

# Application Report

## Yeast Dosing in Breweries

The basis for this application is our turbidimeter TurbiGuard which is calibrated within 0-1000 EBC. For controlling yeast dosing, two TurbiGuard sensors are used and connected to a control unit SICON M. The difference of the measured turbidity values is directly translated into the yeast concentration and output as 4..20mA signals.

### Benefits

As a result of an optimal yeast dosage to the wort, the primary fermentation occurs within the optimum time (7 days). If not enough yeast is added, the fermentation can be slower. This would result in a reduction of the capacity. If too much yeast is added, the yeast harvest will produce undesirably large amounts of yeast.

### Typical application

In the respective wort pipes, 2 TurbiGuard sensors in Varivent®- housings are installed after the plate cooler on the way to the fermenting cellar. It is decisive to install the first instrument before and the second instrument after the yeast dosage.

PLEASE NOTE: It is absolutely necessary that wort aeration is carried out after the measuring instruments. Yeast dosing must take place consistently over the complete pumping of the wort. The first TurbiGuard measures the turbidity of the cold wort, the second TurbiGuard correspondingly measures the turbidity with the yeast added. The difference in turbidity is measured in the SICON M and output as a signal with the unit "Mio. Yeast Cells/ml". With this signal, the control valve of the yeast dosage is controlled.



Picture 1: Display of the measurement at the SICON M:  
„C1 before“ shows the turbidity of the wort before yeast dosage  
„C2 after“ shows the turbidity of the wort with the yeast added  
„M1 Yeast“ shows the yeast concentration in Mil. Cells/ml

### Practical measurement (example):



Picture 2: Example of yeast dosing. Whereas the two TurbiGuard sensors here cannot be seen, the control unit SICON M is encircled.

### Cost-benefit analysis

We are here talking about a quality-related measurement. Two TurbiGuard sensors and one SICON M are needed for this installation; a controller is necessary in the periphery, which controls a dosage valve or dosage pump.

The economic benefit lies in optimizing the efficiency of the fermenting cellar. If the primary fermentation takes one day longer, this will cost cooling energy, tank volume and lower the beer production.

### Product

#### SIGRIST product and configurations for this application:

- Yeast dosing with 2 TurbiGuard sensors, SICON M and calibration
- Suitable Varivent® housing

#### Parameter settings

- The mA signal in million yeast cells/ml is used for controlling yeast dosage

#### Advantages of the SIGRIST product

- Good value for money
- Intervention in the running process is possible; any laboratory supervision will be too late
- LED technology, low power consumption
- Sealless design with sapphire glass
- Extreme low cost of maintenance