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Bermuda Electric Reliability Journey into Uncharted Waters

Infrared Thermography on Safari

Ups and Downs of a CMMS
Implementation

Classical RCM on a 30-ton Crane

Vibration: Training for Success

Imagine being able to monitor your machinery for ferrous wear particles anytime and anywhere. Now you can with...

Analex fdMplus

It's tough, it's portable, it's easy and it's quick. Four qualities you don't normally associate with oil analysis. But, then again, this is not your normal oil analysis lab.

Is it a comprehensive lab? No, but quickly knowing the amount of ferrous wear particles in your oil or grease can save your equipment's life, especially in remote locations where full analysis is simply not possible.

The simplicity is also startling. The Analex fdMplus can accept samples in a number of forms, and you just drop the sample in and about 3-4 seconds later you have a simple readout in parts per million (ppm), with automatic trending. No tribology degree needed.

This machine could become your lubrication programs's next best friend.

We tracked down Jack Poley, president of Kittiwake Americas, who has been in the oil analysis industry for over 45 years, to answer a few more questions about this new little dynamo, and how it may help companies to extend the life of their machinery...

First, why don't you briefly explain to us what the ANALEX fdMplus actually is?

The ANALEX fdMplus is a unique tool for field or lab use. The fdMplus provides accurate and repeatable measurement of total ferrous wear in samples of oil or grease. Samples as small as 2 ml of grease or a 5 ml test tube or syringe of oil, can provide an accurate result in parts per million (ppm).

The fdMplus stores the data from each sample in its internal memory. This data can be displayed on board the fdMplus either in graphical format or tabular with easy transfer of data to a host PC via RS232 interface, facilitating trending of the ferrous metals in the oil or grease samples.

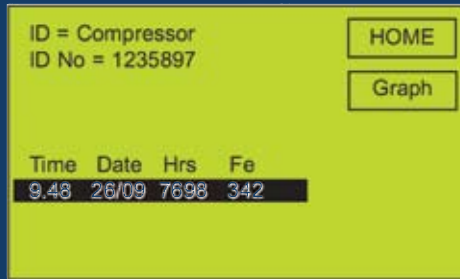
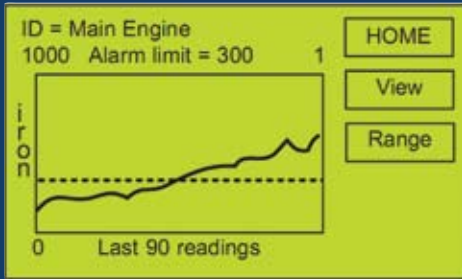


Kittiwake's new ferrous debris monitor, the ANALEX fdMplus

With the fdMplus, one is not limited to one sample medium. Samples can be analyzed from 50ml bottles, 10ml syringes, 5ml syringe or test tubes to 2ml grease pots! As fast as one can load the media, the fdMplus provides accurate measurement... <15 seconds per sample including a repeat read to verify accuracy of the measurement. For labs that would like to automate the test process, a robotic sample handler is available.

Please give us an idea of the types of fluids that companies will be able to check with your ANALEX fdMplus.

The beauty of the fdMplus is that it will measure ferrous wear debris in all types of oil – from gearbox lubricants through to hydraulics. And grease is included! The grease sample is placed into a small 5ml pot, placed into a special insert adapter, al-



Sample readout screens from the ANALEX fdMplus

allowing a measurement to be taken. The fdMplus is a totally flexible instrument.

What types of industries do you see as benefiting the most from the ANALEX fdMplus?

Any industry that is lubricating high capital value assets will benefit from using the fdMplus. Kittiwake provides condition monitoring instruments to marine, land based and offshore industries, so whether one is operating a cargo vessel, an offshore platform or a cement plant, the fdMplus will be a vital instrument in the armory against premature failures.

What types of contaminants can the ANALEX fdMplus detect, and what can't it detect?

The ANALEX fdMplus is a magnetometer and will, therefore, only measure metals which are magnetic. It is necessary to understand the relevance of measuring ferrous wear debris as many people will ask, "what about all the other metals?" Most parts in lubricated compartments consist mainly of iron. Should abnormal wear conditions occur it is typically iron wear debris that will be indicated. The fdMplus, therefore, is an important first line of defense, accurately tracking ferrous debris, and prompting further investigative action accordingly.

What industries do you think could benefit from using mobile Ferrous Debris Monitoring that haven't embraced it yet?

The ability of the ANALEX fdMplus to operate on 12v provides access to laboratory grade instrumentation for field usage. The remoteness of many industrial plants around the world that do not have ready access to either their own or a commercial lab makes this a vital tool. Specific

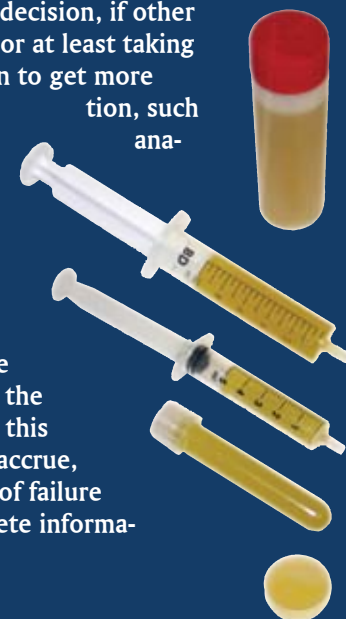
examples include remote cement plants in India, island power plants and floating barges in Indonesia, or mines in Australia.

What advantages are there to having this technology available in the field vs. using it through an oil analysis lab?

It happens, from time to time, that an oil sample indicates 'no problem' but, then, wear occurs immediately or shortly afterward, festering until the next regular interval for a sample has been reached. There are times when that interval is too long, and the component fails, or sustains severe damage that could have been detected.

The primary value for having an fdMplus onsite is for the 'earliest' warning of a potentially catastrophic failure, where ferrous particles reveal such developments. Catastrophic (fatigue or similar) failures are the types that move quickly once the mechanism triggers. An early warning allows the possibility of making an immediate (saving) decision, if other evidence supports, or at least taking a sample out-of-turn to get more complete information, such as performing analytical ferrography, to make a decision to take action or not. If it were possible to use the component under scrutiny more sparingly, based on the fdMplus's readings, this benefit would also accrue, minimizing chance of failure before more complete information is garnered.

One might liken this pre-warning



Various forms of samples that can be used in the ANALEX fdMplus

benefit to the chip detectors found on most aircraft lube sumps. As a corollary, if to a slightly lesser extent, sensor data provide the same relative early warning, and such data can be used in conjunction with oil analysis test data to provide a clearer view.

What are the three top reasons a company should consider investing in the ANALEX fdMplus?

1. *Easy: there is no learning curve with the fdMplus. Shake, load and measure...it is that simple..*
2. *Reliable: There are no moving parts or need to recalibrate!*
3. *Accurate ferrous metal results in PPM: no need for charts that cross reference arbitrary numbers... PPM is universal and when it is trending up... you have a problem.*

What is the time frame a company can expect for a return on their investment in an ANALEX fdMplus?

With this type of instrument, we would expect ROI to be typically less than one year. Exact measurements and predictions are difficult but consider a plant with vital lubricated assets in operation 24 hours a day, where inspection is only accomplished during the annual plant shutdown. If these assets were to suffer premature failure, plant down time and repair cost would be significant – often beginning at six figures. Constant trending of the ferrous wear debris in these assets would indicate when premature wear occurs, allowing early intervention prevent shut down and production losses.

How can interested people get more information about the ANALEX fdMplus and other Kittiwake products?

Contact Keith Macaluso with Kittiwake Americas at keithm@kittiwake.com or 678.905.5630 ext. 801. Also, please visit our website: www.kittiwake-americas.com

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