**PRESS RELEASE**

The costly implications of water in oil

***22 March, 2016:*** *The ingression of water into lube oil for critical rotating equipment can cause massive damage in the long run. It is an exponentially damaging contaminant which, if left unchecked, has the negative consequence of costing industries millions of rands in lost profit, per incident.*

Water moisture can find its way into lubricated components via seals, bulk reservoir breathers and general storage of equipment. Its interaction with oil of any contamination level is harmful, as moisture shortens the lifespan of services, components and of the oil protecting the equipment. It also promotes foaming, which leads to rapid increases in metal-to-metal contact, friction and higher temperatures. As a result, water reduces the lubricant’s viscosity and ability to lubricate.

The foaming leads to sluggish response from hydraulic control systems and cavitation in pumps and bearings. Moisture in a lubricating oil or diesel presents an opportunity for microbes to thrive and grow. The microbes live in the water and feed off the hydrocarbon. They grow to interfere with lube circuits and can block valves and filters. Microbial contamination is corrosive and can be toxic.

The presence of water in a bearing load zone produces superheated steam which creates a mini explosion inside the oil, similar to micro-dieseling in hydraulic systems. Through oxidation, this phenomena rapidly damages the oil and hardened fatigue cracks appear on bearing surfaces. What’s more, the presence of water can hydrolyse additives like extreme pressure and anti-wear, essentially denying equipment the protection that the additives are designed for.

The by-product is sludge water, which has similarities with other contaminants in the lube oil such as soot, resin, spent additives, oxides and dirt. These cluster into a sludge that will overwhelm strainers, in-line filters and eventually restrict oil flow in the system. A value of 0.1% water in oil will reduce the life of a rolling element bearing by as much as 40 times. As moisture is absorbed into the lubricating oil, it affects the lubricant’s film thickness and ability to separate lubricated components.

Wear control specialist Filter Focus manufactures products that have gained wide acceptance among power plants, steel mills, refineries, mines and other industrial facilities with rotating equipment. The company’s Vacuum Dehydrator and Oil Purification System is designed to assist companies in reducing operating costs by improving machine reliability, safety, performance and production.

Filter Focus COO **Craig FitzGerald** explains that the company’s Vacuum Dehydrator and Oil Purification System is highly effective at removal of dissolved, free and emulsified water, entrained gas, and particulate contamination for heavy and light gear oils of any grouping. “Using a Vacuum Dehydrator, overall water content can be reduced to levels below the water solubility point in the oil.”

By raising the oil temperature to approximately 50 °C and passing it through a vacuum chamber, FitzGerald notes that water turns to steam. “Even water that is tightly held in an emulsion is removed, along with the free and dissolved water. Our systems are equipped with high efficiency filter elements, which remove particulate contamination and entrained gases to ultra-low levels.”

FitzGerald adds that many companies have funds readily available in a maintenance budget to quickly purchase or rent a Vacuum Dehydrator onsite for emergency use or for scheduled maintenance operations. Similarly, many customers decide to hire an expert that specialises in oil reclamation and purification, to perform the dehydration service onsite. “Using a contractor is more beneficial, as they will bring both equipment and manpower, therefore the company can rely on an expert to purify its oil, and does not need to use its own maintenance personnel in that capacity.”

A complementary add-on to the Vacuum Dehydrator is Filter Focus’ revolutionary i-Commander GSM management system, which enables Plant and Equipment managers to remotely monitor the performance of their machines and oil cleanliness levels via an internet connection anywhere in the world. FitzGerald states that the i-Commander is a smaller, more affordable solution to a traditional PLC, and allows the user to control the required equipment or functions from a cell phone.

“It is the ideal solution for smaller systems that may not be covered by a PLC, but have certain aspects that need to be monitored, such as temperature, pressure and oil analysis. i-Commander allows the user to set the parameters that it functions within, setting off an alarm if the system operates outside of those parameters. With 24/7 control of a system through i-Commander, users will be aware of issues within the system before they become bigger problems. This provides the user with tremendous safety and efficiency benefits,” he concludes.

***Ends***

**Notes to the Editor**

To download hi-res images for this release, please visit [http://media.ngage.co.za](http://media.ngage.co.za/) and click the Filter Focus link to view the company’s press office.

**About Filter Focus**

Filter Focus SA (Pty) Ltd was formed in January 2002 with the aim of establishing the concept of combination filtration and eliminating contamination related wear and failures in heavy industrial equipment.

**Filter Focus Contact**

Craig FitzGerald

Chief Operations Officer

Phone: (011) 315 9939

Email: cfitz@filterfocus.co.za

Web: [www.filterfocus.co.za](http://www.filterfocus.co.za)

**Media Contact**

Jana Klut

NGAGE Public Relations

Phone: (011) 867-7763

Cell: 074 111 4900

Email: jana@ngage.co.za

Web: [www.ngage.co.za](http://www.ngage.co.za)

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