

How it works

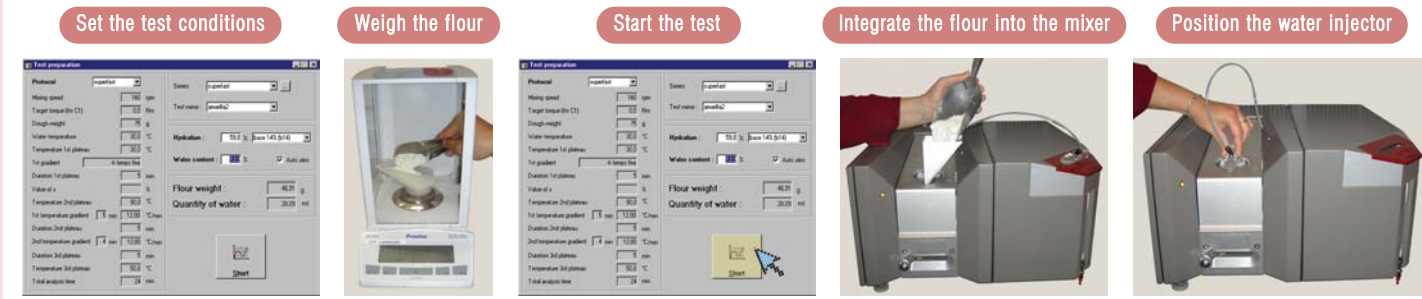
>> Simplicity and robustness combined to guarantee high-quality performance

The process of analyzing a flour is not just a question of studying the protein aspect. Starch, lipids, enzyme complexes and fibres are all elements which, due to their own characteristics and the interactions uniting them, determine the quality of wheat flour. A thorough analysis of flours therefore often requires a large number of analyses.

Another important factor is the representativity of the sample being studied, in particular, the consistency of the dough which, based on its water absorption capacity, must be as close as possible to actual using conditions, in order to produce meaningful analytical results.

The **Mixolab System** is the first device enabling an exhaustive analysis of the quality of your flours.

The **Mixolab System** is extremely user-friendly. Tests are conducted automatically, requiring little technician involvement



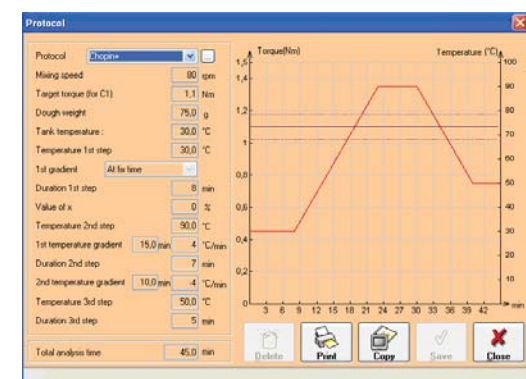
In a single test, with less than 50 grams of flour or wholemeal, the **Mixolab System** enables you to measure the key analysis parameters, such as:

- > Absorption potential.
- > Mixing time.
- > Kneading stability and tolerance.
- > Gluten quality.
- > High-temperature viscosity which is dependent on the starch characteristics.
- > Amylase activity.
- > Starch retrogradation which affects the storage lifecycle...

Take advantage of this unique possibility to analyse your flours on the **Mixolab Standard** and **Mixolab Profiler** modules of the **Mixolab System**.

>> Thoroughly adapted to your process constraints

Even though the **Mixolab System** is first and foremost a quality control tool, thanks to the **Mixolab Profiler** and the **Mixolab Simulator**, the **Mixolab System** can also be used as a very powerful research and development tool thanks to the **Mixolab Standard**.



The **Mixolab System** provides large customisation potentialities. You can set:

- > Kneading speed to simulate kneading at varying degrees of intensity.
- > Temperature profiles, to enable you to operate at the optimum action temperature for an enzyme.
- > Consistency, in order to study the behaviour of proteins and above all of starch on a representative dough.

The **Mixolab System** allows you to test more complex formulas integrating sugar, fats, fibres... in conditions that are very close to reality. You can create a quick protocol to help you choose your raw materials...

The CHOPIN Technologies Applications Laboratory* team of specialists is at your disposal to guide you and enable you to get the very best out of your **Mixolab System**.

* For further details about the Applications Laboratory, please contact: labo.application@chopin.fr.

The Mixolab System

>> The complete analyser for research and quality control

Mixolab System

Mixolab Standard

The ideal research and development tool. The **Mixolab Standard** provides you with the comprehensive, itemised characterisation of your raw material.

Mixolab Simulator

The quality control comparison tool. The **Mixolab Simulator** enables you to continue trading with business partners still using traditional analytical methods.

Mixolab Profiler

The ideal tool for testing the quality of raw materials. With the **Mixolab Profiler**, you can monitor, select and improve raw materials in a simple, fully secure manner.

>> A comprehensive range of related services

Our Applications Laboratory* specialists tailor the **Mixolab System** to meet your specific needs:

- > Developing customised protocols to simulate the conditions for using the flour.
- > Developing predictive models (production line behaviour, finished product quality...).
- > Adjusting the **Mixolab Profiler** to different protocols or raw materials other than wheat flour.

Our technicians and engineers will help you set up your **Mixolab System**:

- > Installation.
- > Training tailored to your line of business.
- > Creating standard **Profiles**.

Our After Sales Service team is at your disposal to implement the preventive or curative maintenance programmes most appropriate for your situation.

* For further details about the Applications Laboratory, please contact: labo.application@chopin.fr.

>> The Infraneo®: complements the Mixolab System ideally

The Infraneo® is CHOPIN Technologies' very near infrared (NIR) transmission analyser. It enables you to analyse flours fully, easily and precisely in only 5 seconds. The Infraneo® complements the **Mixolab System** very well in laboratories testing the quality of flours because it makes it possible to:

- 1 Measure the essential flour characteristics: water content, protein rate, ash...
- 2 Determine the flour's absorption potential to be used for a test on the **Mixolab System**, which can save you up to 20% on the time required for analysis.



Time of analysis (preparation and cleaning included):

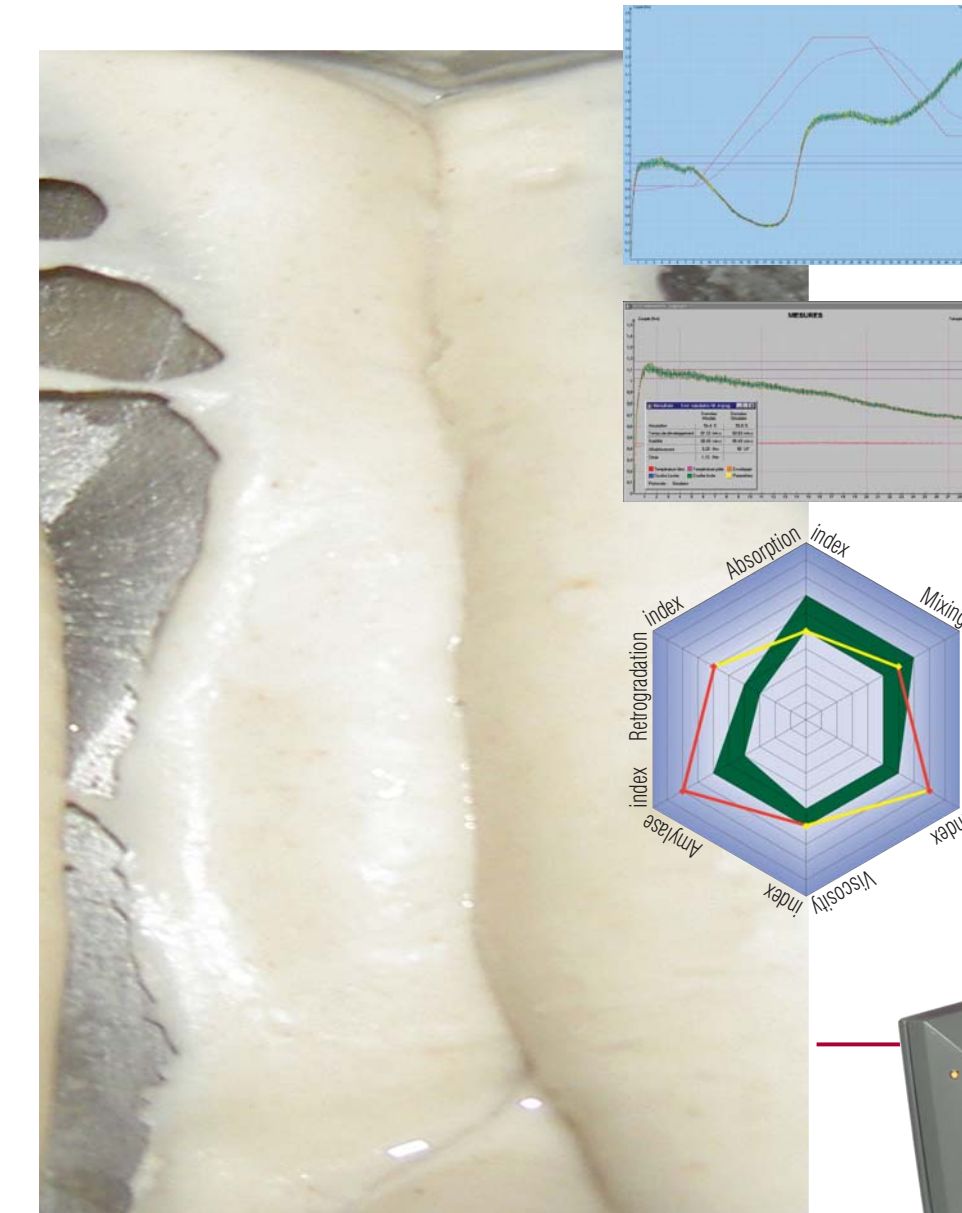
- > **Mixolab Standard / Profiler** 60 minutes
- > **Mixolab Simulator** 45 minutes
- > Infraneo® + **Mixolab Standard / Profiler** 50 minutes
- > Infraneo® + **Mixolab Simulator** 35 minutes

Features:

Power supply: 220/240 VAC - 50/60 Hz - 1000 W
 Net weight: 33 kg
 Gross weight: 49 kg
 Dimensions (LxDxH): 46x50,5x27 cm
 Volume: 0,06 m³

Select, compare, grade and improve flours

Mixolab System



>> **Mixolab Standard** :

- > Flour characterisation tool (proteins, starch, enzymes...)
- > Standardised method*

>> **Mixolab Simulator** :

- > The link with the Farinograph®
- > Obtaining values equivalent to 5530/1 standard values

>> **Mixolab Profiler** :

- > Characterising and adapting flours according to their end use
- > Creating a common language for customer-supplier relations



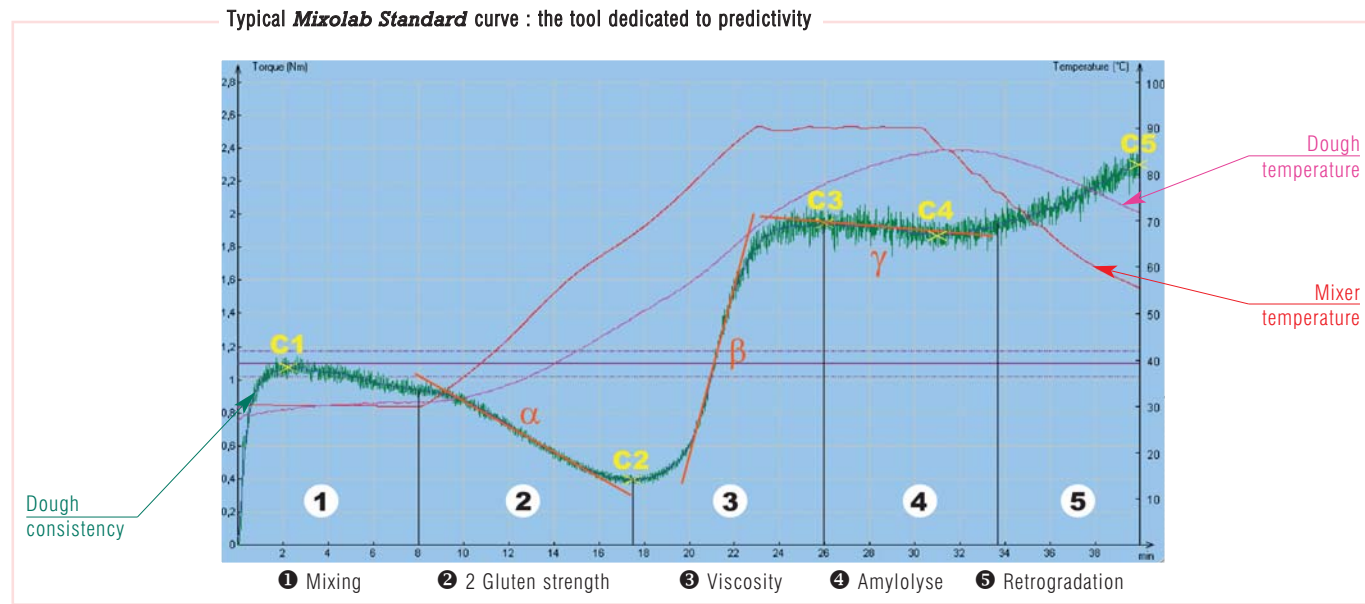
* The Mixolab Standard is ICC No.173-standardised

>> Comprehensive analysis of your flours with the added bonus of predictivity

The quality of a flour is not solely based on the ratio or quality of proteins. Starch represents an important part of the flour – it will be damaged to a certain extent, and its chemical composition provides special properties. It is also very important to emphasize all the other components – water, enzymes, lipids, fibres... all of which play a role in the quality of the flour and consequently in adapting it for processing end product.

Itemized analyse of these components is not sufficient because it is also necessary to be aware of the essential interactions uniting them.

The **Mixolab Standard** is the only device enabling complete characterisation of the flour, in a single test, on the same device.



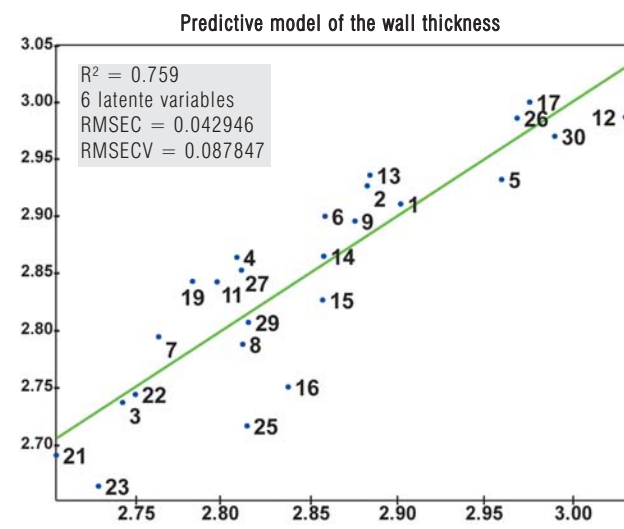
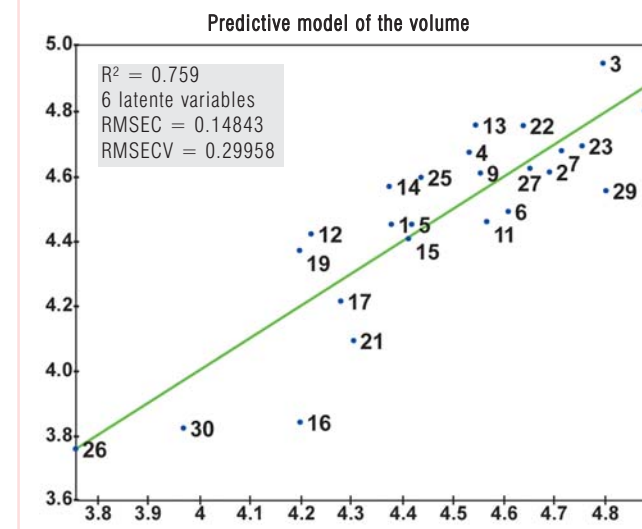
Ideal for research and development services thanks to the high quality and accuracy of its analyses, the **Mixolab Standard** opens up the way to predictivity. Alone or guided by our Applications Laboratory experts, you will be able to settle models to predict the final behaviour of your flours (volume, extensibility...).

You weigh out the ingredients and enzymes very precisely and are able to modify the test parameters (speed, temperatures, consistency...) in order to bring you even closer to the actual using conditions of your flours.

The **Mixolab Standard** protocol is standardised and enables you to trade with your industrial partners on a basis shared by the profession. The study conducted to standardise the method has demonstrated a very high level of accuracy with 1%-3% CVr and 2%-7% CVr with regard to measuring consistency.

The measuring precision of the **Mixolab Standard** is used as a basis for analysing curves with the **Mixolab Profiler**.

Example of predictive models based on flour analysed with the **Mixolab Standard**



>> The dynamic link with traditional methods

Traditionally, the discrimination of a flour consisted of measuring behaviour during a single, constant temperature kneading phase. Although representing just one of the many possibilities provided by the **Mixolab Standard**, measuring dough behaviour during the kneading process remains the basis of certain standardised methods.

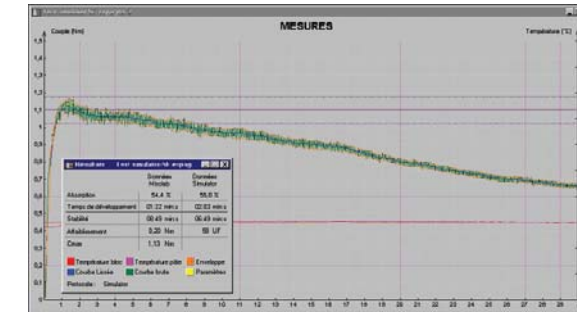
The **Mixolab Simulator** enables you to maintain the link with these traditional methods, either to ensure traceability with your old analyses or to continue to trade with partners not yet equipped with the **Mixolab System**.

Integrated into the **Mixolab System**, the **Mixolab Simulator** includes a special protocol and calculation algorithms leading to analytical results (water absorption, stability, development time, and weakening) equivalent to those obtained with the Farinograph®.

>> A protocol dedicated to comparisons with the Farinograph®

Conducting tests with the **Mixolab Simulator** is very simple. Just select the special Protocol S and let the device do its work.

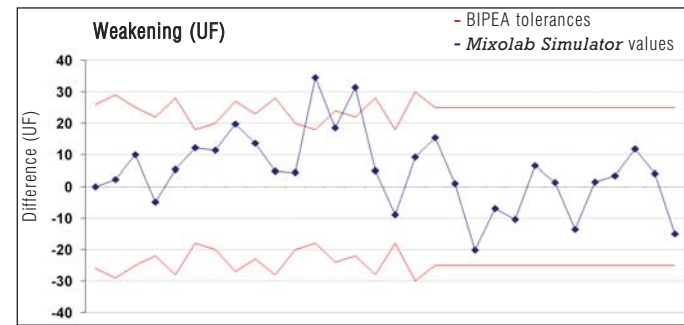
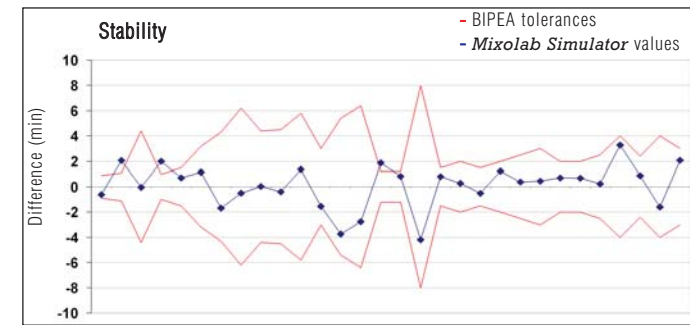
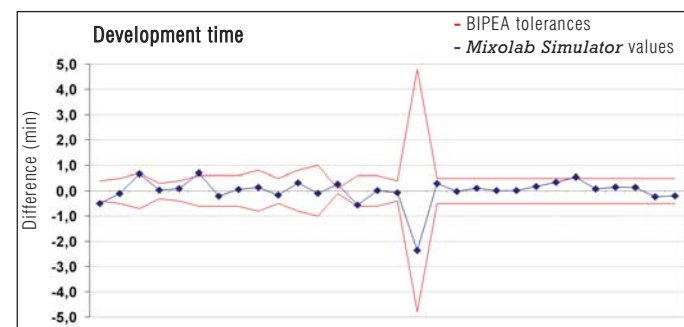
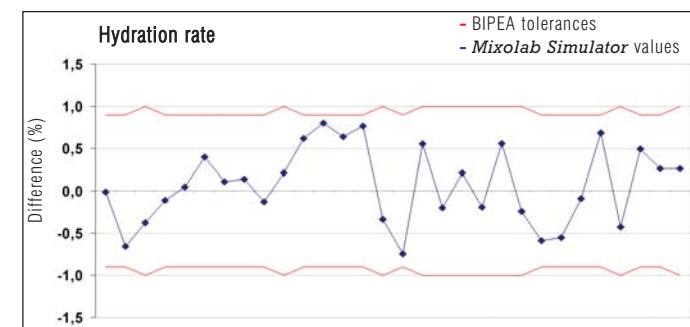
At the end of the 30 minutes test the **Mixolab Simulator** indicates the values measured on the curve (Nm) in addition to the UF equivalents, enabling you to directly compare these results with those of the ISO 5530/1 standard⁽¹⁾.



>> High-quality results

The **Mixolab Simulator** gives equivalents for measuring water absorption, development time, stability and weakening. These data are matching with those obtained with the Farinograph®. The level of performance (repeatability/reproducibility) of the **Mixolab Simulator** is identical to the performance obtained with the traditional method.

This level of performance is confirmed by the monthly tracking of the **Mixolab Simulator** results via BIPEA's⁽²⁾ Farinograph® No25 proficiency testing network.

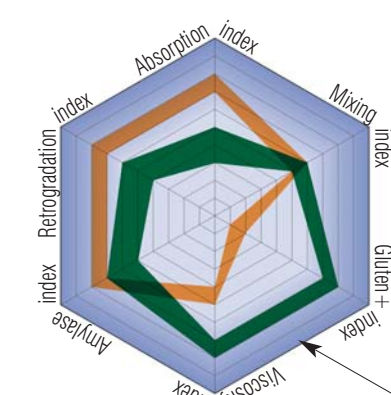


The red lines on the graphs below show the tolerance limits for each sample. The blue line indicates the results obtained by the **Mixolab Simulator**. The four parameters predicted by the **Mixolab Simulator** are matching with the tolerances of the proficiency testing network and show the same level of performance as the Farinograph® on this network.

The **Mixolab System** therefore enables you to trade with Farinograph® users thanks to the **Mixolab Simulator**.

⁽¹⁾ The **Mixolab Simulator** does not apply to this standard. However, the results obtained and indicated are comparable.
⁽²⁾ BIPEA bureau interprofessionnel d'études analytiques - 6-14 avenue Louis Roche, F-92230 Gennevilliers, FRANCE - www.bi pea.org

>> Characterise your flours according to their end use



The quality of a flour is judged on the basis of its end use. The **Mixolab Profiler** enables you to characterise a flour, according to its purpose by using six fundamental criteria:

- > Water absorption affects dough yield.
- > The mixing index represents the resistance of the flour to kneading.
- > The gluten+ index measures protein strength.
- > High-temperature viscosity relies on the starch and amylase activity characteristics.
- > Resistance to amylolysis provides information about several aspects including the level of germination.
- > The retrogradation index provides important information about end product shelf life potential.

The **Mixolab Profiler** is the ideal flour characterisation tool and an essential quality control instrument because it is based on a thorough analysis of the flour, its components and their interactions.

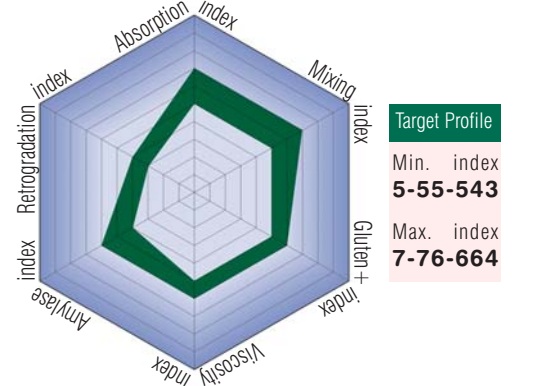
Examples of flour profiles for two different uses

>> Create, compare, validate or improve ... easily

Step 1 Create or choose your **Target Profile** according to the chosen application.

The **Target Profile** of an application is a zone characterised by min/max. values, numbered from 1 to 9, on each of the 6 **Mixolab Profiler** axes. The axes represent water absorption, kneading behaviour, gluten strength, maximum viscosity, amylase activity and retrogradation.

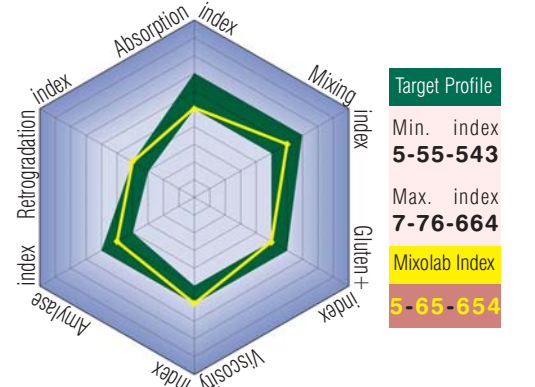
The **Mixolab System** software enables you to choose one of the standard profiles supplied by CHOPIN Technologies or select them from a customised database. You can create as many profiles as necessary combining them with types of flour and customers/suppliers and include them in your database.



Step 2 Measure the **Mixolab Index** of your flour and compare it with your **Target Profile**.

The results for each of the six indexes are displayed in real time on the **Mixolab Profiler** while your sample is being analysed. This enables you to know immediately whether or not the tested sample corresponds well and truly to the desired profile.

The curve obtained is characterised by a six-figure **Mixolab Index** corresponding to the value measured on each of the six axes. If all the values of the flour's **Mixolab Index** correspond to the **Target Profile** then the flour is suitable for the chosen application.



Step 3 Accept, adapt or reorient...

If, as in the example, the flour's **Mixolab Index** partially matches the **Target Profile** (differences in terms of gluten strength, amylase activity and retrogradation), then the **Mixolab Profiler** provides you with two options:

- 1 The **Mixolab Guide** helps you with a possible correction of the flour characteristics, based on the observed deviations. In the example, the measured profile shows that the following three parameters are higher than necessary: high-temperature viscosity, resistance to amylolysis and retrogradation. Correcting amylase activity may help to find a more compliant profile.
- 2 The **Mixolab Research Tool** looks through your database in order to locate the model profile which best matches the analysed flour enabling you, if need be, to reorient this flour through a different application or customer.

