

## doughLAB Standard Method

### Scope

- Standard method for studying mixing characteristics of samples (AACC Method 54-70.01 and ICC Standard No. 184)
- High speed mixing that emulates industrial mixing.
- Suitable for very strong flours or samples that are difficult to develop.

### doughLAB

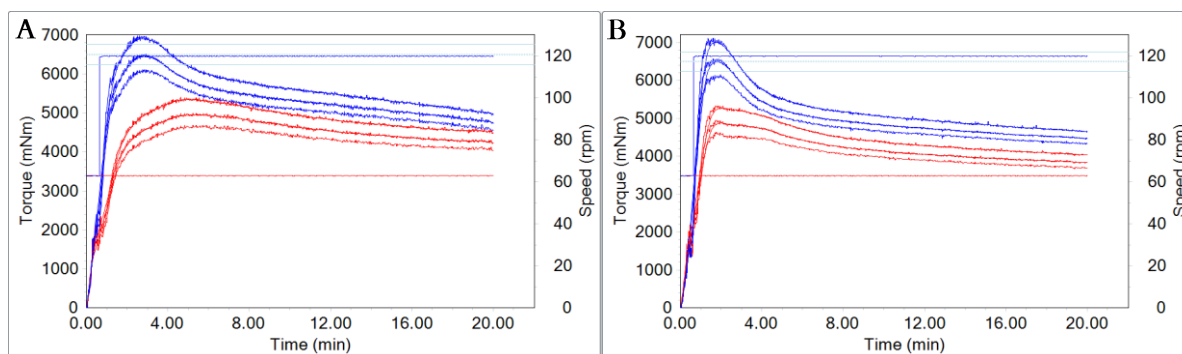
The doughLAB is a flexible dough rheometer with conventional z-arm mixing action. It uses standard or custom test configurations to determine water absorption, dough mixing profile, development time, stability and softening of wheat, rye, durum and composite flours for milling, baking, and foods laboratories.



### Description

The variable temperature and speed control capability of the doughLAB allows testing of samples that are normally difficult to handle. This method follows AACC and ICC Methods, and describes an accelerated procedure for testing flour samples using the doughLAB. Using a faster mixing speed provides process-relevant and more accurate results in a shorter time than obtained by conventional testing methods. Samples can be assessed for optimum water absorption (WA), peak (development) time, stability, softening, mixing tolerance index and other parameters.

The method is applicable to any flour including, but not limited to, wheat and rye flours, whole meals and formulations. The method is especially suited to testing flour that is very strong or is difficult to develop.



**Fig. 1.** doughLAB curves of bakers (A) and biscuit (B) flours tested at different speeds: 120 rpm (blue curves, doughLAB standard method) and 63 rpm (red curves, Farinograph method). Results can be obtained more quickly and accurately at higher mixing speeds.

## Method

Ten minute mixing profile.

## Sample Preparation

300.0 g (or 50.0 g) sample at 14% moisture. The first water absorption (WA) estimation is entered by the user. The doughLAB will automatically dispense the correct amount of water for the sample size used. At the end of the test, the doughLAB will calculate the correct WA to reach a peak of 6500 mNm (or 1300 mNm).

## Profile

Time	Type	Value
00:00:00	Temp	30°C
00:00:00	Speed	63 rpm
00:00:30	Speed	120 rpm
00:10:00	End	-
Premixing time: 60 sec.		
Premixing speed: 63rpm		

## Measure

PT: Peak torque (mNm)

WA: Water absorption (%)

DDT: Dough development time (min)

Stab: Stability (min)

ST: Softening at 5 min. after peak (mNm)

MTI: Mixing tolerance index (mNm)

Target torque is 6500 mNm for the 300 g bowl, and 1300 mNm for the 50 g bowl. The test may be extended if required to achieve stability or similar results for very strong flours.

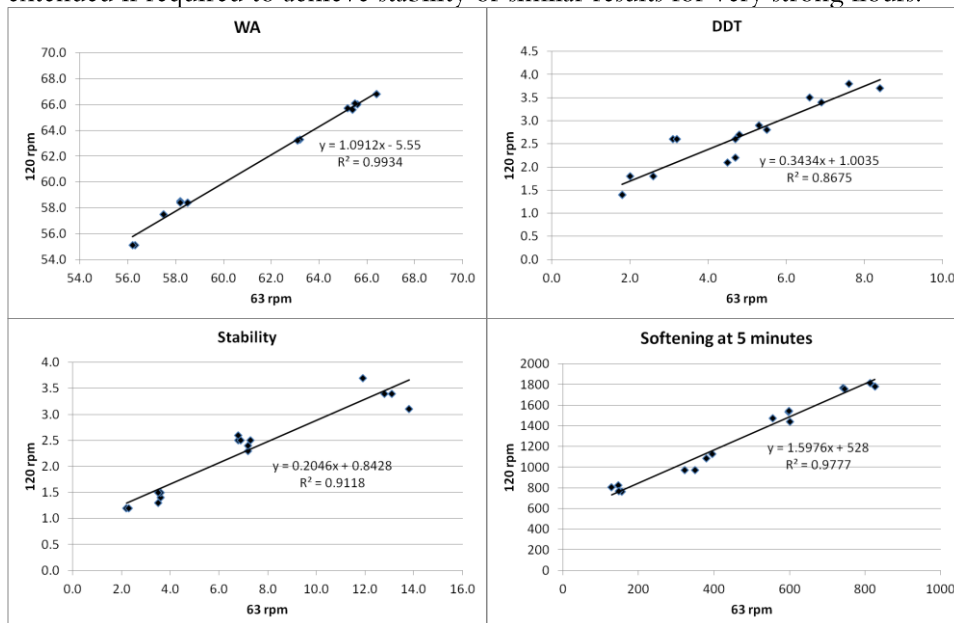


Fig. 2. Comparison of dough mixing parameters at different mixing speeds for flour samples ranging in mixing properties.

## Reference

Cereals & Grains Association. AACC Method 54-70.01. High Speed Mixing Rheology of Wheat Flour Using the doughLAB. Approved Methods of Analysis, CGA, St. Paul MN, USA.

International Association for Cereal Science and Technology. ICC Standard No. 184. Determination of the mixing quality of wheat flour doughs by high-speed mixing using the doughLAB. ICC Standards, ICC, Vienna, Austria.