

The SOLiSENZ CSZ: Proven accuracy in centrate measurement

Introduction: from pioneering to proven value

The first SOLiSENZ CSZ measurement systems were installed in 2022. Based on our prototype experience, we expected it to be a suitable solution for sludge treatment. Since then, together with our customers, we have learned a great deal about the complexity of centrate measurement in real-world applications. As of 2024, sixteen SOLiSENZ CSZ systems are in operation both in the Netherlands and abroad. Over this time, the SOLiSENZ CSZ has proven to be robust and reliable. Along the way, we have also encountered challenges, linked to external factors such as sludge quality, extreme contamination, or fluctuating inlet and outlet conditions. Thanks to an innovative and flexible team, these challenges were not only overcome but led to an even stronger product.

The SOLiSENZ CSZ has also evolved alongside real-world operations. Both software functionality and cleaning options have been further developed, resulting in a more user-friendly and powerful system that better meets the needs of operators.

In practice, we notice that the introduction of real-time centrate measurement can be a significant shift for operators. Where they once had to rely on weekly lab results or visual assessment, the SOLiSENZ CSZ suddenly provides continuous insight into process dynamics. This can lead to surprising discoveries with variations in concentration, the influence of sludge feed systems, or unusual equipment behaviour that previously went unnoticed.

It is precisely in this transition, between familiar practice and new insights, that the SOLiSENZ CSZ shows its true value. Because measuring means knowing. And knowing leads to better processes.



Why measuring centrate matters

When optimizing sludge dewatering, understanding centrate quality is essential not only for process optimization and polymer savings but also for preventing overload of the secondary clarifier or effluent treatment system. Yet, many plants still rely on occasional laboratory measurements, which only provide snapshots in time. With the introduction of the SOLiSENZ CSZ, that is a thing of the past.



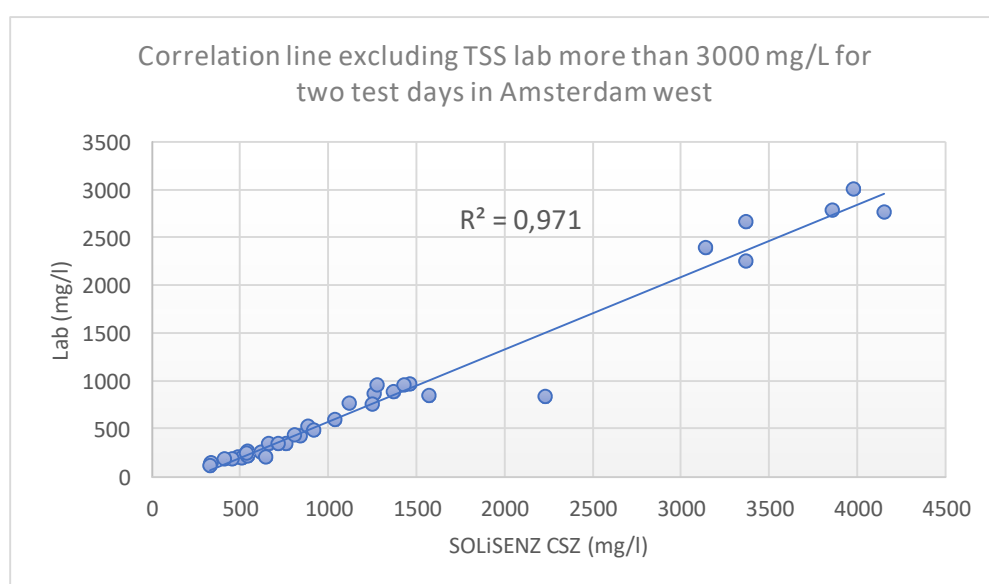
The SOLiSENZ CSZ is an innovative TSS sensor specifically designed for real-time measurement of suspended solids in the most challenging part of the sludge process: the centrate. Over the past few years, the sensor has been extensively validated at multiple sites under a wide range of operating conditions. The results show that the SOLiSENZ CSZ is not only robust and low-maintenance but also delivers excellent agreement with laboratory analyses.

Validation results: comparison with lab measurements

To substantiate the performance of the SOLiSENZ CSZ, extensive validation campaigns were carried out at several locations. Across a wide measurement range, laboratory samples were collected simultaneously and compared to the SOLiSENZ readings.

Location	# of samples	Correlation with laboratory
Utrecht	15	0,986
Amsterdam	37	0,971
Denemarken	47	0,901
Hengelo	5	0,894
Venlo	25	0,877
Susteren	4	0,830

The average correlation of **0.909** across all locations with a total of 133 laboratory samples confirms that the sensor provides reliable results even under highly variable process conditions.

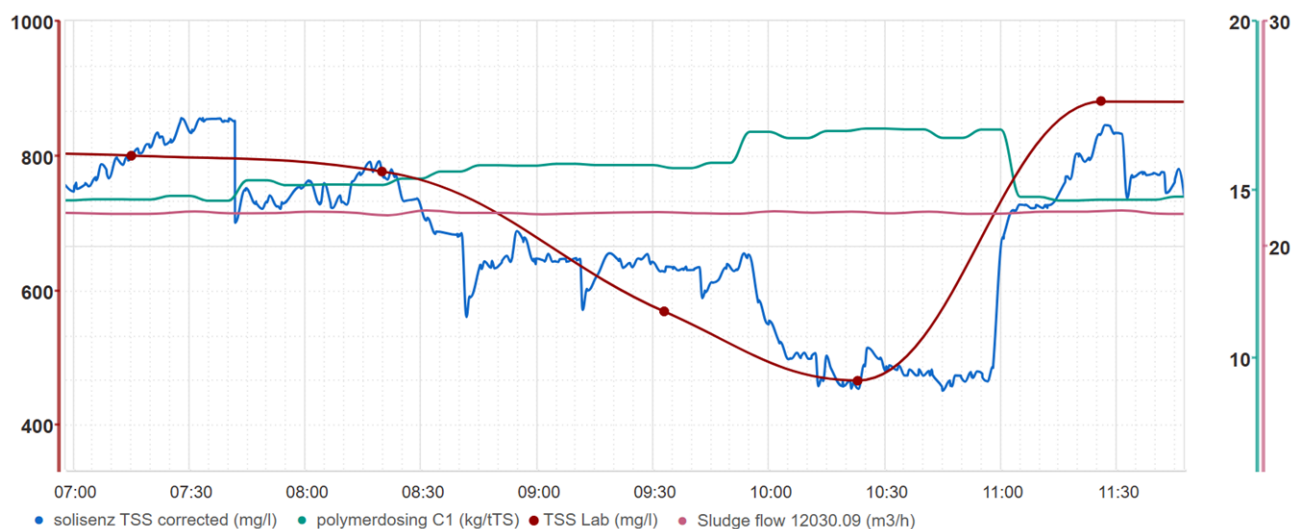


Real-time insight = process advantage

The strength of the SOLiSENZ CSZ lies in its rapid response and continuous measurement capability. While lab data only reveal trends retrospectively, the SOLiSENZ CSZ continuously records process dynamics.

This real-time data allows operators to make immediate adjustments, resulting in:

- Reduced polymer consumption
- Higher and more stable sludge cake
- Consistent centrate quality
- Improved dewatering efficiency



Maintenance and robustness

The SOLiSENZ CSZ is designed for practical, long-term use. The sensor is equipped with an automatic cleaning system, which in most cases is sufficient to keep the measurement optics clean for extended periods. In practice, a simple visual check and manual cleaning once every two weeks is often enough. Even at sites with centrate concentrations above 5000 mg/L, the SOLiSENZ CSZ continues to perform reliably. For such heavy-duty installations, we recommend more frequent visual inspection, but structural failures have not been observed. Thanks to ongoing development in recent years, the cleaning options of the SOLiSENZ CSZ have been expanded, enabling improved self-cleaning performance even under severe fouling conditions. This ensures dependable measurement, even in the most challenging environments.

Easy calibration

Calibration of the SOLiSENZ CSZ is based on two laboratory reference points (two-point calibration), allowing the sensor to be accurately configured within minutes. After that, only periodic validation is required and no frequent recalibration, as is common with some alternative systems.

Conclusion: Proven technology for real-world applications

The SOLiSENZ CSZ is not a laboratory instrument adapted for the field. It is a field instrument that has proven itself alongside the laboratory. With high correlations, robust operation, minimal maintenance, and direct process value, the SOLiSENZ CSZ is the definitive solution for companies that prefer to base their process decisions on facts rather than assumptions.