shrinkage of the pizza dough directly after cutting or during the baking cycle. Shrinkage results in poor quality due to lack of correct diameter, which, in the case of topped and boxed pizza shells, promotes the misconception by the consumer that they are being shortchanged by the producer.

Stamping is the process normally used by wholesale bakeries to produce thin pizza crust. In this process, the mixed dough is divided to the desired weight and then given an intermediate proof to relax the dough. The dough balls are transferred to a hot press that stamps the dough to the desired thickness to achieve the correct diameter. Again, maximum extensibility without being sticky is critical to achieve

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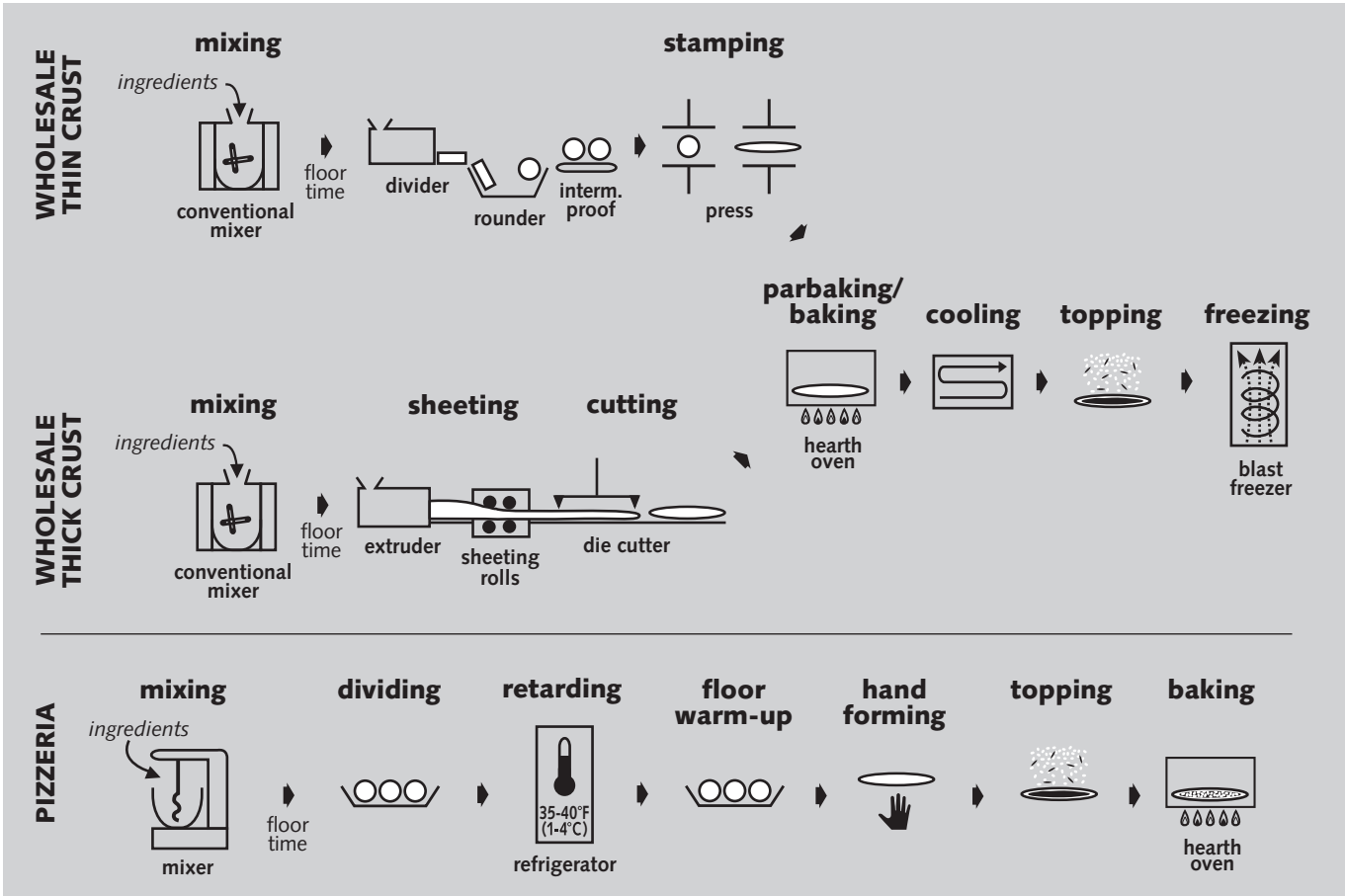
PIZZA CRUST PRODUCTION PROCESSES



Pizza Crust Production *(Continued)*

the desired size and to prevent shrinkage. The negative side of this process is that it is considerably more labor-intensive than the previous process, and the pizza shells often lack the uniformity of cut shells.

Variations are common in the wholesale production process. For topped pizza shells, the crusts are normally parbaked or fully baked then cooled before application of the topping and freezing. Frying is also used as an alternative to baking. When freezing topped pizza dough that hasn't been baked in any way, water can migrate into the dough, resulting in soggy crust. This can be a big problem in thin crust pizza where crispness is desired.

PIZZA CRUST PRODUCTION CONDITIONS

	YEAST-LEAVENED THIN CRUST PIZZA	CHEMICALLY LEAVENED THIN CRUST PIZZA	YEAST-LEAVENED DEEP DISH PIZZA
Ingredients:			
Flour	100.0	100.0	100.0
Water	55–60	55–60	60–70
Sugar	1–2	0–2	1–5
Salt	1–2	1–2	1–2
Shortening or oil	3–14	3–14	2–5
Instant yeast*	0.5–1	0.5–1.5	
Calcium propionate	0.2–0.3	0.2–0.3**	0.2–0.3
Gluten	1–2	1–2	
Baking powder	0.5–4		
Optimal dough temperature	90–95°F (32–35°C)	75–80°F (24–27°C)	80–90°F (27–32°C)
Floor time (minutes)	10–15	0.0	10–20
Baking temperature	500–600°F (260–315°C)	500–600°F (260–315°C)	400–500°F (204–260°C)

* For frozen, unbaked pizza dough, fresh yeast at levels from 3 to 5% is preferred.
** For dough with baking powder, sodium propionate is preferred.

Pizzerias typically use a traditional manual process to produce both thick and thin crusts. Mixed dough is divided to the desired weight, retarded until needed, then hand-formed, topped, and baked. Integrated dry pizza mixes are a useful option for pizzerias, as the dough quality and consistency are guaranteed by the mix supplier. The pizza mix can be supplied with or without the inclusion of dry yeast.

INGREDIENTS

Thin crust pizza recipes call for a strong flour (13 to 14 percent protein) that will give a strong dough after mixing and that can be baked into a pizza crust that will not absorb liquid from the topping and become soggy. Often, gluten is added to increase the protein level. Water absorption is kept low (55 to 60 percent) and shortening levels are kept high to avoid sticking during stamping. Shortening levels are also important in this process to maintain finished crust texture. Thin crust pizza can also be made with chemical leavening rather than yeast.

Thick crust pizza recipes call for a lower protein flour (12 to 14 percent) to provide a more breadlike texture. Water absorption is higher, from 60 up to 70 percent, sweetener levels are higher to support more yeast fermentation, and shortening levels are lower.

Pizza Crust Problem Solvers

LALLEMAND BAKING understands the challenges of making quality pizza crusts and can help you optimize your formulation to yield a dough with superb handling and baking characteristics.

Instaferm® 01 instant dry yeast is the most convenient way to solve all your yeast problems and help give you the perfect pizza every time. **Instaferm®** is unsurpassed in fermentation activity and product consistency. For producers who prefer fresh yeast, **Lal^Ferm®** fresh compressed (block) and crumbled (bag) yeast are available. For the very large pizza crust producer, **Lal^Ferm®** is also offered as liquid yeast cream for absolute handling convenience and consistent product quality.

Automated pizza production places tremendous pressure on the handling qualities of the dough and can cause shrinkage and snapback problems. Traditionally, chemical reduction, either by cysteine or sodium metabisulfite, was the answer; but recent trends are moving away from these products and have created the need for consumer-friendly ingredients.

Fermaid® glutathione-rich inactive yeast products are natural dough reducing agents that can replace L-cysteine and provide the dough extensibility needed to sheet or press the dough piece to the desired diameter and avoid shrinkage and snapback.

Using **Fermaid®** dough relaxers to optimize mix time minimizes the effect of flour changes, improves machinability, and avoids both "bucky," undermixed doughs and sticky, overmixed doughs. **Fermaid®** dough relaxers also provide a dough that is smoother and easy to handle, with the added benefit of a crust that rises slightly more during baking to improve the texture.

Lallemand is committed to continuous innovation and will spare no efforts to match your needs and deliver value to you and your customers.

Innovation by Application

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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 issues, or if you have questions or comments, please contact us at:

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