Viscometry in the food stuffs production

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The viscosity of the product with the help of the measurement describes its flow behavior. Many food stuffs have inherently got a high viscosity. Therefore, the exact knowledge is very important for the quality control of the raw material, food and precursors as well as for the food plant engineering (flow behavior in the manufacturing process), because it states about the consistence and strength >???? of food. Each manufacturing process, depending on the product, has got a certain viscosity range

which is permanently (process viscometer) and punctually (manual and laboratory refraktometer) under control.

The use of viscometers in the food stuffs technology is described on the basis of the three examples:

Example of use: viscosity control of the fruit juices

The juices go through different stages in the process of their manufacturing:

1 sorting/washing
2 crushing
3 mashing
4 pressing
5 fining / filtration
6 pasteurization

The juices with the higher viscosity have got a bad flow ability, cause problems during teh filtration and increase the danger of jelling during the storage as well a sin the process of the manufacturing. The reason for that is often a high content of pectin in juice. During the juice manufacturing the pectin content is with the help of special enzymes during the stage 3 up to 80% technologically reduced. This process lasts 60 minutes. It is desirable to reduce the content of pectin as well as to keep it in a nutritionally valuable area. During these processes the viscosity during mashing can be measured quickly and precisely only with the help of the viscometer.
The direct measurement of the viscosity replaces perfectly well a much more serious pectin proof (alcohol test). The reduced in such a way viscosity of the mash makes the further processes (pressing/filtration/fining) easier and optimizes quality as well as the yield.

Example of use: Viscosity control of the wort and beer.

High viscosity of the filterability is an obstacle also in wort.

Thus, the viscosity measurement is an important control parameter for optimization of the manufacturing process, as well as for evaluation of quality raw materials such as malt quality Simultaneously the basic viscosity is desired as it has a positive influence on the foam stability and taste.

Example of use: Sugar industry

During the production and further manufacturing of the sugar solutions the knowledge of viscosity is decisive. Depending on the concentration the viscosity as well as the flow ability increases exponentionally. The viscosity measurements give a very clear idea about the possibilities to crystallize and are an important control parameter during the manufacturing process.