

Tan Delta intelligent oil monitoring system helps Biogas Plant achieve significant cost reductions

Tan Delta business benefits:

- Savings per year per engine EUR 2,772 (5,444 per annum in total)
- Oil change intervals extended from 400 hours to 800 hours (1000 hours targeted for the future)
- Reduced plant disruptions and interruptions leading to greater operational efficiencies
- Payback on investment of just a few months
- Advance warning of feed mix problems affecting the consistency of the biogas produced



Overview:

Schempp, a leading biogas producer overseeing a 140-hectare farm in Europe, has successfully elevated the operational efficiency of its biogas plant by adopting cutting-edge Tan Delta sensor technology. This case study delves into how Tan Delta's sensor seamlessly integrated into the gas engines, enabling real-time oil monitoring and providing a shift to a condition-based oil change schedule. The transformative results include substantial cost savings, reduced downtime, enhanced overall productivity and some unexpected added benefits.



Organisational Details:

- **Organisational Details:** Industry: Agriculture/Energy
- **Size:** Medium-scale farm (140 hectares)
- **Key Operations:** Crop cultivation (corn, sugar beet, grain, livestock farming, whole crop silage), biogas plant with two gas engines.

Goals:

The primary objective was to transition from a time-based to a condition-based oil change schedule, aiming to reduce the frequency of oil changes while ensuring optimal engine health and performance.

Solutions:

Schempp embraced Tan Delta sensor technology for real-time monitoring of engine oil condition. This implementation empowered them to extend oil change intervals from the OEM-recommended 400 hours to an initial 800 hours, with a targeted extension to an impressive 1,000 hours. Rigorous parallel lab sampling after each oil change validated the accuracy and reliability of the Tan Delta sensor.

Implementation:

The Tan Delta sensor seamlessly integrated into the gas engines, marking the beginning of a systematic approach to gradually extend oil change intervals. This strategy ensured the reliability of the engines through continuous real-time condition monitoring. The success of this implementation hinged on the adaptability and user-friendly nature of Tan Delta's sensor technology.

Key Metrics:

- Oil usage: 70 litres per oil change
- Oil price: ~3.60 EUR/litre)
- Cost per oil change (oil only): 252 EUR
- Savings per year/engine: 2,772 EUR

Financial Impact:

The adoption of Tan Delta sensor technology yielded a substantial annual cost saving of 2,772 EUR per engine. This remarkable achievement was primarily attributed to fewer oil changes and optimised oil usage, demonstrating the tangible financial benefits of Tan Delta's innovative solution.

Validation:

To test the credibility of the Tan Delta sensor and projected performance, Schempp conducted parallel independent lab testing after each oil change. This rigorous validation process underscored the effectiveness, accuracy, and reliability of Tan Delta's technology.



Findings:

The Tan Delta sensor not only revealed the OEM-recommended oil change interval as overly frequent, but also provided insights into issues with the feed mixture which ultimately can affect the consistency of the biogas output. This real-time monitoring provided Schempp with a valuable two-day lead time for corrective action on the feed mix, showcasing the multifaceted benefits of Tan Delta's sensor technology.



Conclusion:

The implementation of Tan Delta sensor technology is proving a resounding success for Schempp. This ground breaking approach facilitated a seamless transition to a condition-based oil change schedule, resulting in substantial cost savings, reduced operational disruptions, and an overall enhancement in efficiency. The totally unexpected bonus was the business insight into problems in the feed mix.

Future Considerations:

Schempp plans to continue leveraging Tan Delta sensor technology for ongoing business improvement. Future planned benefits include further extending oil change intervals and exploring additional operational insights for optimising biogas production. The commitment to regular updates and refinements in its condition-based maintenance strategy reflects Schempp's dedication to continuous improvement - staying at the forefront of agricultural innovation.

About Tan Delta:

Tan Delta's Oil Condition Monitoring (OCM) technology is a cornerstone of predictive maintenance. The sensor provides real-time continuous oil condition analysis, offering insights into equipment health and status. The implementation of this technology not only optimises maintenance schedules but also leads to significant operational savings and increased equipment productivity.

Tan Delta's commitment to providing reliable technology that reduces operating costs aligns with Schempp's vision for sustainable and efficient agricultural practices.

Email info@tandeltasystems.com to see how Tan Delta technology can rapidly start to improve your Biogas or Biomass plant efficiencies, now.

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