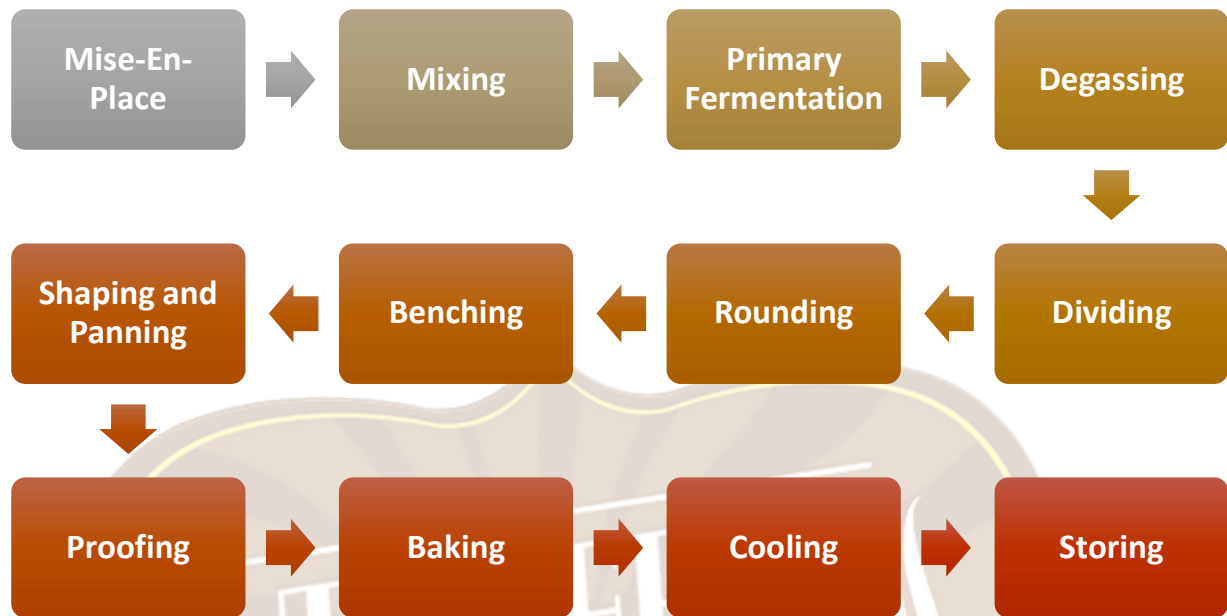




## STAGES OF BREAD MAKING



### 1. MISE-EN-PLACE

The most important thing required in a bakery operation is to collect all the ingredients first. This allows us to do things in a planned manner and the product will also come out to be of the desired quality. The mise en place for bread making would include:

- Weighing all the ingredients as per the recipe and making sure the ingredients are at the required temperature.
- Selecting and preparing the bread tins, Grease the mould with oil properly to avoid the baked bread from sticking to it.
- Making sure that the temperature of the oven is at the required degree as the temperature of baking is very crucial and would change with different types of breads.

### 2. MIXING

**Mixing** is an important step of the baking process. During this step, the baker combines all of the ingredients together to make the dough. Several important principles must be respected to achieve optimum quality for the dough and bread.

### 3. PRIMARY FERMENTATION

Also called **bulk fermentation** or **floor time**, **primary fermentation** takes place when the dough is allowed to ferment as a large mass. This mass effect creates conditions



that are optimum for the development of all of the benefits fermentation brings to the dough, including increased dough strength and development of flavor.

Many factors such as the recipe, room temperature and humidity, will determine how long it takes the dough to rise. Yeast dough is considered “ripe” when it has risen enough, usually doubling in size.

The **ripe test** determines if the dough is ready to be punched down and shaped. Gently stick two fingers in the risen dough up to the second knuckle and then take them out. If the indentations remain, the dough is “ripe” and ready for punch down. If not, cover it and let the dough rise longer.

#### 4. DEGASSING

The simple process of punching the dough after primary fermentation is called degassing. Degassing expels some of the carbon trapped in the gluten network as too much carbon dioxide will choke the yeast. Another benefit of degassing is that it equalizes the dough temperature, the temperature on the outside of the dough is usually cooler than the interior, so the punch down helps in bringing it back to the equilibrium. Lastly, when the dough is degassed, it allows for redistribution of the nutrients and triggers a new feeding cycle.

#### 5. DIVIDING

During the **dividing** step, the bulk of the dough is divided into small pieces according to the final weight of the bread and the weight loss that will occur during baking. For manual dividing, the baker must handle the dough very carefully to avoid damaging or disorganizing the gluten structure. Also, when cutting portions of the dough, an effort should be made to have one piece of dough, as opposed to many little pieces that have been put together to obtain the desired weight.

#### 6. ROUNDING

After dividing, the pieces of dough are shaped into smooth round balls. This procedure forms a kind of skin by stretching the gluten on the outside of the dough into a smooth layer. Rounding simplifies the later shaping of the dough and also helps retain gases produced by the yeast.

#### 7. BENCHING

Rounded portions of dough are allowed to rest for 10 to 20 minutes. This relaxes the gluten to make shaping the dough easier.

#### 8. SHAPING AND PANNING

After a period of rest, the dough is formed to its final shape. This operation can be achieved by hand or by machine. At this stage, you should carefully judge the characteristics of the dough and adapt the hand shaping or adjust the machine settings accordingly.

Weak dough should be shaped tighter, while strong dough will benefit from a gentler shaping. In fact, this is the last chance to modify the dough, if necessary, in order to get optimum product quality.



## 9. PROOFING

This fermentation period takes place between shaping and the beginning of the bake. During **final proof**, the gas produced by the yeast will accumulate and create internal pressure on the gluten structure. Because of its physical properties, the gluten can stretch while maintaining its shape to create a loaf with great volume and a nice texture.

The dough should also be protected during this stage to avoid surface dryness that can cause a thick, hard crust with poor, dull color. Enclosed cabinets or rack covers can be used to prevent dryness when bread is proofed at room temperature (or at a proper setting of the humidity level in a proof box). Linen is also used to maintain the right level of moisture on the loaves while proofing, or a proofer-retarder with humidity control may be used.

## 10. BAKING

The bread is ready to be baked once it has proofed to optimum. Under proofing of the dough will yield in craked loaf and over proofing will make the bread collapse in the final baking process. During baking, the dough goes through the following three stages:

- **FIRST STAGE**  
The oven spring occurs and the gas bubbles in the dough expand and it rises rapidly. The yeast activity increases rapidly in the oven and the activity of the yeast stops as it kills the yeasts at 60 degrees. This causes a sudden burst in the volume of the bread and is called Oven Spring. Some of the starch is gelatinized to make it more susceptible to the enzyme activity.
- **SECOND STAGE**  
The dough solidifies because of the coagulation of proteins and transforms into bread. Here the gases escape out of the dough leaving a dispersion of holes, which are responsible for the sponginess of the bread.
- **THIRD STAGE**  
The dough gets its color and crust. Enzymes are active till about 80-90 degrees producing sugars even beyond the yeast activity. This helps in the coloring of the crust. The enzyme activity helps in the crumbs, crust color and bloom of the bread. As the baking proceeds, weight is lost by the evaporation of the moisture from the crust.

To check whether the bread has been baked perfectly or not, we take the internal temperature by using a probe thermometer. For hard crusted breads the temperature of the centre should be 96C and for soft crusted breads it should be 86C



## 11. COOLING

Most people think that the job is done when the loaves are baked. However, in reality the cooling stage is important to understand because it is a continuation of the baking process. The dough comes out of the oven at a minimum of 82 degrees, during this time, it continues to evaporate moisture, drying out and thus intensifying the flavour. During this process if you cut into a loaf it will seem doughy or under baked. The ideal temperature of a cooled dough is 80F (27C).

The bread must be cooled on a wire rack because if the bread is placed on a flat surface, the heat from the base will condense and the humidity will let the moulds grow into the bread.

## 12. STORING

Lean crust breads are stored differently than soft enriched breads, to preserve the crustiness of lean breads, store them in paper, though they will become stale within a day and are eaten best on the day they are baked. If you want to preserve them for more than a day, clean wrap the cooled loaves in plastic wrap. Then either freeze them or place them in a cool dark place.

Soft, enriched bread such as sandwich bread is always best stored in plastic wrap and either frozen or kept in a cool, dark place ( exposure to sunlight causes the loaf to sweat, creating condensation in the wrapper and eventually mold the loaf).

