Mixolab 2

UNIVERSAL DOUGH CHARACTERIZER

A Simple Tool To Quantify Complex Dough Behaviors

The physical properties of final baked products, such as volume and color, are critical quality control parameters in a baking plant. These properties depend to a large extent on the quantity and functionality of proteins, starch, fibers and enzymes that make up a majority of the flours. Mixolab 2 has a unique capability to assess the combined effect of these components during the kneading process. Mixolab 2 automatically characterizes dough rheological properties and predicts dough behavior during the production process in a cycle of heating and cooling.

In a single test, Mixolab 2 provides a comprehensive picture of dough behavior during the baking process.

- **Water absorption capacity –** a key production parameter
- **Mixing stability –** Indication of behavior during kneading, influenced by the quantity and quality of proteins
- **Initial resistance to heating –** Indication of volume increase during baking, influenced by the resistance of the gluten network to heat
- **Viscosity increase during heating –** indication of crumb structure, impacted by starch gelatinization
- **Viscosity at high temperature –** indication of product color, impacted by amylase activity
- **Viscosity during cooling –** indication of shelf life, impacted by starch retrogradation

APPLICATIONS

Mixolab 2 can be used by bakers and millers for a wide range of use cases, including:

- Evaluate quality and regularity of flours for specific baking recipes and processes
- Assess the impact of enzymes
- Development and test of new recipes and formulations, such as whole grain and gluten-free products
- Quantify dough properties for better quality control
- Optimize baking processes for throughput, cost, and quality

MIXOLAB 2 FEATURES

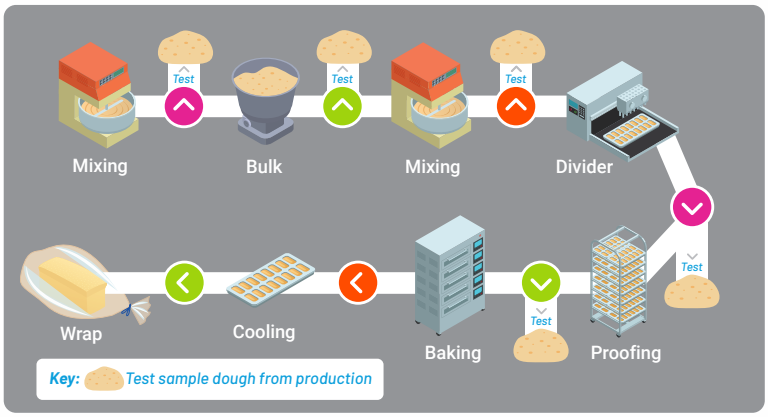
- Complete dough rheology in a mixing, heating, and cooling cycle
- Test all types of sample flours
  - wheat
  - rice
  - corn
  - beans, and more
- Multiple built-in test protocols
- Customizable protocols for various dough compositions and baking processes
- Test on just 50g of flour
- Easy to use and clean
- Fully automated testing
- Compliant with international standards: ISO 17718:2013, AACC 54-60-01, ICC 173-1, GOST R 54498-2011 and GOST R ISO 17718 – 2015

Mixolab 2

BETTER CONTROL FOR PRODUCTION

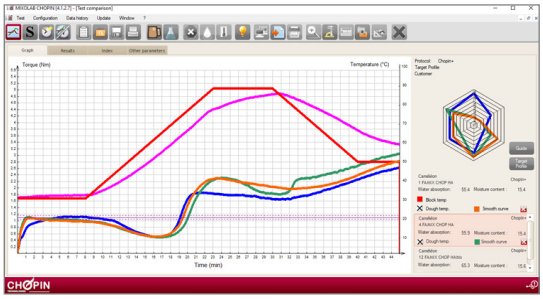
Dough properties change throughout the production process, and measurements taken at critical steps provide objective data about behavior and quality. This information allows you to set-up control limits and better control processes, and improve quality at every step.

- Complete characterization of dough behavior at every step of the production process
- Better visibility of the process variables, allowing you to adjust the process accordingly
- Anticipate and correct an atypical behavior
- Correct the water hydration according to the stiffness (consistency) of the dough



EASY TO USE SOFTWARE

- Available in 15 languages
- Instructional tutorial videos
- EASILY customizable testing protocol – vary temperatures and mixing speeds to adapt to new products and align with specific baking processes
- Automatic creation of control charts for improved tracking of method accuracy
- Blending law tool to predict the results from different flour blends
- Built-in formulas to calculate bread volume and other parameters



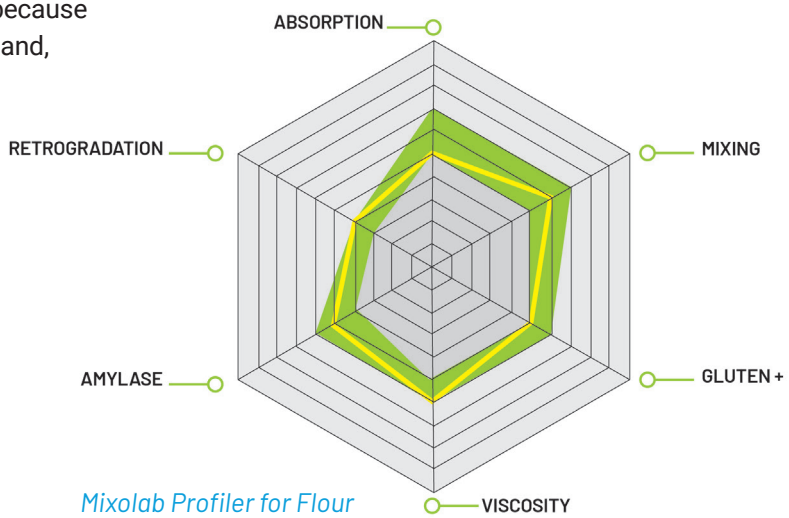
Test Comparison with the Mixolab Software

INNOVATIVE PRODUCT PROFILER FOR WHITE FLOURS

Developed with years of testing with a large database for white flours, the Mixolab 2 Profiler allows products to be classified based on six quality criteria: water absorption, mixing, gluten+, viscosity, amylase, and retrogradation.

It is a perfect tool for quality control of raw materials because you can create specific target profiles to better detect and, if necessary, correct under-performing flours.

INDEX TYPE	DESCRIPTION (VALUES FROM 0-9)
ABSORPTION	Ability of flour to absorb water
MIXING	Stability of flour during kneading
GLUTEN+	Resistance of gluten to heat
VISCOSITY	Dough viscosity during heating
AMYLASE	Starch gel stability at high temperature, strongly impacted by amylase activity
RETROGRADATION	Cooked product shelf life



Mixolab Profiler for Flour

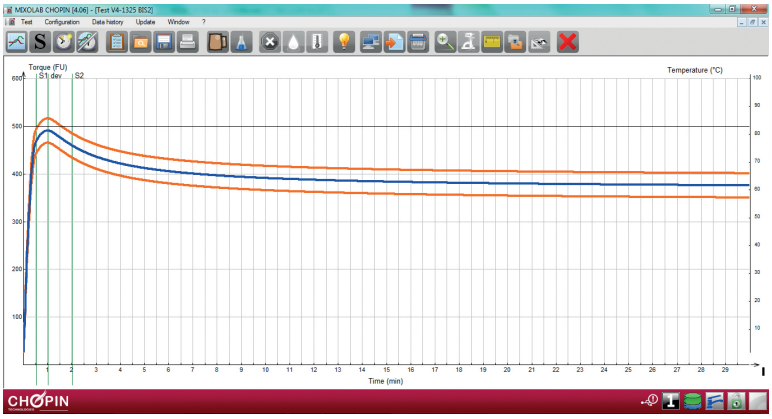
FARINOGRAPH® TEST PROTOCOL

The Mixolab 2 is equipped with a test protocol that provides equivalent Farinograph® data (values and units). Data is comparable with those from existing Farinograph® equipment with a much smaller sample size.

In 30 minutes using a specific test protocol and prediction models, the Farino protocol produces the following Farinograph® parameters:

- Absorption (in %)
- Weakening (in FU)
- Stability (in min)
- Development time (in min)
- MTI

If needed, fine adjustments can be made to further optimize the correlation between Mixolab 2 results and those from an existing Farinograph® instrument. Results from Mixolab 2 Farino protocol have been used in interlaboratory studies with other Farinograph® instruments.

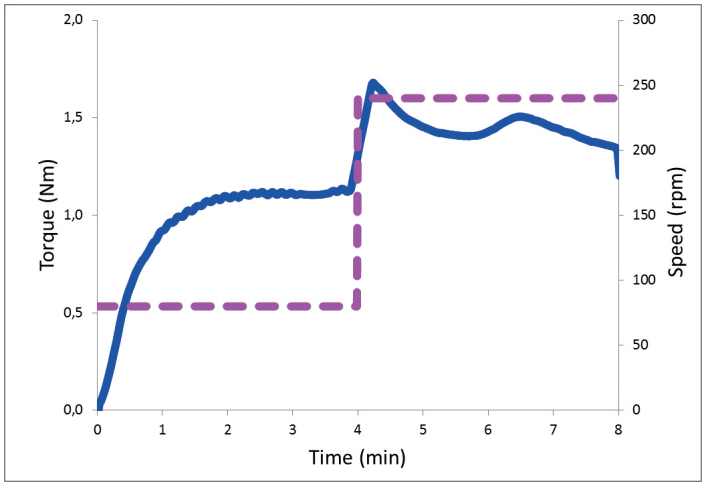


Farinograph Curve from Mixolab

ABSORPTION	63.4%
DEVELOPMENT TIME	3.8 min
STABILITY	11.1 min
SOFTENING (FU)	45 FU
MTI (MIXING TOLERANCE INDEX)	51 FU

RAPID ESTIMATION OF ALVEOGRAPH AT GRAIN RECEPTION

In 8 minutes, with only 50 grams of ground wheat flour, Mixolab 2 users can get a rapid and accurate estimation of Alveograph results of wheat at the grain reception using the Wixo protocol. The results were developped with a model using more than 350 wheat samples, produced over three harvest years, all analyzed using the Alveograph reference method (ISO 27971-2023) along with the Wixo protocol. The graph shows a typical curve obtained with the Wixo protocol.



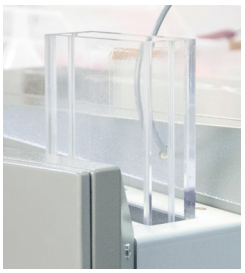
Example of a Curve Obtained with the Wixo Protocol

ORDERING INFORMATION

The Mixolab 2 comes complete with a kneading machine, an integrated water tank and one mixing bowl with two mixing blades. It is also furnished with a dedicated Mini PC (not furnished: keyboard, monitor, monitor connector cable, mouse). Necessary hydraulic hoses to connect the Mixolab to the cold water supply are included, as well as a cleaning brush, a filling hopper and an additional nozzle. The cooling system is not furnished.

ACCESSORIES

Part Number	Description
MIX-315	Additional mixing bowl for improved throughput
MIX-320	Dough sampling kit for analyzing dough taken at production line
MIX-191	Flour reference sample for calibration control
MIX-1005	Mixolab 2 spare part kits
CHILLER	250W recirculating chiller for Mixolab or Alveograph series
CHILLER-F500	500W recirculating chiller for Mixolab or Alveograph series



Dough sampling kit

Cooler F250

Cooler F500

Mixing Bowl

Reference Flour

SPECIFICATIONS

Size	505mm L x 460mm W x 270mm H (20" x 18" x 11")
Weight	33 kg (73 lbs)
Power	220/240 V 50- 60 Hz 1000 W
Fuse	5x20 T 10 A 250 V
Noise level	<70 dB
MiniPC specifications	Windows 10 IOT Mixolab 2 software already installed
Cooling system	Chiller (recommended / not supplied) or water supply system
Data export to USB	Is available
Software languages	Chinese, Croatian, Czech, English, French, German, Greek, Italian, Magyar, Polish, Portuguese, Russian, Romanian, Spanish, Turkish
Print results	By connecting an external printer to the MiniPC
Environmental considerations	Indoor use Storage temperature: -25°C to +55°C (-13°F to +131°F) Operating temperature:10°C to 30°C (50°F to 86°F) Humidity: usage RH ≤ 85% Cooling circuit water : Water temperature 15°C and 20°C. (59°F to 68°F) Power voltage variations:< ± 10%
Regulatory compliances	Degree of pollution as per EN 61010: 2 Installation category as per EN 61010: II (surge category)

COMPANION PRODUCTS

The TheiaVu® E-Series Offline Vision System is a great companion to Mixolab 2.
It measures physical properties such as size, volume, and color, as well as the internal fine crumb structure of a baked product. When paired with Mixolab 2, bakers now have a complete way to help them understand the impact of flour quality and process variations on the final product quality, usually inspected with an inline vision inspection system.

TheiaVu® E-Series Offline Vision System

KPM Analytics
36 Avenue Marc Sangnier | B3 | 92390 Villeneuve-la-Garenne France
Phone: +33 1 41 47 50 48
www.kpmanalytics.com | sales@kpmanalytics.com