



Case Study: EngineWatch® Real-time oil condition monitoring during the first 600 engine hours

How EngineWatch® sensor data prompted early maintenance on a new PACCAR engine

The new PACCAR PX-7 engine was fitted on a 2022 Peterbilt 358 Garbage Truck. Installed on the truck by a qualified electrician in under 30 minutes, the EngineWatch® oil condition monitoring sensor was used to determine the value of continuous oil monitoring in critical equipment that runs heavily or operates within potentially hazardous environments.



One compact sensor probe, designed to remain permanently affixed to an asset for the asset's lifespan, provided data on five oil condition parameters in real time, including:

- the changes in oil condition (polarity and conductivity)
- oil temperature
- moisture
- fuel in oil.

According to OEM guidelines, the time interval before the first oil change in new engines should be shorter than the intervals between subsequent oil changes. This is to remove any excessive wear metals in the oil as the new engine wears itself in. However, without consistent oil sample checks - which can be costly, disruptive, and prone to error - gauging exactly when the oil needs changing is difficult.

With its compact design and intelligent sensor technology, EngineWatch® monitored the PACCAR engine's oil condition in real time, as demonstrated in Figures 1 to 3.

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Figure 1 represents conductivity measurements during the PACCAR engine's first 140 engine hours. The figure shows the oil wearing as conductive additives in the oil are depleted.

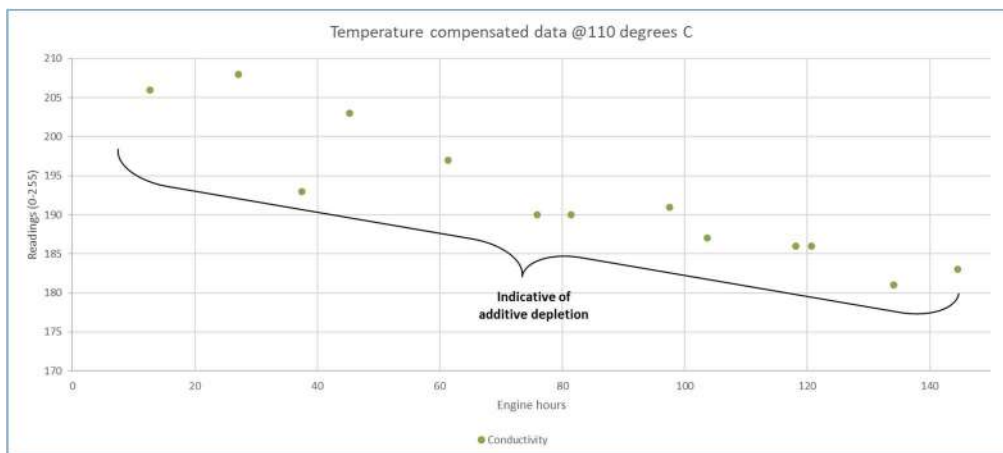


Figure 1 EngineWatch polarity readings over 140 engine hours

Figure 2 shows the polarity of the oil during the PACCAR engine's first 600 engine hours. The figure demonstrates polarity decreasing as the oil additives are depleted. This is followed by an increase in polarity, showing the potential breakdown of the base stock of the oil over time.

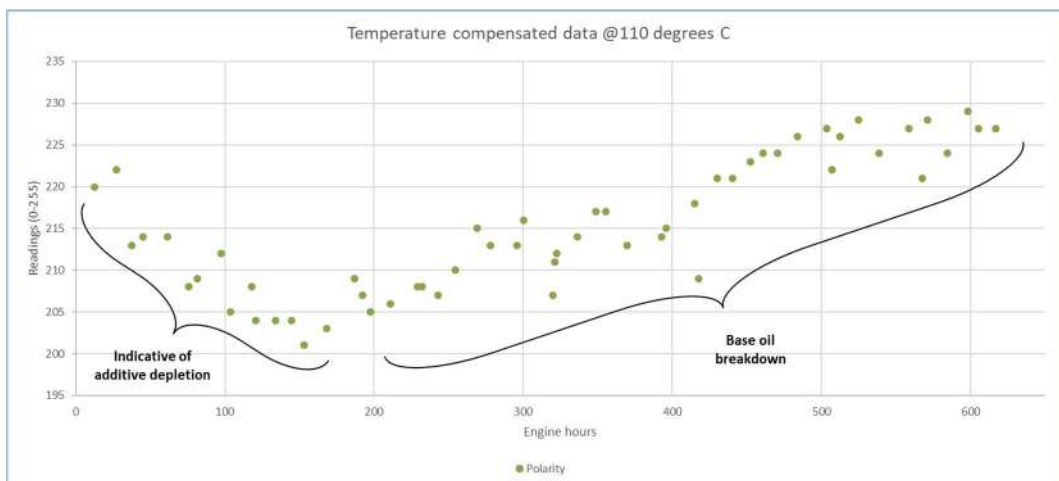


Figure 2 EngineWatch polarity readings over 600 engine hours

In Figure 3, the data shows increasing fuel dilution in the oil. This can indicate a problem warranting further investigation; for example, in new engines, diesel might leak into the oil as a result of wearing piston rings. In any case, this data combined with a higher wear metal content in Figure 2 confirms the need to take an oil sample.

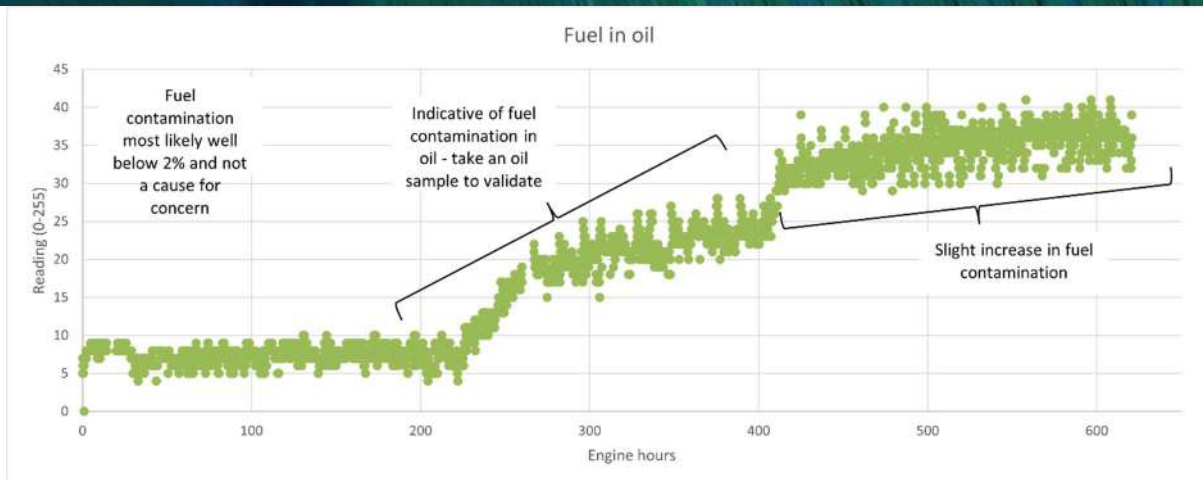


Figure 3 EngineWatch fuel sensor readings over 600 engine hours

This data collected by EngineWatch® meant that it could actively – and accurately – advise when to change the oil, and continue to do so for subsequent oil changes.

Why Oil Advantage?

Oil Advantage provides cost-effective, real-time oil condition monitoring, empowering decision makers to act with data-driven insight to improve the operational performance and lifespan of critical equipment.

Our sensors require no calibration and are compatible with all commercially available oils. They are maintenance-free, durable, and designed to last the lifetime of your equipment. Data collected over a given period can provide valuable insight on machine performance and helps you to plan your preventative maintenance routine.

When trialling our equipment as an early warning system or for continuous condition monitoring, we help you interpret your data before developing intelligent dashboards and automated notifications that suit your business' unique needs and workflows.

Contact us for an obligation-free consult or to test drive an EngineWatch® sensor.



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