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SIGRIST
PROCESS-PHOTOMETER

Application report

Phase Separation Water / Wort

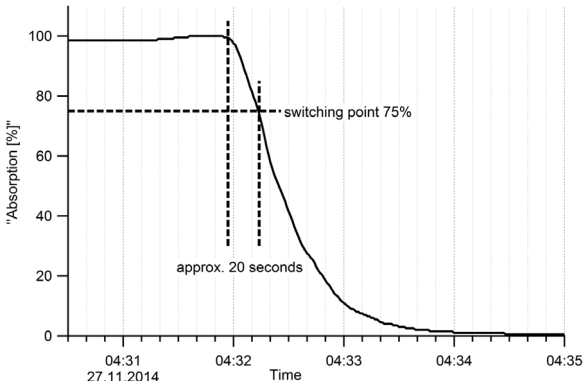
The trend towards cost optimization in breweries continues and minimizing any loss of beer plays a large part. It makes sense to start avoiding loss of beer already in the brewhouse; especially since this measuring point speedily provides product savings without large-scale automation.

Benefits

Minimizing loss of beer starts in the brewhouse. In order to keep the loss of wort on the way to the fermenting cellar as small as possible, the pipes are flushed with water at the end of the wort run. The relatively distinct transition from wort to water can be precisely detected via the colour value. Since the PhaseGuard C emits a signal within seconds, it can be reliably prevented that water is mixed into the wort or that the wort is fed into the waste water.
It is thus ensured that only wort having the correct concentration reaches the fermentation tank and that no wort is lost with the waste water.

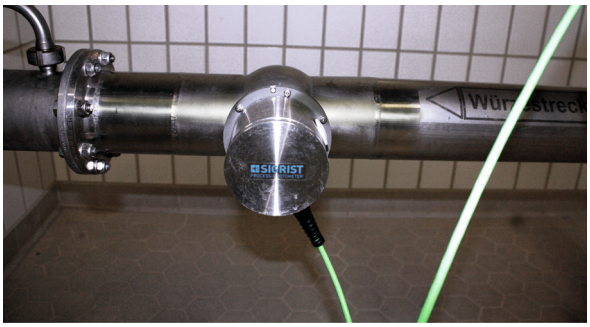
Typical application

In the respective wort pipes, instruments of the type PhaseGuard C in Varivent housing are installed after the wort cooler on the way to the fermenting cellar. The measurement range of the instrument of 0 – 100 % is perfectly suited to the typical wort colours; however, the switching points have to be determined individually in the breweries (see example in the diagram). What is always significant, however, is the very rapid drop of values at around 100 % in which the switching point (e.g. 70 – 80 %) is reached within a period of 10 to 20 seconds.
Generally existing turbidity does not influence this application since the measurement is always carried out against the transition to clear water.



Phase transition water/wort

Practical measurement (example):



PhaseGuard C in wort pipe

Cost-benefit analysis

At a speed of 1000 hl/h of the wort run, about 280 litres of wort pass through the pipe every 10 seconds. If no measuring instrument is used and the brewery works with a timer having a delay of the switching point of about 30 seconds, that means 8.4 hl per switching. At 12 brews per day, that would be about 100 hl/day. The production costs of one hl beer-ready-to-sell lies at around 40 €/hl. This shows that the amortization of a PhaseGuard C is shorter than half a year and should definitely be used.

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SIGRIST product and configuration for this application:
- PhaseGuard C
- Optionally: SICON control unit

Parameter settings
- Limit formation of the mA signal in the PLC (provided by the customer)
- Output of the switching point at the PhaseGuard C via two opto-couplers

Advantages of the SIGRIST PhaseGuard C
- LED light source, only 2 W power consumption
- No purge air required
- Sealless design
- Extremely low maintenance costs

PhaseGuard C in Varivent housing

Sensor head of PhaseGuard C

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