

# MAKING A SOURDOUGH STARTER

Sourdough is the name given to a natural process of fermentation used most often to leaven bread and other doughs. It is an ancient process that at its most simple involves mixing flour, water and salt and waiting hours or days and then baking the mix.

The act of combining flour and water and leaving it to ferment will create a starter that provides the natural leavening for the dough. Wheat or rye flours are commonly used to make a starter and the yeast and bacteria that are naturally present on the grain are harnessed, concentrated and trained to behave in a predictable way.

Creating and maintaining the starter through regular refreshments during its establishment and thereafter, means that a loaf of bread is always within your reach. A vigorous starter will produce a lighter loaf and more satisfying results. If the starter is happy, the bread will be good.

## HOW TO MAKE A SOURDOUGH STARTER

**MAKES** 100g (3½ oz)

Ready in 8–21 days

1kg (2¼ lb) whole wheat flour  
water

A basic sourdough starter can be made with any wheat or rye flour – it doesn't have to be fancy or expensive. I find wholegrain and organic flour is best as you are trying to harness the natural organisms present on the grain, so the more the better, although it isn't absolutely necessary. Tap water is perfectly fine for sourdough starters and doughs – you can use very slightly warm water if the weather is cold and you want to give your starter or dough a boost.

The number of days it takes to make the starter will vary so the times in the chart on pages 14–15 should be used as a guide. In warmer weather the starter will ferment faster in which case go with the lower end of the scale or even less time and the reverse is true in very cold weather or if your kitchen is especially cold.

A starter made with white wheat flour may take an additional 1–2 days longer to ferment and establish but should be ready to use by the end of 21 days.

Follow these important points when making your starter:

- **Leave the starter in a warm place** During summer the kitchen work surface is fine, in winter choose a constantly warm area – on top of the fridge, for example. Keep at room temperature throughout and once your starter is ready to include in recipes, refer to How to store your starter.
- **Use a clean jar** Transfer the starter to a clean jar every day at the beginning of the process. It is best to use a Kilner jar or a large jar with a cloth on top secured with an elastic band. Avoid jars with screw top lids for storing sourdough starters as they don't allow the gases to escape For details of changing jars later on in the process see Once the Starter is Established (see page 16).
- **Mixing the starter** Always mix the starter with clean hands or a clean spoon until all the flour is hydrated and no dry patches remain.



STEP BY STEP  
GUIDE TO MAKING  
A STARTER

DAY	METHOD	INGREDIENTS TO BE ADDED
1	Place ingredients in a jar, stir, cover with a cloth, secure with an elastic band and leave in a warm place.	25g (1 oz) whole wheat flour 25g (1 oz) water
2	After 24 hours transfer the Day 1 mixture into a clean jar and stir in the Day 2 ingredients. Cover as before and leave in a warm place.	25g (1 oz) whole wheat flour 25g (1 oz) water
3	After 24 hours transfer the Day 2 mixture into a clean jar and stir in the Day 3 ingredients. Cover as before and leave in a warm place. There may now be some bubbles of activity as the yeast and bacteria multiply. If not, then find a warmer spot and repeat the day 2 process for an additional 1-2 days	25g (1 oz) whole wheat flour 25g (1 oz) water
4	After 24 hours weigh out 20g (¾ oz) of the starter from Day 3 and place in a clean jar. Discard the remaining Day 3 starter. Add the Day 4 ingredients into the jar. Mix until well combined with no dry patches of flour. It will be a fairly stiff dough. Cover as before and leave in a warm place.	50g (1¾ oz) whole wheat flour 30g (1 oz) water
5	Weigh out 20g (¾ oz) of the starter from Day 4 and place in a clean jar. Discard the remaining Day 4 starter. Add the Day 5 ingredients into the jar. Mix until well combined with no dry patches of flour. It will be a fairly stiff dough. Cover as before and leave in a warm place.	50g (1¾ oz) whole wheat flour 30g (1 oz) water

DAY	METHOD	INGREDIENTS TO BE ADDED
6	Weigh out 20g (¾ oz) of the starter from Day 5 and place in a clean jar. Discard the remaining starter. Add the Day 6 ingredients into the jar. Mix until well combined with no dry patches of flour. It will be a fairly stiff dough. Cover and leave in a warm place.	50g (1¾ oz) whole wheat flour 30g (1 oz) water
7	Weigh out 20g (¾ oz) of the starter from Day 6 and place in a clean jar. Discard the remaining Day 6 starter. Add the Day 7 ingredients into the jar. Mix until combined with no dry patches of flour. It will be a fairly stiff dough. Cover and leave in a warm place.	50g (1¾ oz) whole wheat flour 30g (1 oz) water
8-14	If the starter has at least doubled in volume and has visible bubbles 12 hours after the last refreshment then it may be ready to use for baking. If it seems alive but not moving much, continue the same pattern of discarding and refreshing 24 hours apart until at least doubled in volume 12 hours after refreshment. Use slightly warm water and move the starter to a warmer place if it seems inactive or is not increasing in volume every day.	50g (1¾ oz) whole wheat flour 30g (1 oz) water
15-21	If your starter does not seem strong enough, repeat the process for days 8-14. Once you have a good, strong starter you can be more flexible about storage and maintenance and expect consistent results when you bake.	50g (1¾ oz) whole wheat flour 30g (1 oz) water

## ONCE THE STARTER IS ESTABLISHED

If you are refreshing your starter every day it isn't necessary to change the jar every day once the starter is established. However, I find that it is best to change the jar every 2-3 days to avoid any build up of old starter on the sides or contamination with less friendly bacteria that may negatively impact the starter.

## MAINTAINING A STARTER AND COLD STORAGE BETWEEN BAKES

If you bake regularly then it may be most practical to keep your starter at room temperature. A refreshment once every 24 hours when you are often in the kitchen is not time consuming and the upside is you are never more than a few hours from being able to mix a dough. There is a difference though between keeping a starter alive and having it at its peak for mixing dough. A refreshment once in 24 hours, or even, should you forget to refresh it, after 36 or 48 hours, will be enough to keep it alive. However, to have a vigorous starter ready for baking, a morning refreshment on day 1 followed by an evening refreshment 12 hours or so later will allow you to mix a dough on day 2.

If you go on holiday or bake once a week or perhaps once a month then it makes sense to keep your starter in the fridge. Refresh it as normal and when it is at its peak i.e. at the point you would usually use it to mix a dough, pop it in the fridge. It will be fine for weeks potentially – it depends on how cold your fridge is. My policy is to refresh a refrigerated starter every week, if possible, but not to leave it for any longer than three weeks. It's important to regularly refresh the starter, even if you're not going to use it – refreshment will wake it up before it goes dormant once more.

## BAKING WITH A SOURDOUGH STARTER

If you're refreshing your starter in order to bake make sure you reserve a small amount, even just 20-25g ( $\frac{3}{4}$ -1 oz), so that you can refresh it for future bakes. The quantity of starter specified in the recipes in the book, is often more than is needed. This is because some volume is lost during fermentation and some will stick to the jar, the spoon and your hands – it's always better to have slightly more than you need. A little extra also allows you to retain a small portion to maintain and keep alive for another bake. Take care not to use it all in the dough and you can develop a system for the longevity of your starter. I usually

have some in the fridge and some on the work surface so that if one were to be lost, the other remains.

## PREPARING THE STARTER TO USE IN RECIPES

The starter that is used for the first stage of all the recipes is a starter that has been refreshed as detailed below.

### If the starter has been refrigerated

Remove the starter from the fridge and add 5-10g ( $\frac{1}{4}$  oz) of it to 30g (1 oz) water in a clean jar, mix briefly and then add 50g ( $1\frac{3}{4}$  oz) flour. Discard the rest of the unused starter. Mix with a spoon or your hand until no dry patches of flour remain. Leave to ferment for 24 hours at room temperature. Repeat the refreshment and allow to ferment for approximately 12 hours at room temperature before using for stage 1 of the recipes.

### If the starter has not been refrigerated

Take a clean jar and add 5-10g ( $\frac{1}{4}$  oz) of the starter to 30g (1 oz) water, mix briefly in the jar and then add 50g ( $1\frac{3}{4}$  oz) flour. Discard the rest of the unused starter. Mix until no dry patches of flour remain. Leave to ferment for approximately 12 hours at room temperature before using for stage 1 of the recipes.

## USING BAKER'S PERCENTAGES

Baker's percentages are an enormously useful tool when you are practiced at making bread and want to understand how you can adjust a recipe through changes to the type or quantities of ingredients. An experienced baker can look at a formula and know from the relationship between the flour and the water or the starter and the flour what type of bread to expect.

When you look at other recipes or want to convert yeast based-recipes to make a sourdough version, you will find bread formulas are given in one of two ways. When baking at home, I prefer to use the method that gives each of the ingredients a percentage, including the flour and water in the starter. This makes the relationship between all ingredients easier to understand. For example, the amount of fermented flour in the starter may be 15% and the flour in the mix is 85% making a combined total of 100%. The required weight of the salt can be worked out based on the total flour. The same principle applies for the hydration which will also take into account the water in the starter.

Salt helps develop the gluten in the dough but most importantly makes it taste of something. When using baker's percentages, a rule of thumb is 1.8-2% of salt to 100% flour – though this can be changed to suit personal tastes. Slightly more

salt may be needed for breads with added seeds or grains and slightly less for sweeter doughs. Bread without enough salt will taste flat; salt brings it to life.

When working out the hydration or amount of liquid to be used in a recipe, this should include the water in the starter. Water can be changed at whim when baking – it is always up to you and what you think the dough needs. I have learnt the value in making sure there is enough water in a dough, even if it is harder to manage. A normal range of total water in a formula in relation to total flour could be anywhere from 60 to 90% depending on the style of bread and any additions. Bread with seeds or dried fruit added often requires more water. Comparing the quantites used in a recipe is a good way to understand how flour, salt and water interact with each other and how baker’s percentages work. Here the total hydration is 77.8%.

INGREDIENT	AMOUNT	PERCENTAGE
Flour	500g (1 lb 2 oz)	89%
Water	400g (14 oz)	71%
Salt	10g (¼ oz)	1.8%
Flour in starter	62.5g (2½ oz)	11%
Water in starter	37.5g (1½ oz)	6.8%

Most bread formulas in the book use a starter at 60% or 80% hydration. A starter at 100% hydration is sometimes used to build the starter for sweet doughs. If you can understand baker’s percentages, you can change a formula to suit your flour or location or personal preferences without running the risks that come with trial and error – it allows you to understand the very structure of your process.

NOTES ON FLOUR

I recommend using a flour with around 12% protein content for the recipes in the book. This may be ‘plain’ flour rather than ‘bread’ flour; the protein content is listed with the nutritional information on the pack. A softer flour gives a softer crumb; you can use bread or plain flour but it isn’t necessary to use extra strong flour. I like to use organic flour but you can make bread from almost any flour.

NOTES ON TEMPERATURE

The main way to control the fermentation of your dough is to adjust the water temperature when mixing as you have less control over room temperature and other variables. You will learn to read the dough from experience and can extend or reduce the bulk time time as needed. Aim for a final dough temperature of 28°C (82°F) just as you finish mixing the dough and around 26°C (79°F) in warm weather. A probe thermometer is a useful baking tool for consistent results.

THE DOUGH PROCESS

The following steps need to be completed as you make the dough.

THE AUTOLYSE STAGE

This is the stage where the flour and water for the dough are mixed together, prior to adding the starter. The purpose of the autolyse stage is to allow the gluten to begin to develop gently with minimal effort or friction. By adding water to the flour, proteins begin to form and so less mixing time and folds are required later in the process.

The autolyse stage can help with timing: it can be left out if it suits your schedule however, it can also be extended – as there is no starter in the mix it won’t over ferment. It can last for several hours or even overnight if you get called away before you can complete the mixing process. At Margot, we find extending the autolyse particularly beneficial for breads with larger proportions of whole grain flour.

MIXING THE DOUGH

It is possible to make bread without a mixer. It takes a bit more time, but the results are just as good. The technique for developing the gluten in sourdough breads with relatively high proportions of water is different to the more familiar and traditional techniques for yeast doughs.

The most important thing is to never add any more flour to the dough – not on your hands or the bench. Use wet hands or a little oil in the bowl instead. The flour in the recipes is already in correct proportion to the water and salt, if you add extra flour to the dough at any stage it will not hydrate properly and you will have heavy, dry bread. Trust the process and as the dough develops and the gluten strengthens with the autolyse, mixing and then folds, the dough loses its sticky quality and becomes strong and smooth without the need for any extra flour. It will be stickiest at the start – this is normal and doesn’t indicate problems.

It makes sense to develop the dough in a bowl as it is less messy but it can be done in any way you prefer including on a work surface.

### TO MIX BY HAND IN THE BOWL

1. Once the starter and salt have been added and squeezed through the dough, grip the bowl with one hand and use the other one to reach under it and take a handful of the dough from the bottom of the bowl. Bring it up and over to the middle point of the top of the dough.
2. Repeat the process turning the bowl a little with each movement, so that you move around the dough evenly, pulling it up and stretching it onto itself in a circular motion. You don't have to be too firm or pull very hard, it is a relatively gentle process. Keep going until the dough feels stronger and it starts to pull away from you when you try to stretch it. This will usually take 5-10 minutes when making bread.
3. Stop at this point and begin the rest period suggested in the recipe before making the series of folds that complete the bulk fermentation.

### BULK FERMENTATION OF THE DOUGH

This is the period where the dough is left to rest after mixing and before shaping. If the dough requires folds, they will be completed during this stage. The aim is for the dough to increase in volume by 20–30%. It can take place at room temperature or partly at room temperature and partly in the fridge. The times given in recipes are based on an ambient room temperature of around 20–22°C (68–71°F). If room temperature is above or below this then timings may need to be adjusted accordingly. In the middle of winter you would expect the dough to require more time and on a warm summer day, less time. The amount of time needed also varies according to the type of dough – enriched doughs such as Challah (see page 46) take longer – and how much starter the dough contains in proportion to the flour.

It's important to watch the dough at this stage and this comes with experience. If you think it can take more time and it looks or feels cold and heavy it usually can and conversely if you see it escaping the bowl early on in the process move to the next stage promptly. By the time it is shaped you don't want a bubbling over-fermented mass but a strong and lively dough that is moving but still has enough vigour to complete the next stage.

### FOLDING THE DOUGH

It helps to think of the dough as having four sides when folding (even if it is in a round bowl). Wet one hand while the other holds the container or bowl and reach under the dough and lift it as far as you can without tearing and place the lifted section onto the centre of the dough. Repeat on the other three sides. Four folds should be fine with practice but you can do eight or more if you think it

needs it or if you are being very gentle. It is time to stop when you feel resistance in the dough; don't be tempted to tear it or keep going at that point. Then turn the ball of dough over so the bottom is now at the top of the bowl. This helps keep the tension you have just created as the seam is now underneath the weight of the dough.

The dough rests between folds so the gluten can relax. It should become smoother, visibly stronger, less sticky and increasingly hold its shape at the edges with each fold.

### PRE-SHAPING THE DOUGH

Turn the dough out onto a clean, unfloured surface with the aid of a dough scraper. Flour your hand and lightly flour the top of the dough but try not to allow any flour to get mixed into the dough or on the underside. Using one hand to hold the dough and your other hand holding a dough scraper, tuck the bottom of the dough under itself where it meets the work surface and move the ball of dough in small circular movements. Try and keep it in a single position rather than moving across the work surface – imagine there is a dot underneath the dough and you are trying to keep it on the dot. You are trying to develop some tension on the top of the ball of dough, which will help with structure in the final loaf. When it feels taut and rounded, place it on a lightly floured surface but do not cover. If you see the dough tearing then stop and let the dough rest.

After 20–30 minutes the dough should have relaxed – ideally it should have rounded edges where the dough meets the work surface. It should have a slight skin on top where it has been exposed to the air.

### SHAPING THE DOUGH

Very lightly dust a work surface with flour and turn the dough over onto the flour using a dough scraper to help you lift it cleanly. The top 'skin' side should now be downwards and in contact with the floured work surface and you should have the sticky side facing upwards.

Gently, and without pulling at the dough, fold the bottom third up to the middle like you are folding a letter. Fold in the left edge to the middle and then the right side and finally the top down so all four sides have been folded in, creating a neat parcel.

You now have a roughly square piece of dough in front of you. Starting on the top left corner, take an edge of the dough and take the matching corner from

the right side. ‘Stitch’ the dough down its length three or four times towards you so that you have knitted the left and right side together by taking some dough from each side and connecting them in the middle. It’s like doing up buttons on a baby’s cardigan! You will have a rectangle of dough in front of you with the short sides at the top and bottom.

**For a batard loaf** roll the dough away from you from the bottom of the rectangle as if you are rolling up a Swiss roll. You are aiming to have an even piece of dough, uniform in size.

**For a round loaf** fold the dough on itself towards you, more or less in half, and then turn it over onto an unfloured surface so the seam-side is down on the work surface. Flour your hand and lightly flour the top of the dough then repeat the pre-shaping technique, using a dough scraper, turning the loaf around in a single position until it forms a uniform round shape with some tension. This is quite a tricky technique to master and it takes practice – the first few times you do this you may have the dough sticking to your hands.

Dust the shaped loaf in a mixture of white rice flour and whole wheat flour and place seam-side up in a banneton dusted with rice flour or into a bowl lined with a tea towel generously dusted with rice flour. Proof according to the recipe.

SCORING LOAVES

The classic score we use for the Margot loaf is a single straight line. For a round loaf use a balanced set of lines or patterns so that the loaf can expand evenly.

It is important to score the loaf evenly. Dust the loaf with rice flour, rubbing it over the loaf with your hand – this helps a blade slide through the dough without sticking when you score it and also provides a pleasing contrast with the exposed dough where you have made the

cut against the dusted crust of the loaf. Using a baking lame, start from the very edge of the loaf and once the corner of the blade has gone under the skin, have the blade at a 45° angle to the surface of the loaf. Pull it firmly and definitively through the skin at the top of the loaf, about 5mm (¼ in) deep. A sharp knife or even a pair of scissors can also be used to the score the dough.

BAKING INSTRUCTIONS

Baking in a cast iron pot quite closely recreates the conditions in a professional bread oven where the bread is loaded at a high temperature and steam can be added at the touch of a button and allowed to escape at the right moment in the bake. Alternatively bake on a preheated baking tray or stone and add steam to help recreate the ideal baking environment.

BAKING IN A CAST IRON POT

Place a sheet of baking parchment on a work surface. Turn your shaped loaf out onto the paper, seam-side down and the smooth side facing you. Cut the paper roughly around the shape of your loaf, leaving two long pieces of paper on two sides of the loaf to help lower the loaf into the pot. Score the loaf (see Scoring Loaves).

Carefully take the preheated pot out of the oven, lower the loaf in and replace the lid. Put the pot back in the oven and follow the recipe directions to bake the bread. If the base of the loaf is getting too dark, transfer to a baking tray for the final stage of the bake. Bake until it sounds hollow when tapped on the bottom and has a deep brown colour. It won’t colour properly until the steam is released when the lid comes off so this last phase of baking is important. Be bold and don’t cut this stage short as a fully baked crust means the crumb will be set and have the correct texture – the crust will stay crispy and not soften as soon as it cools. In my experience there is a range of preferences for final loaf colour – one person’s burned loaf is another’s under baked. I favour a boldly baked loaf!

BAKING ON A TRAY OR STONE WITH STEAM

Place the bread onto the preheated tray or stone and add some water to the roasting tin. Bake the bread following your recipe, removing the water tray for the final third of the cooking time so the bread can colour and crisp up.

COOLING AND STORING BREAD

Allow loaves to cool on a wire rack for at least an hour before slicing. Store the bread wrapped in a clean cloth or greaseproof paper to retain the crispy crust. Never store bread in the fridge or it will stale quickly. Use plastic to preserve freshness for longer but this will be at the expense of the crispy crust.



# THE MARGOT

When I opened the bakery we tested several loaves in this style; fairly simple with a whole wheat starter, some rye flour for structure and flavour, and enough water to make a daily loaf that could sit in a kitchen for a day or two or three; suitable for toast, to make a sandwich for lunch or to serve with salad or soup for dinner. It's the most popular loaf at the bakery, our customers ask for it by name and it has become the yardstick by which we measure how good all the products are. If the Margot is happy we are all happy!

Feel free to reduce the water content a little while you get used to handling and shaping the dough and work your way up – 20g (¾ oz) less water will give a firmer, more manageable dough while you master the techniques.

### MAKES 1 LOAF

800g (1¾ lb)

#### Stage 1: Refreshment

70g (2¾ oz) whole wheat flour  
42g (1½ oz) water  
5g (⅛ oz) whole wheat starter (8-12 hours after last refreshment)

#### Stage 2: Dough mix

350g (12 oz) strong white flour  
40g (1½ oz) wholegrain rye flour  
335g (11½ oz) water  
8g (¼ oz) sea salt  
rice flour, for dusting  
sunflower oil, for greasing

1. Place all the stage 1 ingredients in a 500ml (17 fl oz) Kilner jar or container with a lid, mix, cover and leave at room temperature for 12-16 hours

2. Combine the flours and water for stage 2 in a large bowl and mix with a spoon or your hand until no dry patches of flour remain visible. Or, in a free standing mixer fitted with a dough hook, mix for 3 minutes on a low speed and 2 minutes on a medium speed. Scrape down the sides, cover and leave for 30-60 minutes.

3. Add 100g (3½ oz) of the starter to the bowl and squeeze it through the mixture with your hand – use one hand rather than two; at this stage the dough is sticky and you are better off keeping one hand free of dough to hold the bowl. Add the salt and squeeze it through the dough.

4. Develop the dough in the bowl by hand mixing for 5-10 minutes (see Mixing the Dough on pages 19-20). Alternatively you can use a free standing mixer fitted with a dough hook for 2 minutes on a low speed and 3-5 minutes on a medium speed.

5. Use the sunflower oil to grease a large mixing bowl or a rectangular flat bottomed glass or plastic container with a lid and capacity of at least 2 litres (3½ pints). Transfer the dough to the bowl or container, cover and rest for 20 minutes.

6. Fold the dough four times, leaving 20 minutes between each fold, then give the dough an additional hour to rest.

7. Pre-shape the dough following the instructions on page 21.

8. Shape the dough into a batard loaf following the instructions on pages 21-22.

9. Transfer the dough into a banetton and then leave in the fridge for 16-24 hours.

10. Preheat the oven to 240°C/475°F/gas mark 8 for 40 minutes, placing a cast iron pot inside after 20 minutes. Once it is hot, lower the bread into the pot and place the lid on top and return to the oven. Reduce the temperature to 220°C/425°F/gas mark 7 and bake for 15 minutes, then reduce the oven temperature again to 200°C/400°F/gas mark 6 and bake for a further 15 minutes. Remove the lid and bake for a final 10-15 minutes until it has reached the desired colour (see the Baking Instructions on page 23).

11. Allow to cool for at least an hour before slicing. Store wrapped in cloth or paper to retain the crispy crust. Never store in the fridge or it will stale quickly and only wrap in plastic to preserve freshness for longer, though this will be at the expense of the crispy crust.

