In the beer and beverage industries, turbidity is a determining factor in the quality of a beverage and serves as an acceptance criteria for consumers. It is especially important to continuously control and measure the turbidity during production.

The In-line Turbidity Meter, type OptHaze-i, measures the scattered light caused by particles and incorporates the latest standards from MEBAK (Mitteleuropäische Brautechnische Analysekommision):

- 90° measuring angle
- Red light 650 ± 30 nm to eliminate most of the effects of color of the beverage
- Formazin calibration standard

Particles smaller than 1 μm, such as proteins, mainly cause the light to be scattered under 90° and are measured with the 90° light detector. Hence, particles larger than 1 μm, such as Diatomaceous Earth, yeast and fruits pulp mainly cause the light to scatter forward. To increase the expressiveness of the turbidity measurement, an additional light detector measures the forward scattered light under a 25° angle.

The In-line Turbidity Meter can be installed anywhere in the process where the determination of turbidity is critical to the quality of the beverage. The turbidity sensor is constructed in accordance with the CE hygienic directive and EHEDG design recommendations. It is easily mounted in a Varivent® process connection and executed as a smart sensor, ready to use, calibrated in a range of 0 to 20 EBC.

The OptHaze-i is designed for simultaneous measurement of 90° and 25° turbidity. The user-friendly control unit can be supplied in either field or panel mounted versions and up to two turbidity sensors can be connected to each control unit.

**APPLICATIONS**

- In-line, at critical locations in the production line where the determination of turbidity of beverages is required

**GENERAL PRODUCT INFORMATION**

**BENEFITS**

- Cost saving
  - one device for different product types means lower investment costs
  - no maintenance
- Measurement result comparability
  - correlation with lab turbidity meter, type VOS Rota 90/25 and most of the lab turbidity meters that incorporate the MEBAK standard
HAFFMANS OptHaze-i
IN-LINE TURBIDITY METER

TECHNICAL DATA

CONTROL UNIT

Power supply
85-264 V 50-60 Hz (optional 24 VDC)

Dimensions
235 x 205 x 165 mm/9.25 x 8.07 x 6.50 in (LxWxH)

Mounting
Wall mounting/Panel mounting

TURBIDITY SENSOR

Pipe diameter
> DN 40

Process connection
Varivent®

Dimensions
84 x 175 mm

MEASURING RANGE

Measuring range
0.00 - 500.00 EBC
(Standard calibration 0.00-20.00 EBC)

Measuring units
EBC, ASBC, Helm, FTU

Wave length
650 ± 30 nm

Beverage color
Max. 50 EBC

Resolution
0.01 EBC

Measuring angle
90º and 25º

Temperature Range
Measuring
Product -5 to 100 ºC
Ambient -5 to 60 ºC
Cleaning -5 to 130 ºC

Process pressure
Max. 16 bar(g)/232 psi

Memory capacity
Up to 500 measurements per sensor with trending ability

Number of calibration curves
7

Protection class
IP 67

SCOPE OF SUPPLY

• Control unit
• Turbidity sensor
• Sensor communication cable
• Control unit wall mounting set
• Mains cable
• I/O cable for analog output
• Calibration beaker with spare O-ring for Varivent® connection
• Software set (CD, RS and sensor calibration cable)
• Instruction manual

OPTIONS

• Second turbidity sensor
• Profibus DP
• Control unit pipe/sensor mounting set (DN 40 - DN 125)
• Control unit panel mounting set
• Certificate of measurement
• In-line housing with Varivent® connection, inspection glasses and clamps for turbidity sensor (pipe dimension to be specified at time of enquiry)
• Calibration liquid, type Formazin 500 ml, 1000 EBC
• Calibration liquid, type AEPA 200 ml, available in various concentrations