

All-Malt Sourdough

Initiation & replenishment for a reserve & for direct use in bread

There are just two ingredients needed to initiate an all-malt sourdough: malt flour and water. Both ingredients need to be carefully chosen.

The malt should ideally be organic: *wheat, rye or naked barley malt*. The *diastatic power* (enzyme activity) should be at least $100^{\circ}\text{Lintner}$. Malt grain can be milled to flour in a stone mill or home-style impact mill.

The water can be regular drinking water with its natural quota of minerals, that has been sent through a charcoal filter to remove bactericidal chemicals.

The best sources for enzyme active wheat, rye and naked barley malt grains are micro-brewing suppliers such as www.oakbarrel.com who sell *Admiral Maltings*, California malts, and www.morebeer.com who sell *Briess*, Wisconsin malts. *Note that regular barley malt for brewing has a husk, so it is not suitable for milling to a malt flour for breadmaking.*

By making sourdough from malt flour, we are anticipating a sourdough with a different set of microorganisms than are found in a raw wheat or rye flour sourdough. Hopefully the sourdough will include lactic bacteria capable of making the natural B-vitamin folate, as well as producing greater acidity and a different flavor and texture in breads.

The optional use of acidity test paper in the range pH 3 to 5.5 to monitor the development of lactic bacteria provides confidence that the sourdough is progressing well and is safe. Only the safe types of bacteria and yeast can survive in strongly acidic conditions (at low pH), so excluding toxic microorganisms. However, it is optional to test for acidity with pH paper, because the aroma will be evidently acidic and the changes in texture and gassing will be indicative of a good fermentation. *To use the test paper, remove a small amount of the sourdough on a teaspoon and test it with a short strip of test paper. Note that the acidity test paper is not food compatible so should never be dipped into the dough or batter. Acidity test paper (pH 3 - 5.5) is available from some micro-brewing suppliers and hobby science suppliers.*

There is no doubt that making sourdough starters and sourdough bread is best and consistently managed in a constantly warm temperature environment. The serious home baker will want to have a box, heating mat¹ or cabinet available that keeps the starter at a steady temperature of 86°F (30°C).

This recipe describes four sourdough stages (I) initiating the sourdough from scratch, (II) replenishment enough to maximize potency, (III) maintaining a reserve that keeps for a month or longer in the refrigerator, and (IV) using the reserve to prepare fresh sourdough to be used within 12-24 hours for making bread.

¹ Such as: Brød & Taylor, folding dough proofing box or Raisenne® constant temperature heating mat.

I. Initiating an all-malt sourdough

Small amounts work well and are suggested to minimize waste.

<i>Ingredients</i>	<i>Amount in grams</i>	<i>Baker's percent</i>
Malt flour	10	100
Water	12.5	125

- In a small bowl, mix malt flour and water to a smooth paste. Cover the bowl and leave at 86°F (30°C).
- Stir to re-mix ingredients every 8-12 hours and look for changes. Notice gassing, texture, and aroma changes. *Optionally measure the acidity (pH) with colored acidity test paper.*
- Continue monitoring the sourdough until there is no more gassing or foaming and the mixture has thinned considerably, and the pH is 3.5 or less. At this stage it is considered mature. *This may take 5 - 7 days. The starter may seem mature, but it may not be potent enough to make good bread until it has been replenished 4-5 times.*

II. Replenishing initial sourdough to maximize potency:

<i>Ingredients</i>	<i>Amount in grams</i>	<i>Baker's percent</i>
Malt flour	10	100
Water	12.5	125
All-malt sourdough from previous batch	1	10
Total	23.5	235

- In a small bowl, mix malt flour, water, and all-malt sourdough from previous batch. Cover the bowl and leave at 86°F (30°C).
- Stir to re-mix ingredients every 8-12 hours and look for changes. Notice gassing, texture, and aroma changes. *Optionally measure the acidity (pH) with acidity test paper.*
- Continue monitoring the sourdough until there is no more gassing or foaming and the mixture has thinned considerably, and pH is 3.5 or less. *With each successive replenishment this step takes fewer days. When the sourdough is ready for breadmaking, this step should take just 3 days, at 86°F (30°C).*
- Repeat this replenishment 4-5 times, or until it matures in 3 days. After this, the starter can be kept refrigerated at 40°F (4°C) as a reserve, stock, or store of sourdough. The reserve can be kept in the refrigerator for at least a month.

III. Maintaining an all-malt sourdough reserve

Amounts are enough to make fresh sourdough for at least 80 loaves based on 500grams flour

<i>Ingredients</i>	<i>Amount in grams</i>	<i>Baker's percent</i>
Malt flour	50	100
Water	62.5	125
All-malt sourdough reserve from previous batch	5	10
Total	117.5	235

- In a small bowl, mix malt flour, water, and all-malt sourdough reserve. Cover the bowl and leave at 86°F (30°C).
- Stir to re-mix ingredients every 8-12 hours and look for changes. Notice gassing, texture, and aroma changes. *Optionally measure the acidity (pH) with acidity test paper.*
- Monitor the sourdough until there is no more gassing or foaming and the mixture has thinned considerably, and pH is 3.5 or less. *This step should take 2-3 days, at 86°F (30°C).*
- Store refrigerated at 40°F (4°C) in a closed glass jar, as a reserve, stock, or store of sourdough for future use. Label jar with content and date. The reserve can be kept in the refrigerator for at least a month and still be useful for making fresh sourdough for bread. *Separation of a liquid layer during storage is normal. Stir the reserve starter well before measuring out to make fresh sourdough.*

IV. Preparing fresh all-malt sourdough using the reserve, for direct use in bread.

Note that for direct use in bread the all-malt sourdough should ideally be just 12 – 24 hours old, from the time the ingredients are mixed. All-malt sourdough achieves greater acidity than some wheat flour sourdoughs and is best used for bread at a younger stage.

Amounts are enough for preparation of 2 loaves based on 500g flour.

<i>Ingredients</i>	<i>Amount in grams</i>	<i>Baker's per cent</i>
Malt flour	25	100
Water	31.3	125
All-malt sourdough reserve	2.5	10
Total	58.8	235

- In a bowl, mix malt flour, water, and all-malt sourdough reserve to a smooth paste. Cover the bowl and leave at 86°F (30°C).
- Stir to re-mix ingredients after 8-12 hours and look for changes. Notice gassing, texture, and aroma changes. *Optionally measure the acidity (pH) with acidity test paper. The pH should be 4 or less before using as a bread ingredient.*
- Use as an ingredient for making bread 12 -24 hours after first mixing ingredients.