

EASY SOURDOUGH BREAD

by Dennis Hevener

<http://www.heavenlysourdough.com>

<https://www.facebook.com/HeavenlySourdough/>

I grew up with good homemade bread, made by my mother and grandmother, with us children "helping". I never had time to bake bread from scratch, but bread machines became commonplace a few years after I married. We purchased a floor model that was on sale, and have had one or two bread machines on hand ever since. It was indeed fascinating that you could dump in the ingredients, push a button, and come back later and enjoy a loaf of good, hot bread. For a number of years we made bread regularly. Quite a few ingredients were required. We simplified the process by pre-measuring the dry ingredients and storing them in a zip-lock bag. All that was required to bake was to dump this in the machine, add yeast and water, and push a button.

As we got busy with life, the breadmaking fell by the wayside. It was a lot of work premixing the ingredients. Everything had to be perfect, or we would end up with something that ranged from poor to inedible bread. And while the results of the successful bakes were very good, they were never quite as good as I remembered grandma's bread to be.

A local newspaper columnist shared her adventures of sourdough baking. It sounded like fun, so I tried to grow my own starter from scratch. I had successfully made Indian dosa batter, a fermented rice and lentil batter that fries into a thin wafer. However, after a few unsuccessful tries at making sourdough starter, I gave up. My wife Fe surprised me with some commercial starter for my birthday. I followed, more or less, the single sheet of instructions included in the package. Sure enough, in a few days I had some yeasty, sour-smelling starter. My first loaf of bread was not the best bread I have ever had, but it was the best I had ever baked. And it was easy! The only ingredients besides the starter are flour, water, and salt! Measurement was not critical. I kneaded the dough in my bread machine as always, put it in a pan, waited for it to rise, then baked. I was soon making the best tasting, best-smelling, and best-textured bread I had ever tasted, bar none.

Furthermore, it was easy to digest (even in large quantities), and stayed fresh longer. I rarely have a loaf get moldy.

Over the past couple years I have been learning more about sourdough bread and perfecting my technique. Now I am sharing it with you. There is plenty of sourdough baking information on the web. Most of it requires learning a whole new lingo with terms such as hydration percentages, autolyse, levain, bulk proofing, etc. that would warm a biochemist's heart. Then there are the instructions that come with commercial starter – just a page of instructions to get you started. This document falls between these two. It is simple, assuming little or no kitchen skills, but will answer some questions that a one-page sheet will not. It will not teach you how to bake award-winning artisan bread. But it will help you make the best tasting, large, fluffy loaves of white bread you ever had.

If you do not like the sourdough that you have eaten in the past, please read on. Sourdough is a method of making bread, not a flavor. The sourdough bread you buy is in most cases not sourdough bread at all – it just has a sour flavoring added to it, or is ordinary yeast bread with sourdough starter added for

flavoring. Real white sourdough bread may be hardly sour at all. I could give you some, and if I didn't tell you it was sourdough, you probably wouldn't notice. It just tastes like really good homemade bread. If you like the sour flavor, there are ways to achieve that.

Don't let the size of this document scare you. I put a lot of extra information and notes to myself here. When I get time I will make a summary version. We are also in the process of putting this information in videos. One is available now. See our web site <http://heavenlysourdough.com>.

WHY SOURDOUGH BREAD?

Making homemade sourdough bread is easy. It is actually easier than baking conventional yeast bread. Measuring ingredients and rise and bake times are less critical than when baking conventional yeast bread. There are only four ingredients. The taste and texture will be the best you have ever tasted. It is simple, needing only flour, starter (which you grow yourself), water, and salt. Yes, you have to keep some starter going, but it is really low-maintenance, requiring only a few minutes a week. If you want to quit making sourdough for a while but don't want to lose your starter, it can live without attention in the refrigerator for a month, and easily be dried and stored indefinitely.

Sourdough stays fresh longer, due to the lactic and acetic acid it contains.

Sourdough bread baked using this method has the best texture of any bread you have ever tasted. It is light and soft yet chewy. If you didn't know better, you would assume it is enriched bread (bread containing some sort of fat such as milk, butter, or eggs.)

Best of all (next to the taste 😊), it is more nutritious and easy to digest. A lot of people who think they are gluten-intolerant and cannot eat regular bread can eat sourdough bread with no problem. My father confirmed this. I am not in any way intolerant of conventional bread, but I can eat as much sourdough as I want and not get that full, heavy feeling in my stomach that I get when eating a lot of conventional yeast bread.

I am often asked if sourdough bread contains yeast. Yes, it does. It is different than the yeast you buy for baking however. Bakers yeast was developed only about 150 years ago to aid in the mass-manufacture of bread. The yeast that is in sourdough is naturally-occurring wild yeast. It is possible, though difficult, to get sourdough starter by mixing flour and water and letting it stand. Flour, and possibly air, contain wild yeast, as well as Lactobacillus bacteria.

There are several breeds/cultivars or whatever you call it of yeast and bacteria that can be found in sourdough. Scientists have discovered 6 different cultivars of yeast and 20 different breeds of Lactobacillus bacteria.

Another interesting fact about wheat. Raw or boiled wheat is not readily digestible by the human body. In a survival situation, you could have an unlimited supply of wheat, but would eventually die from malnutrition if you just ate the



wheat. But bake that wheat into bread, and the nutrients become absorbable by the body and you could survive indefinitely on it. This is true of conventional yeast bread as well as sourdough bread. However, sourdough is more nutritious, as the bacteria digest parts of the wheat that commercial baking yeast can't.

What is Different About Heavenly Sourdough?

If you have read a book or visited an online group dedicated to sourdough baking, chances are you were overwhelmed by all sorts of strange new terms, and the sheer volume of knowledge presented. However, sourdough needn't be difficult or complicated. Other than having to grow and maintain starter, there isn't much difference from baking regular bread. The actual hands-on time required to bake a loaf is only 15 minutes or so, and the steps are few. Add the ingredients to your bowl, mix and knead, form into a loaf and put in the oven. Feed the starter. Allow to rise, bake, and enjoy!

Sourdough bread baking is often confused with artisan bread baking. Indeed, most sourdough books and online groups deal primarily with artisan baking. See the appendix for an explanation of artisan bread. However, regular old non-artisan sandwich bread can be made with sourdough. This is what Heavenly Sourdough is devoted to.

Heavenly Sourdough is also unique in that there is little or no wastage of starter. Most sourdough methods result in excess starter that must be discarded, or used to make non-bread products such as crackers or pancakes. There is a Facebook groups devoted to sourdough discard. <https://www.facebook.com/groups/560059221364421> Heavenly Sourdough uses large and variable amounts of starter in the bread dough, adjusting the amount of flour and water used. This results in no discard.

OK, let's get started!

INGREDIENTS YOU WILL NEED:

- Sourdough starter

You can buy mail-order sourdough starter. See the Products page at <http://heavenlysourdough.com>. I prefer Cultures For Health's San Francisco starter. <https://www.culturesforhealth.com>. By the way, this is a great web site for any questions you may have. There is a lot there and it can be overwhelming, so if you just want a loaf of sourdough bread, this document will get you started. Cultures for Health sends you a little packet of powder that you repeatedly add water and flour to, letting it ferment, until you get enough to bake your first loaf of bread. This takes about a week of twice-a-day feedings. This is where I got my starter initially. Get the San Francisco starter. It is by far the easiest type of starter to work with.

It is much easier, not to mention cheaper, to simply ask someone to give you some of their starter.

If you want to try to make your own starter from scratch, there is plenty of information on the web to help you. However, unless you just want the challenge, save yourself a lot of time and grief and buy or beg some starter. The aforementioned newspaper columnist was unsuccessful after several attempts, and as I recall, ended up adding a little bit of commercial yeast to her concoction to get it going. This is not true sourdough bread, and will lack the advantages that sourdough offers. Keep commercial yeast

well away from any sourdough baking you do.

- White Bread Flour.

Look for a 4 grams per serving (1/4 cup) protein content. King Arthur flour is easy to find most anywhere nowadays, and has a good reputation. However, it costs almost twice as much as other brands (White Lily, Gold Medal), and I can't tell any difference in the finished product. Unbleached and unbromated bread flour is best from a health standpoint and is readily available in 5 lb. bags in the grocery store.

If you will be baking a lot, bleached and bromated flour is available for about \$21 for 50 pounds. It normally cost around \$15, but the last bag I got in Summer of 2021 was over \$20. Hopefully the price will come down. I got Ardent Mills Kyrol Premium High Gluten flour from Restaurant Depot. The results are excellent. Bromated flour works a little better than unbromated. It makes a stronger, more elastic dough that rises more. Ascorbic acid reportedly has the same effect. I haven't tried it. But the next time I use unbromated flour, I plan to add a little ground-up Vitamin C tablet to see what happens. Don't eat raw dough or starter made from bromated flour. Potassium bromate has been linked to cancer in animal studies (what hasn't?) The heating of the potassium bromate during baking renders it safe.

It seems most people use all-purpose white flour for their starter. This is what King Arthur Flour specifies for their starter. The instructions with Cultures for Health's San Francisco starter just says "white flour." I used bread flour, since it has more gluten and is, well, *bread* flour. High-gluten flour will result in a lighter and fluffier loaf with better texture and flavor.

Whatever type of flour you choose, stick with it. The starter does not do well when switching to flour made of different types of wheat. (Bread flour is made from hard wheat and a little barley. All-purpose flour is a mixture of hard and soft wheat.) I tried to use all-purpose flour once to feed my starter because that's all I had. The starter did not grow well, and the bread did not rise well. You can change flour types, but you have to do it gradually. See

<https://www.culturesforhealth.com/learn/sourdough/how-switch-sourdough-new-type-flour/>

However, in my experience, you may freely switch between various brands of white bread flour, including bleached/unbleached and bromated/unbromated without problems. Just don't arbitrarily switch between bread and all-purpose flour.

If you are going for maximum nutrition and health benefits from your bread, whole wheat is best. However, it is much more difficult to bake with. Get started with white flour first to learn the ropes before venturing into whole wheat. I have been unsuccessful in making a really good loaf of whole-wheat bread so far.

- Water.

Distilled water, well water, or spring water is recommended, especially for growing and feeding the starter. You want it to be free of chlorine and fluoride if possible. Bottled drinking water is fine, but culturesforhealth.com warns that it may still have fluoride. Boiling will remove chlorine, but not fluoride.

I have used water out of our refrigerator's filter, which has charcoal to remove chlorine, for routine feeding of the starter and making bread. I use distilled when growing the initial starter from dried

crumbs, and in the winter or anytime the starter growth seems sluggish. The filtered water you buy from dispensing machines at Wal-Mart or Publix for about 40 cents per gallon seems fine. I use it for all my sourdough baking. I called the company that owns the machines, and they assure me that virtually free of chlorines. Lately I have been bringing back a few gallons of my mother's well water every time I visit her.

I have accidentally used tap water and it worked fine. If the starter ever starts getting sluggish -- you feed it and it doesn't froth up as fast or as much as it used to -- you could try switching to distilled water for the feedings for a while.

- Salt.

Don't leave it out. It is for more than just flavor. It helps the formation of gluten. See [Salt](#) in the Appendix.

Some bakers recommend using salt that is not iodized. Iodine is a disinfectant that can kill yeast and bacteria. However, I have used regular old table salt without issue. Salt itself is a disinfectant. Fortunately the small quantities used are not a problem.

- Other ingredients

None! When I bake conventional yeast bread (which I haven't actually done since discovering sourdough), in addition to salt, I add soy lecithin, oil and shortening, all to make the texture of the bread better. I have tried adding these additional ingredients to sourdough, and have found that only are they not necessary, the actually detract from the quality of the bread.

Other ingredients, such as rosemary, thyme, and olives may be added to sourdough, just like any other bread. Beware that olives and pickled jalapenos probably contain salt, so you may want to adjust the salt added to the recipe. Also, garlic and jalapenos inhibit yeast/bacteria activity, so proceed sparingly.

EQUIPMENT

- The usual measuring cups and measuring spoons, **or** a kitchen scale. I highly recommend getting a kitchen scale. They can be had for as little as \$10 from Walmart or Amazon. See the Products page at <http://heavenlysourdough.com>. They are more accurate and faster than measuring cups, not to mention they make cleanup easier. See Weighing vs. Measuring Ingredients in the Appendix. They are also useful outside the kitchen, for things such weighing mail, determining how much product is left in that aerosol container, or seeing if the kids have been sneaking cookies from the cookie jar.

- A bread pan or two. I prefer silicon. They bake evenly, are easy to remove the bread from, and being flexible, minimal storage space.

- Something to grow and keep the sourdough starter in. Most sourdough bakers use a mason jar. take However, a clear glass bowl makes feeding the starter and cleanup much easier. The Heavenly Sourdough method uses a lot of starter, making a larger container preferable. Any covered medium mixing bowl will do. It should be clear so you can watch the development of the starter. Glass is

preferable to plastic. I use a 2-quart batter bowl made by Anchor-Hocking and sold by Wal-Mart. This bowl has measurement markings and a cover, which you will use if you do not have a scale. The batter lid keeps your starter from drying out and allows gas to escape. Even if you don't keep making sourdough bread, this is something you will probably use for other purposes. (This is no longer available from Wal-Mart. Check our web site for alternatives. Go to <http://www.heavenlysourdough.com> and click the Products link.)

If you use a regular mixing bowl for your starter, cover it with plastic wrap. Punch a few small holes in the wrap to allow gasses to escape. There are also kits containing various sizes of stretchy silicon lids for use on any container. These work great. You do not need to poke a hole in them.

- Rubber Spatula for mixing the starter and scraping the sides of the bowl. Wal-mart has a package of 4 silicone ones with wooden handles for under \$4. Spatulas without wooden handles are preferable for sanitation's sake. I found some all-silicone ones at Michael's crafts store.

- Spray bottle of water. Wal-Mart sells a spray bottle for ironing for less than a dollar.

- A heavy-duty mixer with a dough hook or a bread machine for kneading. You CANNOT make real sourdough in a bread machine. (The sourdough recipes for bread machines that you find on the web actually use conventional yeast in addition to sourdough starter). The rise timing is all wrong. Sourdough takes longer to rise, and the rise time is more variable than with yeast bread. But you can use it on the dough cycle as an inexpensive alternative to a mixer. They are available for a few dollars at any thrift store.

I have found that hand-kneading using this method is not practical. The dough is stiff, and needs to be kneaded for at least a half-hour. Feel free to try, and if you are successful, let me know!

- Optional: quick-reading meat thermometer. Used to check the internal temperature of the bread to determine if it is baked sufficiently. Check the Products page at <http://heavenlysourdough.com>

REACTIVATING DRIED STARTER

If you were given fresh starter, skip to the [next section](#). If you brought starter, follow the instructions provided by the seller for activation. If you were given some dried flaked starter, follow the instructions in this section.

To reactivate, put the flakes in a small container such as shot glass. Tamp it down, and just barely cover with distilled water. Or well water. You must use chlorine and fluoride-free water for this step! Allow the flakes to soften for several hours.

Stir. You now have a little bit of starter!

It's time to feed the starter. If the hydrated flakes are now the consistency of thick pancake batter, add water to approximately double the volume.



You will need some flour of the same type as used to make the dried starter. Brand doesn't matter, but don't feed bread flour starter with all-purpose flour or vice versa. If you want starter for a different type of flour than the flakes were made of, proceed to resurrect the starter using the same type of flour, then transition it to your desired type:

See

<https://www.culturesforhealth.com/learn/sourdough/how-switch-sourdough-new-type-flour/>

Add flour to get to a pancake batter consistency. Stir thoroughly.

Keep the starter in a 70-85 degrees F (20 – 30 C) environment. See the next section for how to use your oven and its light to make a warm place in the winter.

Feed several times at 12 to 24-hour intervals. Add water to double the volume, then add flour as necessary to keep the thick pancake batter consistency. After a few feedings, you will need to transfer to a larger container.

The starter will get more robust as you repeatedly feed it. After the first feeding or two, you may notice a few bubbles and it will start to smell sour. When it gets frothy within a few hours of feeding, it is ready to use. Proceed to the Growing More Starter section. If you have not yet reached the bubbly-within-hours stage and have a half-cup or more of starter, discard all but a quarter cup or less before each feeding. Otherwise you will end up with A LOT of starter!

Cultures for Health says that it can take up to a week to reactivate the starter. It took about 5 feedings and 2 1/2 days to get my home-dried starter going. As I recall, it took about 5 days of twice-daily feedings to activate what my wife originally purchased for me.

GROWING MORE STARTER

By now you should have some fresh, active starter. To grow more starter, you just add flour and water to your existing starter, mix, and wait.

Ideally, you will add equal parts, **by weight**, of flour and water to the existing starter. It is recommended that you add at least as much flour and water as you have starter. So if you have 100 grams of starter, add at least 100 grams of water and 100 grams of flour, yielding a total of 300 grams of starter. You may add more if you want to. I am not sure how much you could add, but 3x is not too much (100 grams of starter, 300 grams of flour, and 300 grams of water).



Starter after feeding. Note consistency.

If you do not have a scale, just estimate the volume of starter that you have. Stir out any bubbles before measuring. You may use the markings on a batter bowl, or just estimate. Add up to the same amount of water. You will need almost twice as much flour by volume as water. So if you have a half-cup of starter, add a half-cup of water, and approximately a scant cup of flour. The result should be considerably thicker than pancake batter. It should stick to your spatula. But, please simplify your life by purchasing an inexpensive scale.

Cover the bowl to keep the starter moist to prevent a crust from forming on the surface.

Set the starter aside. It will get bubbles in it, get foamy, and eventually grow to about double the volume you started with. It should have a strong alcohol and yeast smell with a crisp, clean sour-smelling component.

The recommended temperature for growing starter is 70 - 85 F (20 – 30 C). The warmer it is, the faster it will grow. At around 80 degrees, it will complete the growth cycle from one feeding in a few hours. In the winter, I place the starter in the oven with the oven light left on. Be careful, it can get too hot. I left some starter in overnight with the light on and made it sick. I replaced the factory 40-watt bulb with an 11-watt S14 bulb from Ace hardware or Amazon.com. See our Products page on <http://www.heavenlysourdough.com>. It keeps the oven about 8 degrees warmer than room temperature.

Starter will grow at lower temperatures, even in the refrigerator. But it takes much longer. Starter grown at cooler temperatures will have a more robust, complex flavor.

When the starter foams up to approximately double the starting volume before feeding, and has a noticeable sour, yeasty, alcohol smell, it is time to feed it again, or bake bread! If it has little or no smell, let it sit a while longer. It takes approximately four to eight hours for it to grow to double the volume.

Grow enough starter for your needs (see [Baking the Bread](#) below).

If you want to bake a second batch soon after the first, you can make extra starter so you have more starter to start your next batch of starter with. Otherwise, just grow enough for your immediate needs.

Cleanliness is important in growing and maintaining starter. Do not touch the starter. Do not use wooden spoons to stir it. They may contain foreign bacteria.

If you let your fluffy, foamy starter continue to ferment, it will collapse and become more liquidy as the bacteria digest the gluten strands. This is normal. You may still bake with this liquid starter, or feed it again. However, do not wait too long to use or feed your starter. Eventually, the crisp sour smell will change to a vinegary smell, and the alcohol smell will disappear. Your starter may be revived by feeding it. You can actually bake with this over-aged starter. However, the bread will take longer to rise, and will taste more sour. Too sour for my preference, but some people like it. Feel free to experiment.

If you get interrupted and cannot bake when your starter is ready, stick it in the refrigerator until you are ready.

If you make beer, keifer, yogurt, cheese, or yeast bread, keep it well away from the area where you have your sourdough starter.



Several hours after feeding

BAKING THE BREAD

The info in this section is covered by a video at <http://heavenlysour dough.com>.

Recipe

Do not keep a copy of this recipe in your recipe file! Unlike baking a cake, there is no predetermined amount of ingredients. This is because you usually don't have the same amount of starter available every time you bake, and because you may not want the same thing every time you bake. You may want one large loaf of bread, or a large and small loaf, or dinner rolls, or a loaf and hamburger buns. The following recipe is just an example.

If you have spent any time reading about sourdough, you know about the problem of discarded sourdough starter. Using traditional methods, the feedings required by the starter will result in way more starter than you need for a loaf or two of bread.

Every time you bake, you will use an online bread calculator to make a recipe based on how much starter you have and how much dough you want. Go to <http://heavenlysour dough.com> and click on Bread Calculator. Here you enter the weight of the dough you want, and the weight of the starter you have available.

Total dough weight is typically 600 grams for a small loaf, or 1200 grams for a large loaf. 125 grams each is a good target for hamburger buns.

You will typically want to use up all of your starter when you bake, and grow new starter for your next batch. Starter will not live in the refrigerator forever. The amount of starter that can be used is quite flexible. For a typical 1000-gram batch of dough that will yield a two-pound loaf after baking, you could use anywhere from 100 to 700 grams of starter! There are advantages and disadvantages to using more or less starter. A good target would be to use half as much starter as your desired final dough weight, or 500 grams in this case. But 100 or 600 would work great with no special considerations.

Ingredient	Grams	Measurements ¹
Flour	395	2.6 cups
Water	105	3 ½ fluid ounces
Starter	500	2 1/8 cup
Salt	13	2 teaspoons

Here is now the recipe was arrived at using our bread calculator. I decided I want 1000 grams of bread dough. That will result in about a 2-pound loaf after baking. So I enter 1000 in Total Dough Weight in Grams. That is the only decision that I need to make.

1 Note the given measurements are approximate. Measuring flour with measuring cups is not very precise. The exact amount you get depends on how tightly-packed the flour is. For more information, see [Measuring Flour](#) in the appendix. The flour measurement given for this recipe is for merely scooping the flour out of the bag and leveling.

My other input is how much starter I have. I empty my starter bowl into my mixer. Lo and behold, I have a nice round number – 500 grams! I enter that in Starter Weight in Grams, then click the Calculate button. I see that I need to add another 395 grams of flour, and 105 grams of water. I also need to add 13 grams of salt.

Sourdough Bread Calculator

A problem often faced by sourdough bread bakers is what to do with all of the excess starter resulting from the necessary feedings. Waste can be minimized by using up all but a tablespoon or two of starter when baking, and keeping your starter in the refrigerator between bakes. Even so, it still needs to be fed. If you don't bake for a while, quite a bit can accumulate. And, even if you use a scale, growing an exact amount of starter is inconvenient.

A simple solution is to use the excess starter in your bread, reducing the amount of flour and water to compensate. It turns out that the amount of starter used is not critical. I have found recipes on the Internet that call for from 20% to 155% starter (by weight, with respect to the flour.) This handy calculator may be used to easily adjust your recipe to use up your starter. Instructions are below the calculator.

This calculator may also be used to adjust recipe sizes, dough hydration, and do many other bread-related calculations. See below.

Total dough weight in grams:	<input type="text" value="1000"/>	Dough Hydration %:	<input type="text" value="55"/>
Some weight is lost during baking. 1000 grams yields approximately a two-pound loaf. 750 grams yields approximately a 1.5 lb. loaf.			
Starter Weight in grams:	<input type="text" value="500"/>	Starter Hydration %:	<input type="text" value="100"/>
If you want to specify a starter percentage to use, enter it here. The amount of starter needed for the specified percentage will be displayed: <input type="text"/> <input type="button" value="Submit"/>			

Four: 395 grams, or approximately 2.63 cups. (100%) Total flour: 645 grams, 250 (38.8%) from starter

Water: 105 grams, or 3.6 fluid ounces. (27%) Total water: 355 grams, 250 from starter

Starter: 500 grams, or approximately 2.17 cups. (127%)

Salt: 12.9 grams, or about 2 teaspoons

Final dough: 1000 grams, 55.0% Hydration

Instructions

Adjust recipe to use a specified amount of starter: Enter the final desired dough weight and hydration percentage in the above

If you get a negative number for water, you will have to reduce the amount of starter in your recipe, or make a larger amount of dough.

See the appendix and the calculator page for more information on the other fields in the calculator.

Put the ingredients in the mixing bowl. Mix for about 5 minutes or until ingredients are combined. The dough should be just wet enough to stick together. It should not feel sticky when you touch it. Add a little flour or water to get the proper consistency. Watch the video at <http://heavenlysourdough.com> to see what the ball of dough should look like.

Remove the hook from the mixer and cover. Let rest for 15 to 30 minutes.

After the rest, let mixer continue to knead for $\frac{1}{2}$ to one hour or more. Kneading time will be less for dough that uses a lot of starter.

The dough will get wetter as it is kneaded. Don't ask me why. Watch the texture and sheen of the dough in the mixer. It will get smooth and have a satiny, wet or oily appearance. It will get stretchier and the mixer will start pulling harder. It will start to stick to the sides of the mixing bowl. Watch the video at <http://heavenlysourdough.com> to see what fully-kneaded dough should look like.

I have not found the famous windowpane test to be helpful. You can see light through any dough after minimal kneading.

After kneading is complete. The dough will be too wet and sticky to handle. Oil your hands, then form the dough into a loaf. Technique is not particularly important. The loaf shape will improve on its own as it proofs (rises) and bakes.

Oil the bread pan (unless your pan is silicon), put to shaped dough into the pan, and coat the exposed surface with oil. This keeps the surface of the dough from forming a crust during proofing, which will inhibit further rising. Misting with a spray bottle of water periodically during rise will help keep the dough moist and soft. Chlorinated tap water is fine for misting.

Allow to proof (rise). Sourdough will not rise as fast as yeast bread, but it **will** rise, as much or more than yeast bread. If you are rising the bread in a warmish place, you should notice some rising after two hours. The more it rises the softer and fluffier the bread will be. I estimate it rises by a factor of 4 or more. See the photos below and the video.

Your cool oven is a great place to let your bread rise. It will help keep the dough moist, especially if you mist with a spray bottle of water occasionally. In the winter, leaving the oven light on if the house is cool will speed rising. Watch the oven temperature if you leave the light on. It can get too hot and kill the yeast and bacteria in the starter. I replaced the 40-watt bulb in my oven with a 11-watt bulb.

Your bread can rise too much. Poke it with your finger. It should feel springy, not hollow. It should not feel like a balloon. If the dough does not eventually spring almost all the way back after poking it with your finger, it has risen enough or perhaps too much. If it gets so that if you poke the top with a knife it deflates, or deflates during baking, it has risen too much. It is better to bake your bread too soon than to let it over-rise. It will rise more during the baking (oven spring).

If your bread stops rising for a couple of hours and still is not as fluffy as you think it should be, go ahead and bake it. Perhaps you didn't make enough dough for your pan. It will still taste great.

A second rise is not needed.

Once it rises sufficiently, proceed to bake like normal bread.

Cut a slit at the top of the loaf with a sharp knife, razor blade, or a lame, a tool made for that purpose. This will allow the bread to rise more during baking (oven spring) and not split. Cut a single slice down the middle for smaller loaves, or a few diagonal slices for larger loaves. Dinner rolls and buns do not need scoring.

Put the loaf in your oven. Mist the inside of the oven with water using a spray bottle. Ordinary chlorinated tap water is fine for this.

Set the oven to 400 degrees (204 C). Large loaves can be baked at 350 F (177 C). This will result in softer crust. Use 400 for smaller loaves or buns or rolls. If the oven temperature is too low, the texture of the bread will not be good. You can't go wrong with 400.

If your oven has a Fan or Convection setting, use it.

Note that ovens are usually very inaccurate. An oven thermometer is a great thing to have.

Bake until it smells and looks right. If you have a thermometer, the internal temperature should be between 190 & 210 degrees F (88 – 99 C), with 195 (91 C) recommended.

Once baking is finished, remove from the pan, lightly oil the surface of the bread, and allow to cool on a rack. It pops right out of my silicone pans. If using glass or metal, let it cool a bit before removing from the pan.

After cooling, place the loaf in a plastic bag. The crust will get softer as moisture from the inside of the loaf is absorbed into the crust.

Store your bread in a warm place. A refrigerator or cool place is the worst possible place to store bread if you want it to stay fresh and soft.

You can soften stale bread by microwaving it – about 10 or 15 seconds for a single slice.



Newly-formed two-pound loaf. The surface has been oiled. Just waiting for it to rise!



Fully-risen loaf. Score the top, then bake!



Ready to ...



...enjoy!

NOTES FOR ROLLS

Make 1000 grams of dough. After kneading, divide into 18 balls, and place them in three rows in a 9x13" pan. Bake at 400F. (350 won't work. The texture will be horrible. I don't know why this is. Thanks to my dear friend and bread guru Bonnie for telling me this.) I would have never figured this out. No one seems to know why this is.



Oil the pan, then proceed as for loaves above. It will not take as long to bake of course. The internal temperature of 190-210 F (88 – 99 C) still applies. I let rolls get a

little warmer (at least 200) because it results in firmer bread that is easier to remove from the pan. Let cool a bit before attempting to remove from a glass or metal pan.

MAINTAINING THE STARTER

For your starter to remain healthy, all it needs is food and water. But if you do not feed it, it will first develop a clear liquid on the top, then a brown liquid on the top, then eventually die. So you will need to feed your starter as described in the above section [Growing More Starter](#).

At room temperature, the starter will require feeding once or twice a day. Unless you will be baking every day or two, this is just too much work. Most of us are not looking for a new lifestyle centered around bread baking. So you will probably want to store your starter in the refrigerator. You will have a tablespoon or so of starter left on the sides of the bowl after making your dough. Add 25 or 30 grams of water, scrape the sides of the bowl, then add an equal amount of flour.

If your starter is active and healthy, you may put it in the refrigerator until you bake again. If it seems a bit sluggish, allow the starter to grow, feed again, then refrigerate.

How long can it be ignored while in the refrigerator? If you feed before refrigerating, it will go two weeks no problem. Keep an eye on it. It will froth up, then collapse just like it does at room temperature. But it will take weeks instead of hours. When the starter goes flat and has liquid on the top, take it out of the refrigerator and feed again.

Frequent feedings are good for your starter. If the starter gets sluggish, revive by giving it several feedings. You will want to discard some starter before each feeding to keep a manageable quantity of starter.

If you have had your starter in the refrigerator for several weeks, it is a good idea to remove it, warm it up, and give it a few feedings even if you don't plan to bake. You will have to use or discard some starter.

When it is time to bake, remove the starter from the refrigerator, allow to warm, and feed it to get the

desired amount of starter. Add equal parts of water and flour by weight. If measuring, add almost twice as much flour. A good rule of thumb is to add at least as much water and flour as there is starter. In other words, if you are feeding 100 grams of starter, add at least 100 grams of water and 100 grams of flour.

If you have enough starter in your bowl when taking it out of the refrigerator, let it warm up for an hour or so, then bake. You do not need to feed the starter before baking.

It is important to keep the starter bowl clean and prevent mold growth. I scrape down the sides of the bowl with a spatula after every use, and start with a clean bowl every week or two. I have two batter bowls and alternate between them. If you have only one bowl, transfer the starter to any clean container while you wash the bowl.

Culturesforhealth.com advises that sourdough can be preserved long-term by painting some starter on wax paper, letting it dry, removing it from the wax paper, breaking into flakes, putting the flakes in a little zip-lock bag, and storing in the refrigerator. (I have read that the flakes can be frozen. I've never tried it). They encourage you to do this to have a "backup" of your starter. I think this is how they prepare the crumbs they sell you when you buy starter. I tried this on crumbs that were 5 months old, and it did indeed come back to life very vigorously. I did some research on how long the dried starter will last. Cultures for Health says "at least a year". Someone else suggested 10 years. The truth is, no one really knows. I made a second batch after 6 months just to be safe.

By the way, this is a good way to share starter with a distant friend. Simply put about a tablespoon in an envelope and mail it.

Contact me using the information at <http://www.heavenlysourdough.com/> I would be happy to give you fresh starter if you are local. Also feel free ask me to mail you some dried starter. I have not yet received many requests, and so far have mailed starter to anyone who asks for it, including foreigners. However, feel free to order from culturesforhealth.com. There is a wealth of information here which is worth more than the cost of the starter they sell.

Dennis Hevener
January 2022

Copyright 2017-2022 by Dennis Hevener
<http://www.heavenlysourdough.com>

Revised Jan 2018, April 2018, June 2018, January 2022

December 2019 Corrected a Celsius temperature. Updated info on kneading.

Appendix

Measuring Flour

Getting an accurate measurement of flour with measuring cups is difficult. The amount of flour in a cup will vary significantly based on how tightly packed the flour is. King Arthur and others recommend fluffing the flour up then spooning it into the measuring cup. Most sources list flour as weighing 4¼ oz. or 120 grams per cup for sifted flour spooned into the cup. This is a lot of extra work. I used 150 grams per cup, which I determined by just scooping flour out of the bag and leveling it, then weighing,

Weighing flour is much easier and much more accurate.

Fortunately, accurate measurement of flour is not necessary for baking bread. Just do a rough measurement, then add flour or water to get the proper dough consistency. Chances are your grandmother baked her bread without measuring anything. In fact, exact measurement of water and starter is not critical at all. What is critical is that the dough be the right consistency. As long as the dough consistency is correct, the worst thing that can happen is that the size of the final loaf will be bigger or smaller than intended.

Even if you weigh the ingredients, you may need to add a little bit of water or flour to adjust the consistency of the dough.

Weighing vs. Measuring Ingredients

Digital technology has made good, inexpensive, easy-to-use scales readily available. A scale is not at all necessary for making good bread. However, if you do even a modest amount of cooking, there is a lot to be said for purchasing a kitchen scale. First of all, you eliminate the plethora of measuring cups and spoons you have to get out, wash, and put away. Simply put the mixing bowl on the scale, press the Tare button to zero it, then add your first ingredient. Press the Tare button to again zero the scale, then add the second ingredient, and so on.

Unlike measuring flour, weighing flour is as easy as weighing any other ingredient. It doesn't matter how packed it is. Likewise, you don't have to stir the bubbles out of your starter before weighing it.

Scaling recipes is much easier when you weigh. Try making a half recipe of 2½ cups of flour, a half-cup of sugar, ¾ cups of oil, etc. But scaling 300 grams of flour, 100 grams of sugar, and 150 grams of oil is trivial. Some scales have a feature that permits you to scale recipes using bakers' percentages without doing any math at all.

You have to convert your most-used recipes to weight. King Arthur has a comprehensive conversion table. <https://www.kingarthurfour.com/learn/ingredient-weight-chart.html>. Use grams instead of ounces. That way you never have to deal with fractions or decimals.

A good, accurate kitchen scale can be had for \$20. Look for something that has at least a 5 kg/11 lb max limit with an accuracy of one gram. It needs to be able to handle the weight of your mixing bowl

plus ingredients. Many scales can handle 8 kg/18 lbs. The scale must have a Tare button, and should be switchable between both grams and ounces. As far as I know, any scale you pick up will have these features.

Other less-common features to look for are an optional AC adapter, and adjustable auto-shutoff time.

Although most kitchen scales read down to the gram, they will not handle small weights of less than about 5 grams and may be up to a gram off. For bread baking, this is accurate enough to measure salt for all but the smallest batch.

For other recipes, you may have to continue measure things like salt, yeast, baking powder and spices. Since most kitchen scales do not display fractional grams, and no scale is 100% accurate, the displayed weight from even a good scale could be gram off. That is no big deal if you are weighting flour or water. But that error could be significant if you have a small recipe calling for baking powder. For less than \$20 you can get a “milligram scale” that is accurate to within a few milligrams (that’s $\frac{1}{1000}$ of a gram!) and have a capacity of 50 grams. Another worthwhile investment if you do a lot of cooking.

Salt

Salt acts as a conditioner, aiding the attraction of Gliadin and Glutenin, the two components in wheat that combine to form Glutelin, to each other. This makes the dough stronger and the texture of the finished product better, prevents oxidation which affects flavor, regulates yeast reproduction giving a more consistent rise rate, and improves shelf life.

I accidentally left salt out of a loaf I baked. It rose no problem, but the texture was poor. The no-salt loaf is shown in the right of the picture. It has a coarser, rubbery texture. The taste was nothing to write home about either.



Bread Calculator

At our web site <http://www.heavenlysour dough.com>, you will find a handy bread calculator. The main use for this is allowing you to use up all of your starter, adjusting the water and flour accordingly to get the desired final dough weight. The amount of starter used is not critical.

It also makes it easy to scale a recipe to make larger, smaller, or make multiple loaves. It has other features such as the ability to analyze other recipes to determinate total dough weight and hydration percentage, as well as other bread-related calculations. These are explained on the calculator page.

What about the Dough Hydration Percent and Starter Hydration Percent? For baking using the Heavenly Sourdough method, you do not need to change these. They are provided for use with other recipes or if you want to experiment. The Dough Hydration Percent is how wet you want your dough to be. I have discovered that 55% is best for the way I bake, so that is the default. Note that our dough is not 55% water. This percentage is what is referred to as a “baker’s percentage.” It just means that all of the water in the dough weighs 55% of what all of the flour weighs. “All of the flour” or “all of the water” includes flour and water you add, plus what is in the starter. The gross percentage of water in this recipe is actually 35.5%.

Most other recipes will call for wetter dough, so if using the calculator for different recipes, change the dough percentage hydration to whatever the recipe calls for.

The Starter Hydration Percentage is how wet the starter is in baker’s percentage. 100% means that the starter is made of equal parts flour and water, by weight. Almost everyone hydrates their starter at 100%. It is convenient and makes for easy math if you are not using a calculator. But you do not need to use that percentage. If per change you have starter that is something other than 100%, enter that figure here.

What is Artisan Bread?

What is artisan bread, anyway? A quick web search does not clearly answer the question. A good working definition for artisan bread is bread that is made with as much care as possible and as much time as necessary to produce the best possible bread. Making artisan sourdough bread may be a two-day process, with numerous stretch-and-fold cycles. Cold (slow) fermentation may be used to produce a more robust flavor. Artisan bread is typically not baked in a pan. It will typically have large holes, and a crispy crust. The crust may be decorated by slicing intricate patterns into the dough before baking. Le Cordon Bleu sums it up nicely when it says “Ultimately, artisan bread is defined by the skill and time put into its production.” <https://www.cordonbleu.edu/news/what-is-artisan-bread/en>

There is a bakery near here that bakes real artisan sourdough bread. I brought a loaf. It was a bit on the expensive side, but well worth it. It had great flavor and texture. Perfect for tearing off a piece, dipping in olive oil. If you get a chance, try some artisan bread. You may want to learn to bake it yourself. If you do, you will find lots of support on Facebook’s Sourdough Bread Baking group. It currently has over 100,000 members! <https://www.facebook.com/groups/1101268103263435>

However, artisan bread is not the best thing if you want a good old peanut butter and jelly sandwich. Big holes look pretty, but they have absolutely no flavor, and are not practical for a sandwich. Not everyone likes a sour flavor and a chewy crust. I was not looking for another hobby. I just wanted good homemade sandwich bread as expediently as possible. The bread produced by the Heavenly

Sourdough method may not be bread in the world, but it may well be the best bread you have ever tasted, and will certainly make the best sandwich you have ever had.