APPLICATION FAQS WITH THE ALVEOGRAPH

Here are our Application FAQs: Summaries of our application studies on the Alveograph, accompanied by the most Frequently Asked Questions.

If you are interested in the full study, you can request it through our form at the bottom of the page, indicating the title of the study in your message.

**Alveolab parameters stability.** In order to perform an Alveographic test in accordance with the existing standards, the laboratory conditions must be controlled. The Alveolab does not need to be placed in a controlled environment since the bubble is inflated in a sealed chamber, which is controlled in terms of temperature and humidity. This study evaluates whether the Alveolab is able to maintain the overall conditions within the standard limits. *(On Alveolab only)*

**Impact of oil type on the alveographic results.** In order to perform an Alveographic test in accordance with the existing standards the use of specific oils is recommended (peanut oil in particular). This study evaluates the impact of several oils (peanut as a reference, Vaseline, paraffine, sunflower, rapeseed and 3 different olive oils) on the Alveographic results for two different flours (weak flour and strong flour).

**Protocol modification impacts.** Today, the Alveograph standard protocol is used internationally for flour quality control. This protocol was developed almost 100 years ago. Today, the Alveolab allows for the modification of all test parameters which makes it more versatile that any of the previous versions. This study demonstrates the impact of protocol modifications on Alveographic results for 2 different flours (weak and strong). *(On Alveolab only)*

**WHEAT**

**Flour discrimination for wafer production.** Industrial processes usually do not appreciate changes in raw material quality. There is a strong need for controlling the properties of wheat flour to ensure it will perform well during processing and allow for a consistent final product which meets customer specifications. This study, in partnership with an industrial wafer producer, have for objective to discriminate 2 “good” flours from a “medium” flour and a “bad” flour. It demonstrates that the Alveolab complies with this objective. *(On Alveolab only)*

**Effect of cysteine on wheat dough rheology.** The use of modifiers in the production of baked goods is common practice today. L-Cysteine is commonly added to doughs to shorten mixing and fermentation time. It reacts with SS bonds in dough, breaking them with concomitant reduction to SH groups. The effect of cysteine on dough rheological properties was investigated using the Alveolab.

**Effect of damaged starch on dough rheology.** Milling process causes physical damage to a proportion of the starch granules, thereby altering the functional properties of the wheat flour. A high level of damaged starch results in firm and sticky dough, sticky crumb, low bread loaf volume, browning crust and firm bread crumb. The effect of damaged starch on dough rheological properties was investigated using the Alveolab.

Studies accessible upon request at: labo.application@chopin.fr
Effect of gluten on dough rheology. Also known as wheat gluten, vital wheat gluten is commonly used to improve the machinability of the dough. Consisting of mainly gliadin and glutenin, wheat gluten is unique among cereal proteins based on its ability to form a cohesive and viscoelastic matrix capable of retaining gas which makes it suitable for the preparation of leavened bakery products. The effect of added vital wheat gluten on dough rheological properties was investigated using two types of flours according to the standard Alveograh protocol.

Effect of salt reduction. Salt has always been a very commonly used product for both food preservation and taste enhancement. Excess sodium intake is a factor contributing to high blood pressure and is associated with cardiovascular disease and stroke. In addition to its effects on health, salt has recognized impacts on doughs rheological properties. This work evaluates the effect of salt reduction on dough rheological properties using the Alveolab.

Effect of sucrose on dough rheology. Beyond its contributions as a sweetener and flavor-enhancer, sucrose (often called table sugar) acts as a tenderizer by absorbing water and inhibiting flour gluten development, as well as delaying starch gelatinization. Sucrose also speeds up the yeast activity and caramelizes under heat, to provide cooked and baked foods with pleasing color and aroma. The effect of added sucrose on dough rheological properties was investigated using two types of flours according to the standard Alveograh protocol.

Effect of wheat bug infestation on rheological properties of wheat. Wheat bug infestation alters the gluten properties of the wheat kernel, where wheat bug-proteinase affects the disruption of the gluten complex thus influencing the deterioration of rheological properties of wheat dough. The effects of wheat bug infestation on dough rheological properties were investigated using the Alveolab.

Blending Law – Alveolab. Millers usually blend different wheats prior to milling in order to achieve a specific grist at the most economic price. They may also blend different flours in order to manufacture the product requested by their customers. By blending the many different flour streams produced by the mill, millers can create further variations in features such as flour colour or rheological behaviour. They can, therefore, determine the correct blend and predict the quality of the final flour relying on devices that respect the blending law by testing the intermediate fractions. This study aims to evaluate whether the Alveograph standard protocol (NF EN ISO 27971; AACC 54-30.02) respects the blending law.

DOUGH RHEOLOGY

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### DAMAGED STARCH

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### ADDITIVES

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PRODUCTION FOLLOW-UP

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NEW TRENDS

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OTHER ANALYSIS

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