

General Flour Testing Method

Scope

- Assess processing and bread baking quality and characteristics of dough.
- Select wheat varieties.
- Blend wheat varieties and mill streams.
- Test new season's wheat.
- Quality control.

doughLAB

The doughLAB is a flexible dough rheometer with conventional z-arm mixing action. It includes automated systems to control bowl temperature and dispense water into the sample, and variable temperature and speed controls. The instrument 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 characteristics of a flour, such as how much water it absorbs to achieve optimum dough consistency, mixing time requirement and dough stability, are important measures of its quality. The doughLAB provides results that are comparable with those obtained from the Brabender Farinograph.

The General Flour Testing Method follows the Standard Methods of the AACC International (54-21.01), RACI (06-02) and ICC (115/1), in which the flour is mixed at constant temperature (30°C) and speed (63 rpm) for 20 min. Resistance to mixing is measured as torque, which is presented in the results as a plot against time. The standard test aims to achieve a maximum torque of 500 FU. 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, wholemeals and formulations.

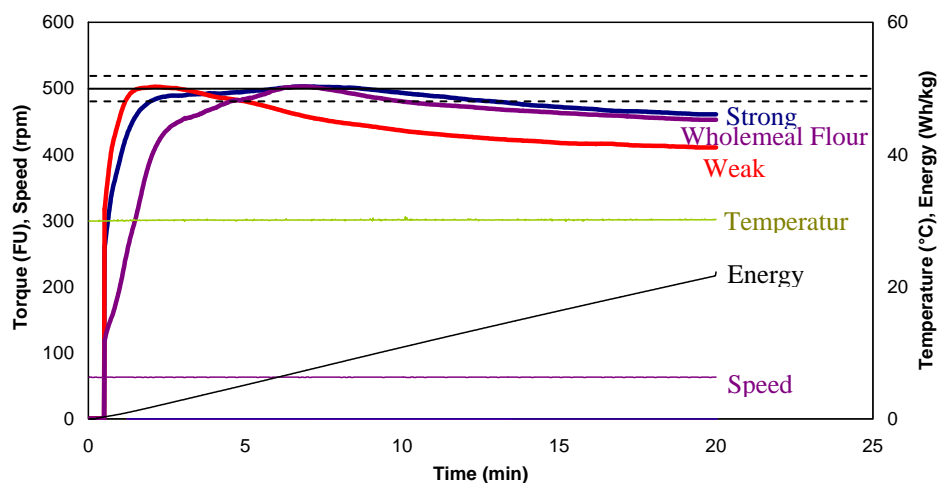


Fig. 1. doughLAB curve of strong, weak and wholemeal flours using the Default method, with a target torque of 500 ± 20 FU.

Method

Twenty minute mixing profile.

(AACC International Method 54-21.01, RACI Official Method 06-02, ICC Standard No. 115/1).

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 500 FU.

Profile

Time	Type	Value
00:00:00	Temp	30°C
00:00:00	Speed	63 rpm
00:20:00	End	
Premixing time: 60 s Premixing speed: 63 rpm		

Measure

PT: Peak torque (FU)

Stab: Stability (min)

WA: Water absorption (%)

ST: Softening (FU)

DDT: Dough development time (min)

MTI: Mixing tolerance index (FU)

The method can be used for quality control, to compare samples (hard and soft, weak and strong, different varieties, different mill streams), to assess amylase activity in flour, to investigate effect of formulation (e.g. effect of added sugars, salts, emulsifiers, lipids), and so on.

Target torque may vary by country, e.g. the target torque is commonly 600 FU (5882 mNm for the 300 g bowl, 1176 mNm for the 50 g bowl) in the UK.