# Mixolab 2
## UNIVERSAL DOUGH CHARACTERIZER

**KPM** | **CHOPIN** TECHNOLOGIES
a KPM brand

## 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 the compatibility of raw materials with industrial processing
- **Initial resistance to heating –** indication of resistance of gluten structure to heating; indication of volume increase during baking
- **Change in viscosity 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 and calibrations
- Customizable protocols for different flours and baking processes
- Only a small sample size needed
- 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
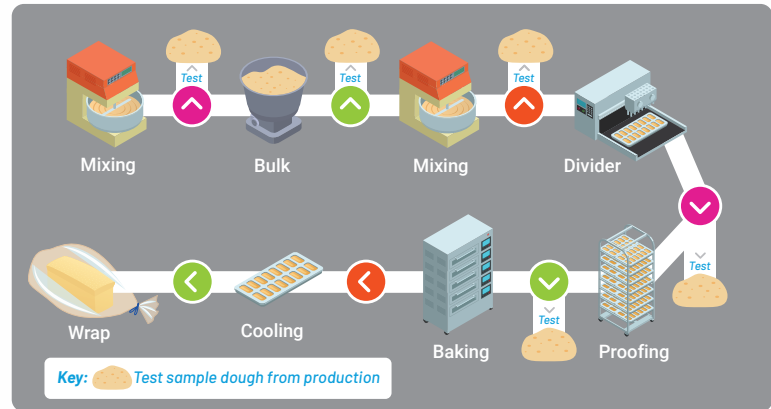


## EASY TO USE SOFTWARE

- Available in 15 languages
- Instructional tutorial videos
- EASILY customizable testing protocol – vary temperatures and mixing speeds to test baking scenarios
- Automatically monitor the instrument's precision
- Blending law tool to predict the results from different flour blends
- Built-in formulas to calculate bread volume and other parameters
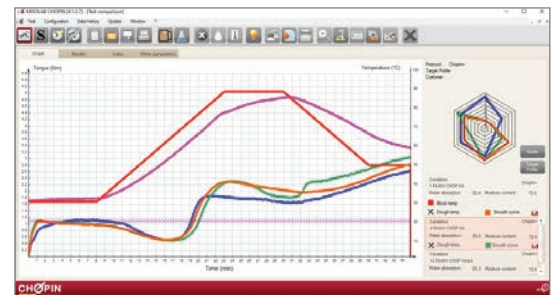


*Test Comparison with the Mixolab Software*

## 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 screen and detect 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 | Indicates amylase activity |
| RETROGRADATION | Cooked product shelf life |
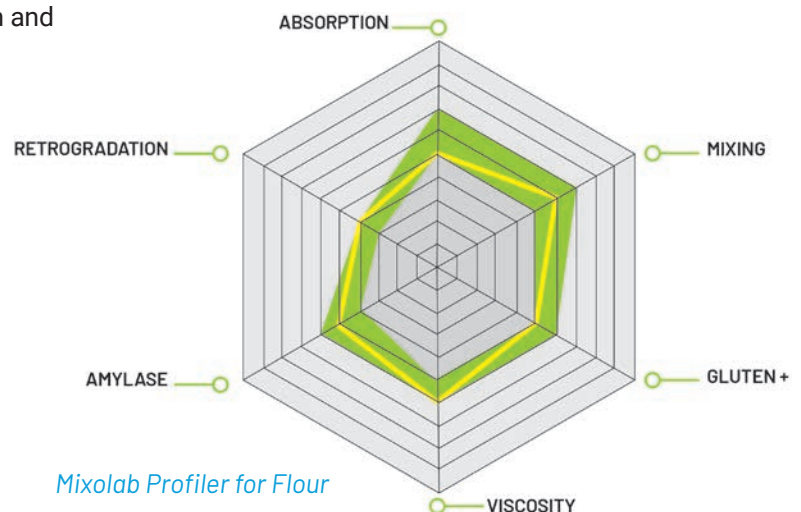


*Mixolab Profiler for Flour*

# Mixolab 2

## FARINOGRAPH® TEST PROTOCOL

The Mixolab 2 is equipped with an optional 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 calibrations, 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*
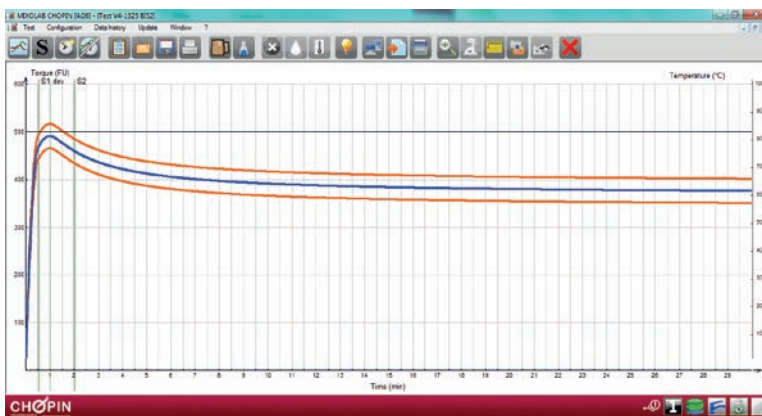
| ABSORPTION | 63.4% |
|---|---|
| DEVELOPMENT TIME | 3.8 min |
| STABILITY | 11.1 min |
| SOFTENING (FU) | 45 FU |
| MTI (MIXING TOLERANCE INDEX) | 51 FU |

## 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 calibrated with a model using more than 350 wheat samples, produced over three harvest years, all analyzed using the Alveograph reference method (ISO 27971-2015) along with the Wixo protocol. The graph shows a typical curve obtained with the Wixo protocol.
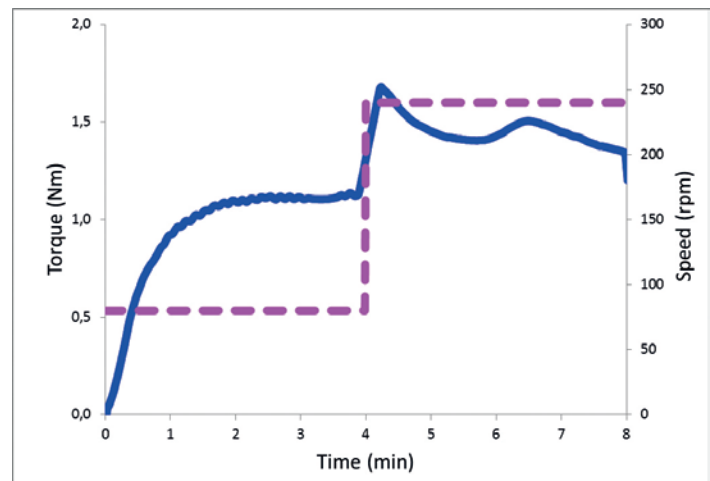


*Example of a Curve Obtained with the Wixo Protocol*

## ORDERING INFORMATION

The Mixolab 2 comes complete with a kneading machine with accurate temperature control, 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<br>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

*TheiaVu™ Compact Vision Inspection System*

The TheiaVu™ benchtop Vision Inspection 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.