



Analysis of gluten & gluten free raw materials IAOM Meeting, Dubai 2019

Applications Dptm. | Food Application Lab | Jessica Wiertz

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Analysis of gluten

new methods & industry application

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GlutoPeak



- Rheological measurement
- High-speed-mixing
- Torque measurement
- Measurement of gluten-aggregation
- Analysis of flour and gluten

Gluten Method

parameter	method setting
sample weight (solid)	2,1g
sample weight (liquid)	4,41g
temperature	36°C
speed (profile)	500rpm (60s) 0rpm (120s) 3300rpm (600s)

Technical Note:
Development of a method to analyse vital wheat gluten with the GlutoPeak

Sergio Gali, Alexander Meyrich, Julian Huhn, Jessica Wirth, Leslie Zeller
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GlutoPeak - new "Rapid Gluten Check" method

Vital wheat gluten is used as a powdered additive in bakery products to improve their quality, especially in order to achieve a consistent quality in the bake or to compensate for quality fluctuations in the flour.

The properties of vital wheat gluten are significantly determined by its components, glutenins and gliadins, which glutenins create more elastic properties, the gliadins are responsible for the plastic properties (Dietrich and Köhler, 2016). The distribution of the glutenins in relation to the molecular weights and the intermolecular disulfide bonds are an important criterion for determining dough and baking properties and the gluten quality (Ortulan and Steel, 2017). For this reason it has been very difficult and time-consuming until now to precisely determine the quality of the gluten. The following illustration shows the roles of both gliadins and glutenins in the gluten network:

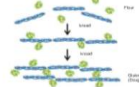


Fig. 1. Roles of gliadins and glutenins in the vital wheat gluten network (Dietrich and Köhler, 2016)

Challenges when analysing vital wheat gluten quality

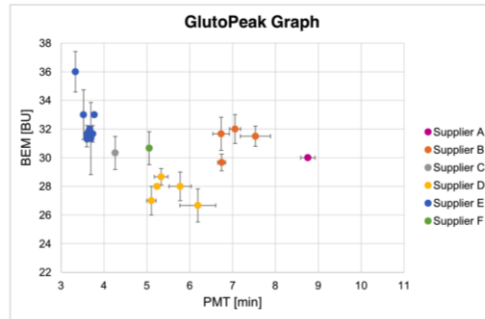
The quality of powdered vital wheat gluten depends in turn on various factors. On the one hand, it is dependent on the quality of the cereal from which it is produced. On the other hand, it is also dependent on various process parameters, for instance the separation process of starch and gluten and the drying parameters, particularly time and temperature. However, the exact dependencies have not yet been fully explained.

Vital wheat gluten processors notice that different batches often differ in terms of their quality. So far no standardized methods have been established to measure the quality of vital wheat gluten in dried form and to distinguish the product quality of different batches. Making tests give a good impression about quality, yet are very time-consuming to carry out. This poses a major challenge for the manufacturers and processors of vital wheat gluten as they have to be able to assess quality fluctuations and even then act.



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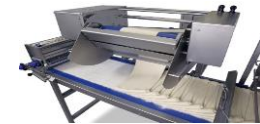
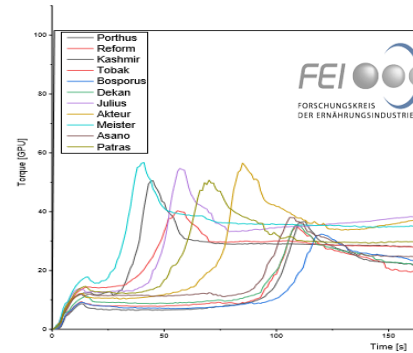


Klaas, E. (2019)

Rapid Gluten Check



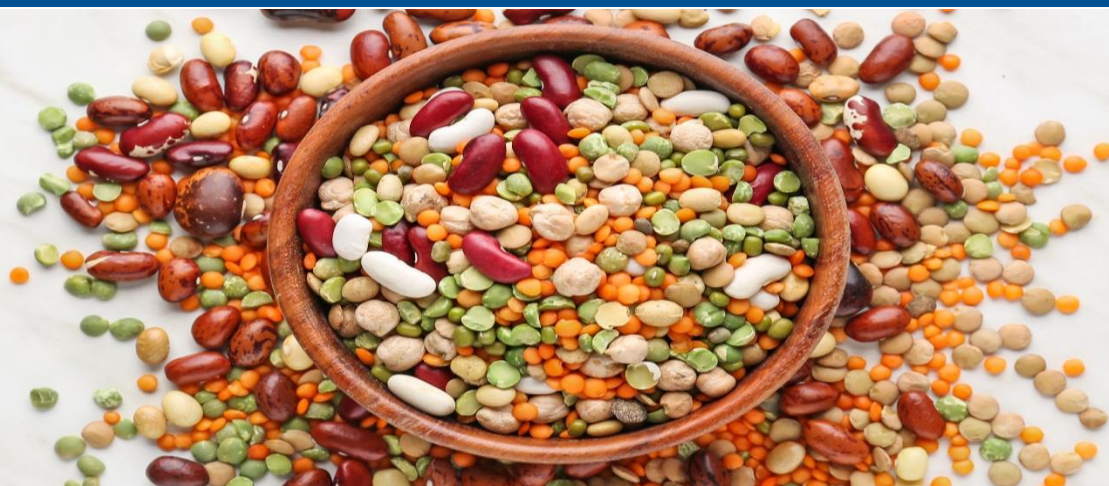
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Rapid Flour Check

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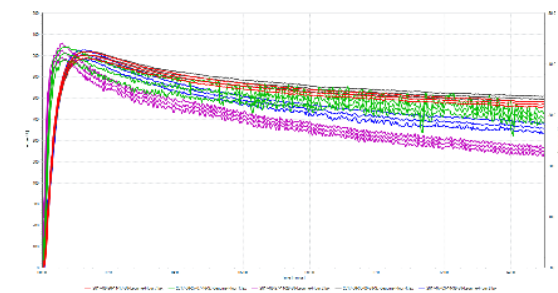
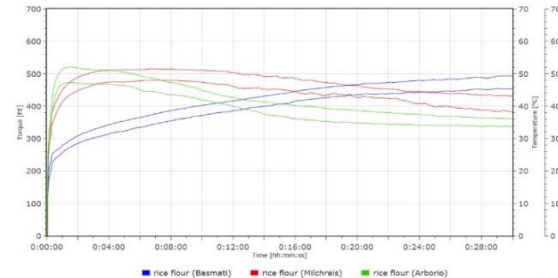
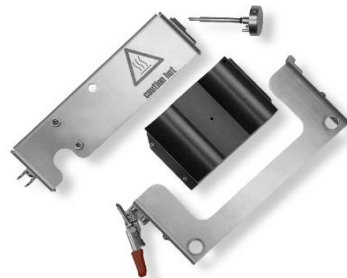


Analysis of glutenfree raw materials water absorption // gelatinization // extrusion

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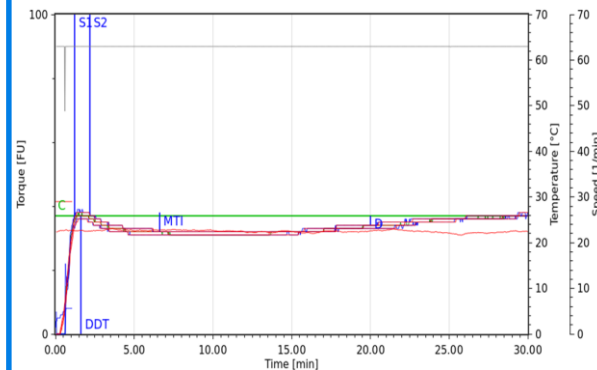
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Farinograph for water absorption



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Farinograph for water absorption

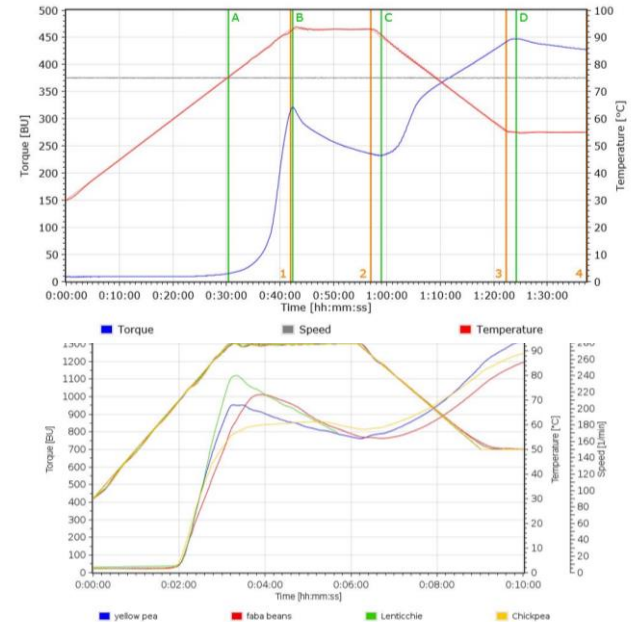


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ViscoQuick for gelatinization properties

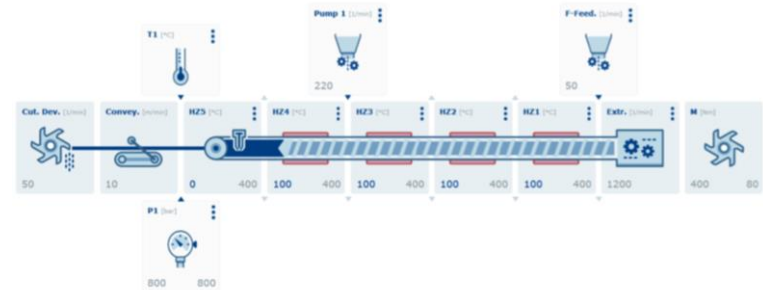


- Rheological
- Quick method
- Torque measurement
- Starch gelatinization
- Analysis of starch and other raw materials



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TwinLab-F for food & feed extrusion



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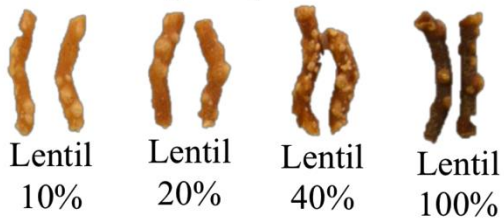
application: meat substitutes



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applications: pretzel snacks & pasta

Premium Quality Lentil



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Thank you for your attention!

- Your Brabender Food Lab Team –

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