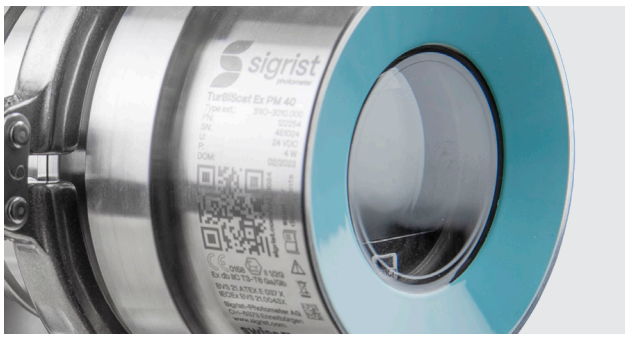
APPLICATION NOTE

Efficient filtration monitoring in whisky production

The TurBiScat Ex PM 40 with integrated colour measurement is particularly suitable for monitoring filtration processes in beverage production. In whisky production, filtration of the whisky after many years of maturation in wooden casks is essential to ensure that no particles from the wooden casks or other cloudiness remain in the whisky. The trend towards single barrel whiskies makes monitoring even more important, as in this case a filtration batch consists of only around 200 litres. Manual sampling and long journeys to the laboratory should be avoided.

What does the TurBiScat Ex PM 40 monitor?

- **90° Turbidity:** indicates turbidity that will occur when the whisky is mixed in a glass with water, ice cubes or, in the case of a cocktail, other ingredients that cause dilution. This results in visible, undesirable turbidity caused by dissolved components that were dissolved at the originally higher alcohol content
- **25°:** detects particulate turbidity and indicates exhausted or defective filter elements
- **Colour measurement:** Filter elements remove some of the colour from the whisky. This is undesirable. Integrated colour measurement makes it easier to comply with limit values or to use and monitor special filter elements



The solution

The Sigrist TurBiScat Ex PM 40 is a high-precision inline photometer specially developed for continuous monitoring of turbidity and colour in spirits production. Its two-angle scattered light measurement at 25° and 90° enables differentiated detection of particulate and colloidal turbidity. Additional colour measurement is performed in accordance with MEBAK/EBC standards, allowing precise control of whisky colour in real time. The sensor parts that come into contact with the medium are FDA-certified. The device is ATEX/IECEx-certified for use in hazardous environments.

The benefits

- Eliminating sampling saves time and minimises product losses
- Increased product safety through continuous measurement and improved product traceability
- The device provides information on colloidal and particulate turbidity as well as colour
- TurBiScat Ex PM 40 is a robust and low-maintenance inline device
- Calibrated in accordance with common standards (MEBAK/EBC, etc.) in the beverage industry
- Process optimisation: Early detection of deviations enables rapid corrective action

TurBiScat Ex PM 40

- Cost savings: Reduction in laboratory analyses and increased efficiency of labour-intensive filling plants
- Quality assurance: Constant monitoring ensures consistent product quality and maximum customer satisfaction
- Process is easier to reproduce.

Technical details

- Two-angle scattered light measurement: Detection of scattered light at 25° and 90° for a comprehensive turbidity measurement.
- Colour measurement: provides a colour measurement value that corresponds exactly to the laboratory measurement
- Colour compensation: automatic compensation of colour influences for higher measurement accuracy.
- Robust design: seal-free housing made of Hastelloy and sapphire glass for durability and maintenance-free operation.
- Easy calibration: quick adjustment with a secondary standard without the use of formazine.
- Integrated display: colour touchscreen for displaying measurement values and status messages directly at the measurement point.

Typical application

Installation in the filtration system after several years of barrel ageing. Installation location requires ATEX approval.

Further practical measurement tasks

A bourbon distillery has equipped two filter systems for single barrel filtration with one TurBiScat Ex PM 40 each and can now automate the filtration process for individual barrels. Manual sampling and laboratory measurements are no longer necessary. The bourbon can be filtered within defined specifications.

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