Converting Starter Hydrations

Prerequisite

This note presumes you have read the note "About Baker's Percentages and Hydration" or that you understand those topics.

Introduction

In the prior note we learned that by definition, the ingredient percentage (IP) is the weight of the ingredient (IW) divided by the total flour weight (TFW). We can write this as a formula.

(1) IP = IW ÷ TFW which can also be stated as IW = IP x TFW

We can add the weight of all of the ingredients to get the total weight (TW). We can also add up all of the baker's percentages to get the total percentage (TP). Remember that this number will be greater than 100%. From which it follows that the total weight of the ingredients, divided by the total percentage of those ingredients is the weight of the flour.

(2) TP = TW ÷ TFW which is the same as TFW = TW ÷ TP

Substituting starters with different hydrations

We will continue to use the Basic Sourdough recipe that we used as our example in the prior note. That recipe calls for 185 g of starter at 166% hydration.

The starter can be separated into its ingredient weights as follows. Recall that the baker's percentage of flour is always 100%. Also, recall that the ingredient percentage of the water is the hydration. So, the total baker's percentage is 100% + the hydration. That is 266% in our example.

Now that we know the total weight and the total percentage, so we can use formula (2) to calculate the total flour weight.

TFW = 185 g ÷ 266% = 70 g.

Everything that is not flour is water, so the weight of the water is 185 g – 70 g = 115 g.

The table below summarizes the ingredients the recipe is expecting:

166% Hydration starter	**Bakers' Percentage**	**Weight (grams)**
Warm water	166	115
Flour, unbleached bread	100	70
Total	**266**	**185**

Since flour is the base ingredient for all bakers' ratios, we want to keep its weight constant no matter what hydration starter we decide to use. So we set the TFW of the proposed starter at 70 g. We know the hydration of the starter, so we can use formula (1) to find the weight of the water.

IW = 100% x 70 g = 70 g

That number rings true because 100% hydration starter should have equal weights of flour and water.

Again, we use a table to show the ingredients contained in our starter.

100% Hydration starter	Bakers' Percentage	Weight (grams)
Warm water	100	70
Flour, unbleached bread	100	70
Total	**200**	**146**

We are almost done. We know how much of our starter to use. All that remains is to add (or subtract) some liquid to keep the hydration of the final dough constant. Our example recipe called for 115 g of liquid, but the starter we used provided only 70 g. Thus we need to add 115 g – 70 g = 45 g of liquid.

In the case where you use a starter of greater hydration, you would again keep the weight of the flour the same, but you would alter the recipe to add less of some liquid ingredient.

Note: There is a computer program available that will do these calculations for you.

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