Tan Delta Systems Limited

FULL SPECTRUM HOLLISTIC (FSH™)

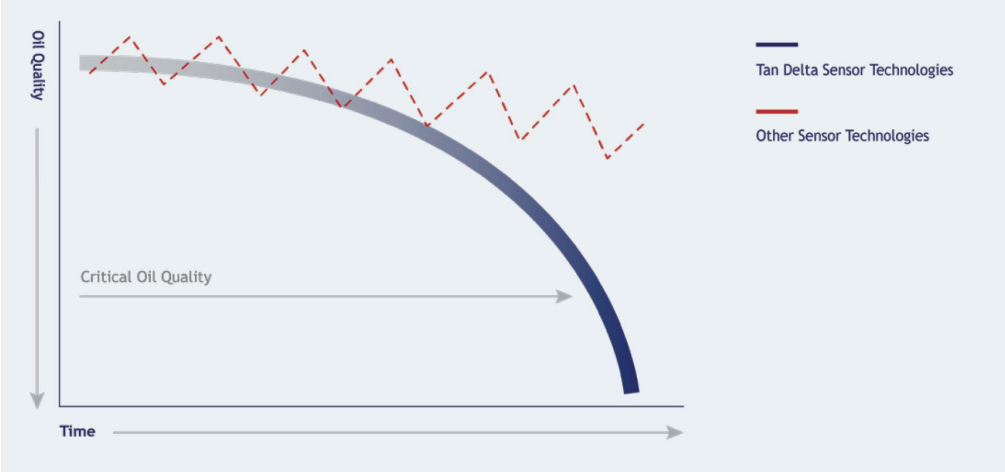
THE MOST ADVANCED OIL CONDITION ANALYSIS TECHNOLOGY

OQSx-G2
FSH™ Oil Condition Analysis Sensor

Our proprietary FSH™ technology delivers unmatched real time oil analysis and data which can be used to deeply understand the actual maintenance status of equipment and therefore make better and more cost effective maintenance decisions.

Tan Delta sensor products are built around our proprietary FSH™ core technology which fuses real time oil analysis and data analytics to provide highly accurate and precise insight to the real condition of oil and maintenance status of equipment. FSH™ is the name we give to our proprietary core technology. It is an anacronym for **F**ull **S**pectrum **H**olistic. We named it FSH™ because it summaries the unique capabilities of the technology. It will detect **any** wear or contamination (provides a full spectrum of analysis) and because of that provides a total all-encompassing monitoring solution that misses nothing (provides a holistic monitoring solution).

The exceptional performance of FSH™ technology and our real time oil condition analysis sensor is achieved through a complex integration of electronic hardware, intelligent software and an especially evolved manufacturing process. The result is unmatched ability to analyse in real time the electro-chemical properties of any oil to an accuracy of 0.001%, producing data of the highest quality. This data is then subject to sophisticated analytics to provide reliable insight on the status of the oil and the equipment itself.



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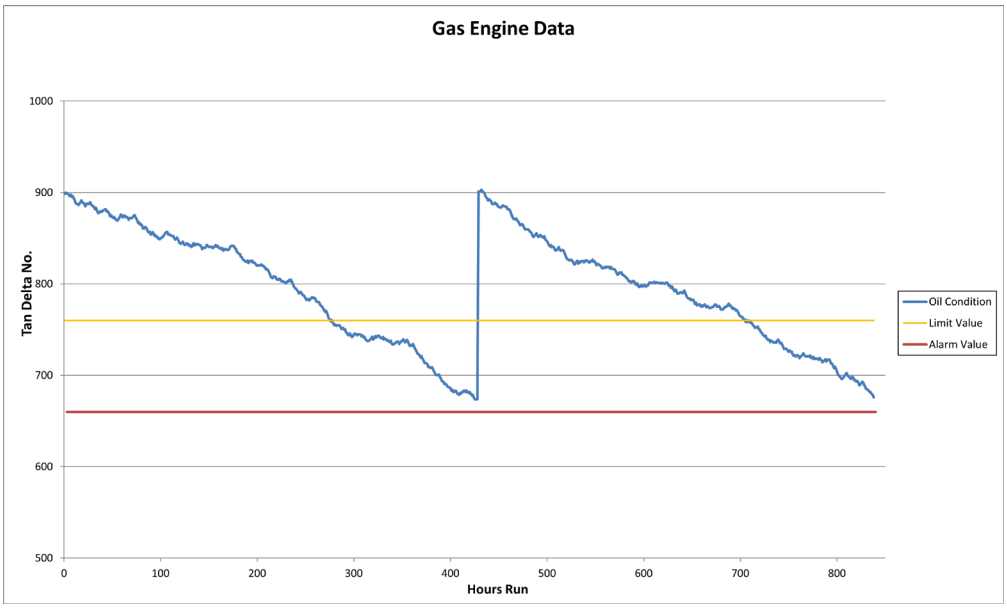
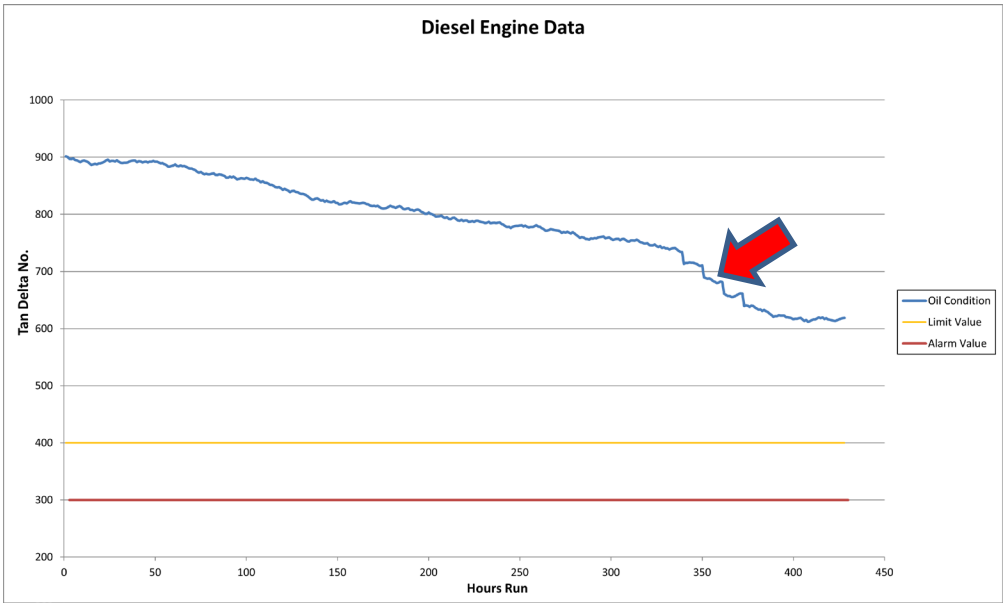
The properties of oil change as a direct result of factors such as general degradation through use, equipment wear or external and internal contamination. External contamination such as fuel, acid or water, or internal factors such as the early stages of mechanical failure which are typically characterised by presence of microscopic metallic elements appearing in the oil, or even earlier appearing as chemical changes to the oil. Therefore, being able to detect and analyse these changes provides a reliable and very accurate insight into the actual health and status of equipment.



This graph is taken from an OQSx-G2 sensor fitted to a gas engine and shows normal wear of oil as expected. The operator normally undertook maintenance on a time basis, every 300hours. However, at that point, the sensor shows that maintenance is not needed and in fact a further 150hrs of safe operation is possible. Maintenance is then carried out just before 675TDN which is the optimal maintenance point for this engine (red line). The sensor shows that the maintenance was carried out by reverting to 900TDN and then continues to track the condition again. The yellow limit value is used to trigger a maintenance planning alert to the operator. The result is that this engine is now maintained twice every 900hours of operation instead of three times – a 33% reduction in maintenance costs and massive reduction in waste to enable achievement of critical ESG targets.



This graph is taken from an OQSx-G2 sensor fitted to a diesel engine and shows normal wear of oil as expected. However, the sensor detects an anomaly which is shown by an unexpected change in the rate of change combined with specific electro-chemical character of that change. The magnitude of the rate of change, and its characteristic means that this engine is determined to require immediate maintenance

to avoid a breakdown and or major internal damage. In this specific case, the cause was identified as a failing bearing which was replaced avoiding a potential catastrophic failure.