sigrist photometer

APPLCATION NOTE

Filtrations Monitoring at the beer filter

The Original since 1946

The new TurBiScat PM 40 can be used for a wide range of applications in the brewery due to the combined 90° / 25° measurements and the optional color measurement for a wide range of applications in the brewery. In the filter cellar of the brewery, on kieselguhr and other filters, the color-compensated turbidity measurement ensures a brilliant beer.

When filtering beer, the end result of the process should be a clear, sparkling beer with no microbiological findings. To achieve this, a fully color-compensated turbidity measurement is required, which is able to measure the entire spectrum of turbidity-relevant substances such as colloidal and particulate turbidity. As turbidity problems become more frequent due to increasingly poor malt quality, very good turbidity measurement is becoming more and more important.

The Solution

Since 1946, the name Sigrist-Photometer has been synonymous with turbidity measurement in beer filtration:

- The combined 90° and 25° angle measurements, which are always available, allow finer control of the filter medium addition
- The 25° measured value allows a possible filter breakthrough to be detected and the filter to be switch the filter to circulation mode for as long as necessary.

Sigrist has further improved the benchmark in the market and developed the TurBiScat PM 40. The TurBiScat PM 40 is mounted on a standardized VARINLINE® connection. With its modern design, the new devices are very easily recognizable in the system. Measured values, as well as curves and status information, can now be viewed directly at the measuring point. The integration of the control unit also eliminates the need to install an additional device. Settings can be made conveniently via a smartphone. The measured values and curves can also be displayed on the smartphone. No app is required for this, just a web browser. A remote display is available for measuring points that are difficult to access. The TurBiScat PM 40 can be integrated into the production control system via various interfaces. Limit value violations can be displayed on the device and reported to the system. The security of data transmission has also been improved compared to the previous model in order to meet current and future requirements.

The Customer Benefit

The best filtration has been achieved when the turbidity is as good as necessary, the filter's sediment chamber is filled to the maximum with filter aid at the end of filtration and the filter has reached its maximum possible pressure. To achieve this, the diatomaceous earth dosage must be permanently regulated.

Advantage of a turbidity measurement
turbidity measurement:

- Significant increase in production capacity by up to 50 %
- Longer shelf life thanks to optimally filtered beer
- Savings in the use of filter aids, thus reduced set-

The TurBiScat PM 40 in the filter cellar of the brewery

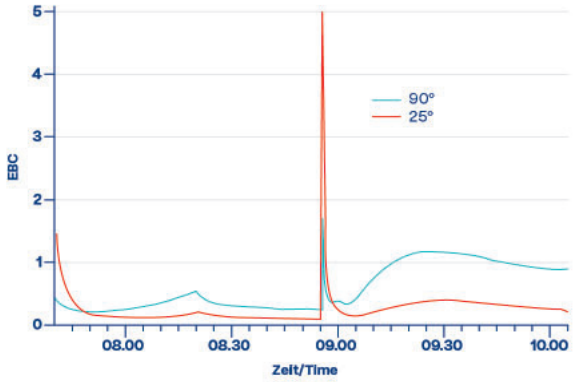
up times, cleaning agent consumption and fewer losses due to pre- and post-runs

Typical Application

Classic beer filtration consists of at least one kieselguhr filter, which is usually followed by a fine filter and, in larger breweries, a PVPP filter for stabilization. The outlet of the kieselguhr filter is the most important location for measuring turbidity. The cloudy, unfiltered beer is freed from a large number of turbidity-forming substances in the filter with the help of the highly porous diatomaceous earth. These include particulate substances such as yeast as well as dissolved (colloidal) clouding agents such as proteins and glucans. The turbidity measurement must now permanently detect even small changes in the turbidity of the filtrate in order to provide the operating personnel with information on how to regulate the filter. If the 90° turbidity percentage increases, for example, the diatomaceous earth mixture of coarse and fine gur must be changed. If the 25° turbidity value rises relatively suddenly, this can mean a so-called filter breakthrough. The filter then automatically switches to a recirculation mode, with a continuous dosing of diatomaceous earth.
This continues until the damage in the filter cake has closed. The measured values of the turbidity measurement are therefore the most important indicators for the quantity and mixture of filter aids. In general, it can be said that the 90° value covers turbidity of less than 1 µm. The consumer sees this turbidity as a slight haze (opalescence) in the beer. This leads to complaints. The 25° value, on the other hand, is more sensitive to larger particles. It is therefore a measure of the condition of the filter elements. The diagram

The display on the device is a real advantage. The degree of the filtration and the status of the measurement can be checked on the system directly.
Matthias Döppmann, Feldschlösschen Supply Company AG

shows the typical course of a kieselguhr filtration. Typical (and good) is the ratio of 90°/25° of ≤ 2/1. In the middle of filtration a „hard" tank change can be seen, which has led to a pressure surge and, in particular, an increased 25° turbidity value.



Technical Details

Fine all technical details about the TurBiScat PM 40 on our website.

Praktical Measuring tasks (examples)

The TurBiScat PM 40 can also be used to measure turbidity on kieselguhr and other filters, in the blending plant and in the bottling plant.

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