Application Report ITH | FOOD

Turbidity measurement in the brewhouse

Brauhaus Saalfeld uses Anderson-Negele turbidity measurers to monitor turbidity in the lauter tun.

The first and decisive step in purifying the wort takes place during lautering in the brewhouse. Too high solid concentrations, which can be caused by excessive husk ratios for example, can lead to fermentation problems and therefore to a reduction in the beer quality.
The inline turbidity measure has now become a widely used and recognized process for the automated monitoring of the solids concentration. However, in many places this process is still controlled by time and quantity, or even by visual inspection using an inspection glass. The Bürgerliche Brauhaus Saalfeld successfully uses the Anderson-Negele turbidity meter for control and monitoring during the purifying process.

The process

The mash is pumped into the lauter tun following mashing in order to separate the beer wort from the mash and spent grain solids. A filter cake formed by settling of the spent grain after a sufficient rest time in the lauter tun and the wort can be removed through the perforated false bottoms. The draining of the wort changes the effective cross section of the capillaries and therefore the porosity of the filter layer. The spent grain cake is sliced by an adjustable raking device at the correct time in order to ensure consistent drainage.
As the first wort initially has a higher proportion of solids it is initially led back into the lauter tun through a control valve in order to pass through the filter once again. The wort is only forwarded to the wort kettle once it is sufficiently clear. This separation is extremely important as the withdrawal of an excessive proportion of husk can lead to fermentation problems and therefore to a reduction in quality.

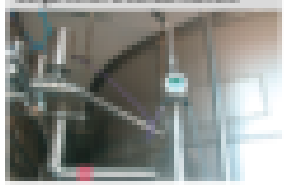
Customer

Bürgerliches Brauhaus Saalfeld
D-07318 Saalfeld/Saale

Anderson-Negele turbidity measurement in the Bürgerlichen Brauhaus Saalfeld

The turbidity meter type "TBF 1" monitors the turbidity of the wort in the lauter tun collecting main (see fig.) during the entire process and controls the changeover valve for the loop or wort kettle. To start purifying, the wort is first pumped in the loop until the target turbidity value is reached. Only now is the wort sufficiently clear and is forwarded to the wort kettle. If the target value exceeds a defined threshold in the following process, e.g. slicing or sparging, an automatic switch to the loop takes place. A malfunction message is generated if the turbidity value does not fall to below the target value within a defined time limit. In the brewhouse is not occupied then a message is sent to the on-call mobile and the master brewer can monitor the process remotely through his laptop.

Anderson-Negele turbidity measurement in the Bürgerlichen Brauhaus Saalfeld



The appropriate process for every requirement

Various turbidity measuring processes can be fundamentally used for application in the lauter tun as the solvable solids content of the wort is not the same in every brewery. The requirements of the turbidity measurement differ according to brew type, recipe and production process.

In one application it may be sufficient if exclusively high turbidity increases are recognized during slicing or sparging. Other applications require a fine turbidity measurement so the purifying process is controlled to a great detail, e.g. by an adjustable raking machine and differential pressure measurement between wort front and false bottom.