

WEARCHECK EXPANDS SERVICE OFFERING TO INCLUDE WATER TESTING

We have brought our sister company, Set Point Water Laboratories into the family, adding a new division to WearCheck's scientific testing structure.

The water analysis company is now integrated fully into WearCheck, and forms yet another area of expertise along with WearCheck's other services.

Set Point Water Laboratories is ISO 17025:2017 -accredited, and tests water from any source – ranging from drinking water to factory effluent, and everything in between – to determine the presence and levels of potentially harmful substances.

Set Point Water Laboratories was established in Johannesburg in 1998 as a minerals laboratory, then known as Set Point Laboratories. The company introduced water testing in 2013 and expanded with the launch of a Cape Town water laboratory in 2019, achieving accreditation of the Cape Town Laboratory in 2020, thereafter focusing only on water analysis.

Thelma Horsfield, general manager of Set Point Water Labs, outlines their services, 'Our laboratory technicians select the relevant tests for the water sample depending on the needs of the customer. They identify what is wrong with the water and advise customers on possible consequences of using / discarding such water.'

'Water analysis is conducted using various accredited techniques such as photometric, electrometric, colorimetric, gravimetric, ICP-OES, ICP MS and enzyme substrates. These techniques obtain the best possible results in chemical and microbial analysis of effluent/wastewater, drinking water, processed water, surface water and groundwater.'

'Through WearCheck, our water facilities provide analytical services through an extensive network of operations in South Africa and internationally.'

'And', adds Horsfield, 'as a result of the global Covid pandemic, we added alcohol content testing to our services as well as a newly-introduced logistics solution to enable easy movement of water and sanitizer samples.'

Previously, WearCheck was part of the larger Set Point group until the company was bought by current owners Synerlytic in 2019, along with SetPoint Water Laboratories.

Set Point Water Laboratories' contact details remain unchanged:

Cape Town (021) 111 0056

Johannesburg (011) 923 7100

Email: splinfo@setpoint.co.za

Web: www.setpointlabs.co.za



Water lab Snr lab assistant, Katego Mokoroane prepares samples to determine contamination levels in water samples in Set Point Water Laboratory in Johannesburg



Here, water lab assistant Andisiwe Gwavu is seen checking balances in WearCheck's Water Laboratory in Cape Town

SEASONS GREETINGS



We enjoyed a busy, productive year in 2021, despite the lingering global Covid situation, as well as the SA civil unrest in July, both of which have inspired extraordinary instances of extra special teamwork, which have made me proud of our team.

We've recently added a new service to our offering – water analysis as we absorb the previous Set Point Water Laboratories into the WearCheck family. Our Cape Town transformer laboratory and offices and WearCheck Water Analysis move into one high-tech location in early December. Our brand new state-of-the-art laboratory in Kathu is scheduled to open very soon.

Despite having to jump over stringent lockdown hurdles, our diagnosticians and technicians have travelled to many areas, both locally and internationally, to conduct invaluable customer training.

I extend heartfelt thanks to all our WearCheck staff for your dedication to offering professional service in spite of unusual obstacles, and also to all our customers for your continued support.

Festive Season opening hours

As always, we are dedicated to being available all year round, therefore we will remain open throughout the festive season to process samples. Staff in WearCheck laboratories in Cape Town, Johannesburg, Durban, Kathu and Middelburg will be available to facilitate samples throughout the upcoming holiday period. On 24th December, we will close at lunch time.

Thank you for your ongoing support, and we look forward to connecting with you in 2022 for another busy, exciting year in the field of condition monitoring.



Neil Robinson
managing director



2021 SALES TEAM CONFERENCE

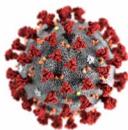
With laboratories and offices in 12 countries, the WearCheck sales team is busy growing the new customer base and supporting existing customers. The team meets regularly to share professional ideas, undergo training courses and network.

Gathering the sales team together in person at last after the international and local Covid regulations were relaxed slightly was a welcome respite from online meetings. Here, the team enjoys in-person time together in Gauteng recently, where they took time out to do a little game viewing.



Pictured at the recent WearCheck sales conference were, seated left to right: Shesby Chabaya, Melissa Keyter, Michelle Wium, Gerrit Fouche, Michelle Fourie, Donald Geyer, Daniel Boakye. Second Row left to right (standing): Werner Buys, Guy Letellier, Johann Reiners, Lorain de Bruin, Boniface Yuwama, Isaac Mabaso, Neil Robinson, Evan Meyer, Benjamin Owuso, Pierre le Roux, Louis Strydom, Scott Sowman. Last row in the vehicle left to right: Marvin Narainsamy, Phillip Croucamp, Gabriel Perengue.

JAB 'N' WIN!



WearCheck is doing its bit to encourage vaccination levels with a fun raffle for staff who have had the anti-covid jab. All that is needed to enter is proof of vaccination.

The raffle runs from October to January, with prize money increasing each month, totalling R20 000.

Pfizer dose prize winners with only one shot at the time of the draw will receive half the monies, with the balance paid after their second dose.



The winner of the WearCheck vaccination raffle in October was Leon Madurai, software support, who pocketed R2 000.

GHANA GOES BOLD!

WearCheck Ghana, with branches in Kumasi and Tarkwa, services the West African mining industry with the full spectrum of condition monitoring and reliability solutions services. The oil analysis team offers on-site sampling, with a 24-hour turnaround. The Ghana team is very proud of their smart new branded vehicle that facilitates offering excellent customer service



WEARCHECK JOINS AEMP STRATEGIC ALLIANCE PROGRAMME

Recently, the US-based Association of Equipment Management Professionals (AEMP) announced WearCheck USA, and by association, WearCheck Africa, as the newest member of its Strategic Alliance Programme. WearCheck, joins the ranks of Castrol, Caterpillar, JLG, John Deere, Komatsu, Shell Lubricants, Trimble, United Rentals, and Volvo.



Partners are integral to AEMP's programmatic growth. AEMP's education and training is designed to provide professional development for the equipment management profession, and Strategic Alliance Partners are a crucial "Equipment Triangle" component in enhancing their professional products.

WearCheck is a group of independent laboratories, spanning the globe, dedicated to oil and wear particle analysis. Each member country belongs to the WearCheck International Group (WCI). WCI is a consortium of laboratories guided by the WCI charter. The WCI charter outlines the necessary requirements to be a member of WCI, and includes specifications for testing capability, quality, and service. For more information, visit www.wearcheck.com.

Donté Shannon, FASAE, CAE, CEO of AEMP said, 'AEMP is pleased to welcome WearCheck as a new Strategic Alliance Partner. Having WearCheck at the table brings a welcomed unique and diverse Associate-member perspective. A long-standing supporter and investor in AEMP, I am glad to have them recognised among our other major partners.'

AEMP was formed in 1982, and advances careers of fleet professionals through education, certification, conferences and the AEMP Online University. AEMP's members work in construction, government, utilities, energy, and mining and other related sectors.

It's COOL(ANT) in Ghana!

WearCheck's laboratory at Tarkwa, Ghana has now added coolant analysis to the array of tests conducted on-site.

WearCheck Westville laboratory technician Trevor Pillay travelled to Ghana recently, to oversee training, instrument installation and calibration.

Trevor takes up the story, 'The coolant setup at our Tarkwa, Ghana laboratory mirrors our Westville laboratory, in that it has the ability to process up to 100 coolant samples a day. 'Samuel Yenyi, WearCheck Tarkwa laboratory supervisor, trained for two weeks at our Westville laboratory, covering the basics of coolant analysis, instrument setup and calibration, solutions and standards preparation, followed by more detailed coolant analysis training at our Tarkwa laboratory.



Samuel Yenyi, WearCheck Tarkwa laboratory supervisor is pictured at the new coolant station in Ghana

'New instruments added to our Tarkwa laboratory are a pH and conductivity meter used to determine the pH and the amount of total dissolved solids present, a digital refractometer used for determining the percentage of glycol and a dosimat, which is used to calculate the amount of nitrite present in the coolant sample.

'Our Tarkwa laboratory is responsible for processing coolant samples from all regions of Ghana. This coolant data is electronically transmitted to our Westville laboratory for diagnosis, resulting in quick turnaround times.

'We are proud that our Tarkwa laboratory is now a one-stop shop for fluid analysis, based on a competent team and a comprehensive laboratory setup.'

Farewell Sizwe



It is always tough to say goodbye to a dear friend, especially someone who has been part of the WearCheck family from virtually when the company started.

As Sizwe leaves on retirement, we would like to wish him well in this new chapter of his life and thank him for his commitment and dedication from day 1 to year 43.

Sizwe Ndlovu joined WearCheck on the 30th October 1978, that is over 43 years ago!

Ngyakuvalelisa futhi ngikufisela inhlanhla, Sizwe. Goodbye and the best of luck.

TECHNICAL TIP: THE LUBE SERIES

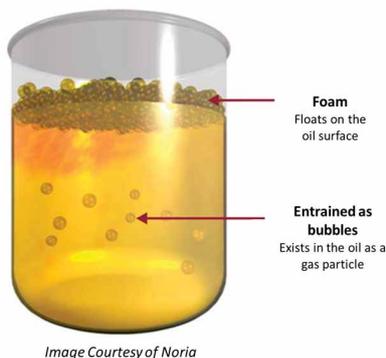
PART 4: FOAM INHIBITOR ADDITIVES – BURSTING YOUR BUBBLE

Our journey through the world of additives continues, this time we dive into the bubbly world of foam inhibitors.

What are they?	Methyl silicone and organic polymers
What do they do?	Prevent the formation of foam
How do they do it?	Reduce the surface tension of the air/oil interface allowing air bubbles to burst more readily

In the next three instalments of the Lube Series, we will introduce you to a very specialised group of additives known as interfacial additives, starting with anti-foam additives (also known as foam inhibitors). To understand the modus operandi of this underrated additive, we will first take you on a brief detour to discuss how air co-exists with oil, the resultant problems caused, an experiment that involves beer, a crustacean known as the deadliest gunslinger in the sea and, finally, we will explain how foam inhibitor additives work their magic.

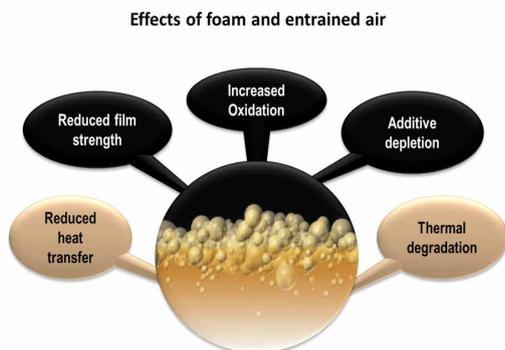
Air can exist in oil in three different states: dissolved, entrained and foam. Air dissolved in oil exists as individual molecules which are similar to CO₂ dissolved in soda water. Entrained air in oil is comprised of tiny air bubbles suspended in the oil. This type of air contamination is arguably the most damaging and can be identified by the oil having a cloudy appearance.



Finally, foam typically refers to the stable layer of relatively large bubbles that accumulate at the surface of a reservoir. In some systems, foam at the surface may not cause damage, but the presence of a foam layer normally indicates extensive air entrainment.

When we think of contamination in lubricated systems, we often focus on particulate and water contamination and, in the case of engines, by-products of combustion - but the perils of air contamination are seldom given much thought.

While great in champagne, tiny air bubbles can have negative effects



on lubricating oil and the mechanical system being lubricated. Air contamination can damage the lubricating oil by increasing the rate of oxidation and thermal degradation, depleting additives, reducing the oil's heat transfer ability, reducing its film strength and can also cause gaseous cavitation.

Gaseous cavitation occurs when gas bubbles become compressed inside a pump or a cylinder. When pressure on the oil increases past the point where the bubbles can compress further, the bubbles implode. The resulting shock wave produces noise and vibrations which can cause excessive wear. Cavitation bubbles generally need a surface on which to nucleate. This surface could be the sides of the reservoir, contaminant particles in the oil, entrained air bubbles or roughened internal surfaces.

To test the theory of nucleation in bubble formation, try the following beer and peanut experiment as described by Noria:

Take a freshly poured glass of beer and drop a salted peanut into the glass. Watch as the weight of the peanut causes it to sink to the bottom of the glass. But keep watching! After 10 to 20 seconds, the peanut miraculously rises to the surface again. The reason is that the salt grains on the surface of the peanut act as nucleation sites for the growth of gas bubbles, in this case, carbon dioxide from the carbonization process. When the peanut reaches the surface, the gas bubbles detach from the surface of the peanut and once again, the peanut will sink to the bottom, where the process starts again. Depending on how much salt is on the surface of the peanut, this activity can continue for several minutes, until finally all the salt is washed away and the peanut falls to its final resting place. Now isn't that a science experiment worth trying . . . Cheers!

Air contamination can also lead to a phenomenon known as microdieseling which, despite its name, has nothing to do with diesel and the problems it creates are anything but micro in magnitude. Microdieseling is a pressure-induced thermal degradation or, simply put, microdieseling occurs when gas bubbles become hot enough to ignite. An air bubble will transition from a low or negative pressure area to a high-pressure zone and, through adiabatic compression, get heated to very high temperatures. These temperatures are high enough to carbonise oil at the bubble interface, resulting in carbon by-products (sludge and varnish) as well as increased oil degradation (oxidation), higher operating temperatures, pressure spikes and cavitation erosion of hydraulic pump and other components.

Still not convinced that a teensy-weensy air bubble can be a problem? Well, say hello to my little friend, Synalpheus Fritzmuelleri - AKA the pistol shrimp - who has earned the title of the deadliest gunslinger in the sea.

Being called a shrimp doesn't exactly make you known for having formidable strength or an intimidating presence, but the pistol shrimp crushes this stereotype in a dramatic way and, more relevantly, perfectly demonstrates the destructive power of gaseous cavitation and microdieseling.

The pistol shrimp is approximately 3-5cm in length and shoots out a cavitation bubble from its enlarged snapping claw to kill its prey by stunning them.



continue pg 5...

WE ARE GROWING AND GOING PLACES

WearCheck Tete moves to Matola

Our Tete, Mozambique laboratory is relocating to Matola in Maputo - the new laboratory should be open on around the 13th December.

WearCheck Maputo laboratory manager, Louis Odendaal, looks forward to welcoming customers to the new laboratory. 'Our move to Maputo will be more convenient for many customers, however, our customers from the Tete region and all other regions in Mozambique can continue to send samples to us for processing.

WearCheck Maputo will be located at Esquina com En4 & Rua da Mozal Nr. 11/15, Bairro Mussumbuluco, Matola. They can be contacted on telephone +258 84 317-3781 or email supportmz@wearcheck.co.mz



TECHNICAL TIP...continued from page 4

The bubble travels at a sprightly 100Km/h and when it collapses reaches sound levels of 218dB. Just for context if you were standing 30m away from a running jet engine it would produce sound levels of 150 dB. The collapsing cavitation bubble reaches temperatures of 4720 °C.

A lesser known interesting fact for those budding WWII historians out there - the sound created by the piston shrimp threw an unlikely wrench into the allies' defence plans during World War II. The 'snap-crackle-pop' sound produced by this formidable marine creature began interfering with sonar used by the allies to detect enemy ships. This prompted the U.S. navy to enlist the help of marine biologists and acoustical physicists from the University of California's division of War Research. Fortunately, they were able to record the shrimp's sounds to train sonar operators to recognise them as sea denizens rather than enemies and the rest, as they say, is history.

Beer experiments and dangerous crustaceans aside, let's finish off this segment with the star of the show – the additive that bursts your bubble.

WearCheck CT moves to Brackenfell

WearCheck CT is in the process of moving to new and larger premises as we welcome Set Point Water Laboratories into the group. We anticipate opening on the 13th December.

WearCheck Cape Town's office can now be found at Unit 25, Reserve 3, Cnr Kruispad & Capricorn Way.

As our transformer lab remains at our current address, you will have the added benefit of having a second location to deliver your samples to.

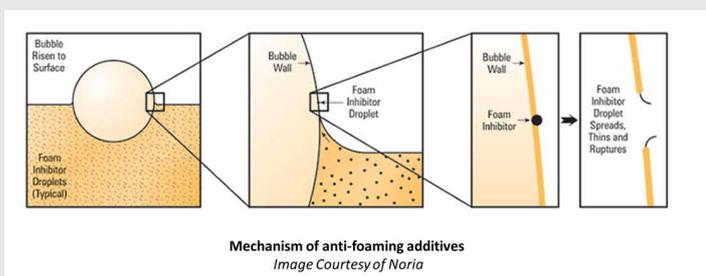
WearCheck Cape Town's contact details remain unchanged: tel +27 21 001 2100, email support@wearcheck.co.za and www.wearcheck.co.za

Foam inhibitor additives work their magic at the air-oil interface and that is why we refer to them as an interfacial additive. These additives are surfactants in that they reduce the surface tension of a liquid in which they are dissolved. The chemicals in this additive group possess low interfacial tension, which weakens the oil bubble wall and allows the foam bubbles to burst more readily.

Oil-insoluble silicone-based foam inhibitor additives, which are the most widely used in lubricant formulation, are not dissolved, but rather dispersed finely in the lubricating oil and very low concentrations (typically blended into the base oil at 5-20ppm) are usually required. If too much foam inhibitor additive is added, it can have a reverse effect and promote further foaming and air entrainment – this really is a case of too much of a good thing is bad!

Be sure to look out for the next instalment of the Lube Series in the WearCheck Monitor, where we will demystify demulsifier additives.

By Steven Lumley,
technical manager



COOLANT – MUCH MORE THAN ‘ANTI-FREEZE’

By Dave Scott

Coolant – what’s that? It is certainly not just water or pure anti-freeze. Listening to pump jockeys at filling stations offering ‘air, oil, and water’ to motorists is bad enough – that’s where it starts! Fleet audits reveal radiator header tanks being overfilled with water and not coolant in the correct ratio. Plus... approximately 20% of coolant samples received by WearCheck are either mixtures of different coolants, or the coolant in use is not what the customer thinks is in use. This can become a chemical porridge leading to engine failure and creates an escape loophole for engine warranty claims.

Firstly, WearCheck processes coolant samples where the glycol and/or inhibitor are low due to topping up with plain water. And it happens often enough for WearCheck to create a diagnostic code that says as much.

Secondly, tap water is not recommended for mixing with coolant. Very often borehole or tap water is premixed with coolant which is not good enough. Engine manufacturers recommend that only deionised water is used in a pre-mixed ratio with coolant inhibitor. Deionised water has been filtered or treated to remove ions.

There may be other materials still in the water but the ions – which could interact with chemicals in the coolant – are removed. Chemicals found in drinking water form scale and scaling creates hot spots, insulating the metal which then causes uneven cooling. Cylinder head scale can destroy an engine by causing overheating.

Thirdly, sealed systems incorporating expansion- or header tanks- only require topping up when they leak. A new vehicle does not leak. Is this not perhaps a case of merely overfilling to start the day, creating excess system pressure and future failures?

Fleet audits reveal an alarming lack of attention to coolant ratios. It varies from plain water to 30%- but seldom indicates a standard of 50:50 which is what most modern engines demand. Header tanks also show different coolant colours which mean various brands of coolant are being used.

Just because coolant is loosely and incorrectly referred to as anti-freeze, the tendency is to only use it during winter. A 50:50 premix ratio should be consistently used all year round for the more important reasons of corrosion and heat.

Stick to OEM specs

Original equipment manufacturers (OEMs) are very specific about the type of coolant used in their engines- whether petrol or diesel - and refuse warranty claims where non-specified coolant has been used. Given this, great care must be taken in not mixing incompatible coolants or adding an inappropriate coolant for a truck application. Because the right additives are often missing from typical over-the-counter automotive coolants, they should not be used in heavy-duty truck applications.

Coolant is clear when manufactured and a dye - ranging from dark green to bright pink – is added for colour. Coolant cannot be identified by colour alone and maintenance decisions should not be decided by colour. The colour makes it easy to inspect a fleet of trucks where the cooling system expansion tank is mounted upright behind the cab and coolant levels and colour are visible. A non-standard coolant will be clearly visible.

Air in the system leads to liner failure. A cooling system expansion tank is not just there for quick visual inspection and driver convenience. The expansion tank removes air from the cooling system. Air forms bubbles and steam pockets, attacking cylinder liners. In untreated systems, imploding bubbles of air bore through steel liners aggravated by liner vibration caused by piston movement. Nitrite in a coolant prevents cavitation /erosion. Nitrite in treated systems blocks imploding bubbles of air but firstly, all air must be removed via the expansion tank.

Standing orders

Attending to truck cooling systems is part of a job description – it must not happen in a casual and inconsistent way. One part of this duty falls on drivers during pre-trip checks and the other must be included for workshops and service personnel. There is no point in a driver getting the levels correct when workshops are using the wrong spec.

Coolant systems and specs vary between truck manufacturers. Here are the most common issues:

- Use a 50/50 coolant/deionised water mix all-year round.
- Always top up with a premixed solution – not with water.
- Check coolant level daily checking for coolant system leaks.
- Keep external intercooler/radiator fins free of debris – insects and grass.
- Check for bent or missing fan blades and for a proper fan shroud.
- Check drive belts and pulleys.
- Check hose clamp condition.
- Check the radiator pressure cap – not just the presence of a cap but its ability to keep pressure.
- Train drivers to report engines that are over-cooling- this is just as detrimental to engine wear as engines that run too hot!

Anti-Freeze – Really?

‘Anti-freeze’ does far more than lower the freezing point of engine coolant. Coolant inhibitor is more accurate terminology. Here is what coolant inhibitors will do:

- Remove excess heat from the engine
- Increase coolant boiling point.
- Protect engine components against corrosion.
- Prevent wet diesel engine sleeve liner cavitations; and finally....
- Protect the engine from cold weather freeze damage

OUT & ABOUT

Running training courses for customers – this is what WearCheck's trainers have continued to do around Africa despite Covid limitations – ensuring that customers get the most value from their condition monitoring programme. These are some of the training sessions that took place:

BLOEMFONTEIN - South Africa



Delegates from African Mining Services (AMC) and South32 attended oil analysis training courses with WearCheck training consultant Jan Backer

KLIPSPRUIT - South Africa



Delegates from Moolmans attended a two-day customised training course onsite with WearCheck training consultant Jan Backer (second from left)

CAPE TOWN - South Africa



WearCheck training consultant Jan Backer conducted these courses recently: WearCheck 1 (fundamentals of oil and oil analysis) and WearCheck 2 (result interpretation)

MOBIUS - South Africa



WearCheck Maputo manager Louis Odendaal conducted Mobius CAT 111 training recently – delegates are pictured here hard at work

GHANA



Ghana - Daniel Boakye, who handles sales and technical support for WearCheck Ghana, conducted basic lubrication and oil analysis training at Rocksure International's Asanko Mine – he is pictured here (left) with some of the delegates

ZAMBIA



Zambia - Boniface Yuwana, who handles sales and technical support for WearCheck Zambia, conducted sampling training at Unitrans – he is pictured here (second from left) with some of the delegates

TEAM TALK

LONG SERVICE



We believe that long-serving employees who spend many years working at WearCheck are a great asset to the company, because of their familiarity with the systems and processes, they have invaluable experience, and they know the customers very well, helping to make WearCheck successful.

So says HR manager Michelle Padayachee in honour of all long-serving WearCheck staff, and in particular, those who have reached major milestones recently: Malcolm Govender (20 years), Danny Nkomo (15 years), Marcelle Symons (15 years), Simon Mosima (15 years), and these people who reached their 10 year milestone with WearCheck: Cathy Jones, Nomusa Chamane, Rufus Mathekgane, James Tshabalala, Sibusiso Manala, Thomas Mdhala, Phillip Croucamp, Colleen Van der Merwe and Lorraine Mokgethi.



Westville lab assistant Malcolm Govender has worked at WearCheck for 20 years.



Johannesburg-based driver Danny Nkomo has worked at WearCheck for 15 years



Johannesburg-based RS technician Marcelle Symons has worked at WearCheck for 15 years



Ellisras-based RS technician Simon Mosima has worked at WearCheck for 15 years

Making Headway

Our WearCheck team is growing, with new employees bringing additional skills and a presence in new regions. We extend a hearty welcome to our new people, and congratulations to those who have been promoted recently:

West Africa - Ghana

Benjamin Owusu has joined WearCheck's West African family as country manager of WearCheck Ghana. Ben holds a BSc degree in Mechanical Engineering as well as several other mechanical engineering qualifications. He brings with him plenty of experience in the condition monitoring arena – most recently he was the project engineer for a major multi-national engineering consulting firm, providing reliability and condition monitoring training to the gold mining industry in Ghana. His vast knowledge of mining machinery maintenance procedures stands him in good stead for this position, along with his skills in technological innovations that enhance asset performance and staff training.



Benjamin Owusu

WearCheck South Africa

- Marvin Narainsamy was promoted to the position of financial manager, based at WearCheck's Westville head-office.
- Kevin Jonker has joined WearCheck's reliability solutions team as RS technician, based in Joburg.
- Tumelo Seobi was promoted from senior laboratory technician to WSL Senior Laboratory Technician in Johannesburg.
- Lloyd Ngobeni joins WearCheck's reliability solutions team as inspector based in Rustenburg



Marvin Narainsamy



Kevin Jonker



Tumelo Seobi



Lloyd Ngobeni

WEARCHECK EMBRACES COMMUNICATION TECH

One of the latest technological innovations employed by condition monitoring specialists, WearCheck, is enabling the company's sophisticated online system to send customers their reports via WhatsApp.

Managing director, Neil Robinson, says WearCheck is constantly exploring how technology can enhance the customer experience as well as continuously improving condition monitoring techniques.

WearCheck's IT manager Eddie Perumal explains, 'WhatsApp has proven its convenience and has become an integral part of people's lives. It adds value by allowing us to communicate with maintenance teams who may be on the factory floor with their mobile phone, rather than waiting until they are sitting behind a desk checking emails. Therefore, we felt it was fitting to incorporate the option of sending reports to our customers via WhatsApp,' he said.

Customers can select from three message options – one page report, two page report or status. Reports include fleet information, problem type and diagnosis. This feature applies to critical and urgent samples.

Another powerful tool is WearCheck Online, a web-based system which allows customers to view their sample reports and fleet information, as well as submit their sample registration details and feedback.

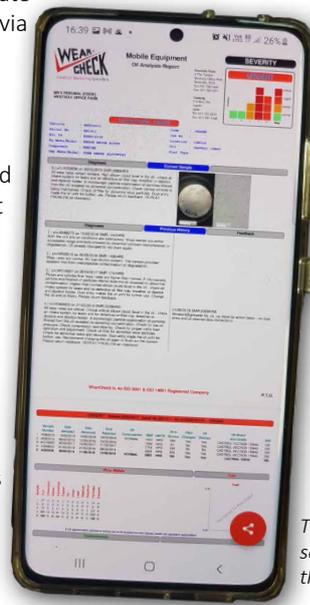
WearCheck Online comes with a variety of features to assist customers to manage their oil analysis programme. Some of these include:

- Current samples list, which shows unread reports.

- Print sampling labels using A4 self-adhesive labels.
- Trend-based graphs, problem-type graphs, and pivot tables.
- Component analysis- view the results of one or more components in a single graph.
- Basic user information for staff in the reporting hierarchy, including reports read, sample submissions, feedback entered. Various search options and filters are available, including sample history and equipment or component searches.

An extension to the online system - WearCheck's mobile app, which was pioneered four years ago- has been well received in the marketplace.

It offers similar features to the online system with the option to "Ask a diagnostician," where the customer can enquire about a specific sample. Customers can also use their mobile device to quickly scan their sample barcode.



Robinson concludes, 'Many industries benefit from WearCheck's services, among them mining, earthmoving, industrial, transport, shipping, aviation and electrical operations. As optimal machine condition is critical in all these industries, and the WhatsApp service enables real-time maintenance issues to be shared, enabling instant decision-making, the new service will add enormous value to our condition monitoring services.'

To sign up for WearCheck's WhatsApp service, the company's customer services division can assist, and can be reached on custserv@wearcheck.co.za or telephone (031) 700-5460. For more information, please visit www.wearcheck.co.za.

This is what some of the WearCheck reporting technology looks like, sending critical information to customers' mobile devices and enabling them to make instant maintenance decisions based on real-time data

CUSTOMER SURVEY 2021

Thank you kindly to everybody who participated in our annual customer survey. We really do listen to your feedback, and it drives the move for change and improvements to our business processes – thank you for your input.

Kay Meyrick, WearCheck sales developer, was happy to review the compliments from our valued customers. Some of these are listed below:

Customer service that exceeds our expectations.

Staff knowledgeable of their products and well trained. Turnaround time is awesome and always willing to help.

I would just like to thank WearCheck for the awesome service. Overall excellent service if we ever need anything - you always assist with a quick response and accurate data.

Very satisfied with service.

The experience is professional with a personal / professional line of communication.

Always friendly, helpful. Always excellent service. Thank you.

TESTING DIESEL SAMPLES FOR IP

by John Evans, diagnostic manager

Diesel can be subjected to a variety of chemical and physical tests in the fuels laboratory. One of the most common and important things to look for is contaminants, the most common of which are dirt and water.

Diesel can also be contaminated with other fuels and solvents, in particular illuminating paraffin, or IP as it is known. IP is a readily available power source for domestic lighting, heating and cooking. Chemically it is very similar to diesel, but because it used as a domestic power source it is not subjected to the taxes and levies that diesel is - in other words, it is cheaper than diesel.

The less-than-honest members of our society have taken to doping diesel with IP and, because it is so similar to (but not exactly the same as) diesel, a diesel engine will run quite happily on a diesel/IP mixture at less than the cost of diesel. Although the engine will run without problem in the short term, in the long term the IP will be quite damaging to the engine. IP has a lower viscosity and less lubricity than diesel and will cause damage to the components of the fuel system.

Although the price difference may not be huge (about R16 for diesel and about R12 for paraffin) if you think of the thousands of litres of diesel used every day, doping diesel with ten or twenty percent paraffin represents a large cost saving and loss of revenue for the revenue services (SARS).

The effects of IP contamination on diesel are that the viscosity, density and flashpoint will decrease, and the sulphur concentration will increase. IP also has a lower lubricity than diesel. Low viscosity and lubricity mean increased wear of fuel system components. Low density means you get less bang for your buck (more litres of fuel required for the same number of kilometres travelled). Low flashpoint could become a safety issue and elevated sulphur could impact the emission controls of modern engines. Interestingly enough, small amounts of IP may not affect the properties of diesel enough for it to fail the Bureau of Standards specification SANS 342 so, IP can be present, yet the fuel will still pass the specifications of SANS 342. In fact, IP is often, legally added to diesel in small amounts by the refineries as it helps prevent the diesel from waxing

(freezing) during the cold winter months in-land. Doping diesel with IP, in the long term, is not a good idea and it is also illegal.

Because this type of doping represents a loss of income for SARS, they have introduced a chemical marker into illuminating paraffin sold in South Africa. The marker comes from a company in the United States called Authntix, a company that specialises in brand protection and anti-counterfeiting. This marker is added to IP at a precise concentration once the product leaves the refinery.

It is possible to test for this marker, the test kit is lateral flow test kit, and is similar to those used for testing for Covid or even pregnancy. The answer is just a simple yes or no, the marker either was or was not detected. The test kit is very easy to use and takes hardly any time at all. What it cannot tell you is how much IP is present. What is important to re-iterate is that if the IP came from a source that was not marked, for example, from across our borders, where markers are not used, then no marker will be detected, yet the sample could still be contaminated, and not by enough to fail the other physical tests that are carried out, for example, viscosity, density and flashpoint.

Further testing is possible, however. The diesel sample can be sent to a SARS-approved laboratory where they use an instrument called a GC-MS (gas chromatography – mass spectroscopy) that can measure the actual amount of the marker that is in the fuel and from that it is possible to calculate the actual amount of IP in the fuel.

The reason for having two levels of testing is because (at the time of publishing), the lateral flow test kits cost about R500 whilst the actual percentage test costs around R5500 (more than ten times the lateral flow test) and has to be outsourced.

Although it is possible for gas chromatography to be carried out on the suspect diesel sample to look for IP itself, because of the very similar physical and chemical characteristics of the two liquids and the large number of compounds in each, the process is slow, expensive and not particularly accurate.

Business looted - Free transformer oil tests

Was your transformer negatively impacted by the civil unrest that decimated many businesses in KZN and Gauteng in July?

If so, WearCheck is offering free transformer oil testing for the next six months, until February 2022, for any businesses whose buildings were vandalised during the riots.

Gert Nel, transformer division manager for WearCheck extends a sincere offer of assistance. 'We are reaching out a helping hand to support the business community after the traumatising riots and looting, which severely affected many companies. 'In the spirit of nation-building, we want to help businesses, whether or not they are existing WearCheck customers, to be able to operate again as quickly and as safely as possible.

Our transformer team is standing by to assist affected companies. Where maintenance work is needed, we will conduct both pre- and post-repair tests at no cost.'



To book a free transformer oil test, email gertnel@wearcheck.co.za. Alternatively, please visit www.wearcheck.co.za or call our head office on +27 (31) 700-5460.

The value of training

“An investment in knowledge pays the best interest.”

Benjamin Franklin

WearCheck runs a range of oil analysis and condition monitoring training for maintenance practitioners operating at various levels within an organisation.

We are proud of our association with the internationally-acclaimed Mobius Institute and have been an accredited training partner for since 2015.

In 2022, we will introduce Wind Turbine Oil Analysis training to our existing onsite and online offering.

Course	Days
Precision Shaft Alignment	3, incl. practical
Precision Balancing	2
Vibration Analysis ISO CAT I	4, incl. exam
Vibration Analysis ISO CAT II	5, incl. exam
Vibration Analysis ISO CAT III	5, incl. exam
Asset Reliability Practitioner- advocate (ARP-A)	3, incl. exam
Asset Reliability Practitioner- engineer (ARP-E)	5, incl. exam
Asset Reliability Practitioner- leader (ARP-L)	5, incl. exam
Lean Maintenance Planning	1
Operator Asset Care	1
Transformer Oil Analysis	1
Oil Analysis 1	2
Oil Analysis 2	1
WearCheck Practical (English / Zulu)	½
WearCheck Customised	2

OIL ANALYSIS COURSES

Courses offered onsite and online.

	Oil Analysis 1: Understanding oil and its analysis (2 CPD points)	Oil Analysis 2: Report interpretation (1 CPD point)
Course length:	Two day workshop	One day workshop
Bloemfontein	July 19-20	July 21
Cape Town	February 22-23	February 24
Durban	August 16-17	August 18
East London	June 21-22	June 23
Johannesburg	February 15-16	February 17
Johannesburg	September 13-14	September 15
Kathu	June 7-8	June 9
Kathu	October 18-19	October 20
Middelburg	March 8-9	March 10
Namibia	November 8-9	November 10
Nelspruit	April 5-6	April 7
Port Elizabeth	May 24-25	May 26
Richards Bay	March 15-16	March 17
Rustenburg	May 10-11	May 12

	Wind Turbine Oil Analysis : 2 day workshop
Location:	Two day workshop
Cape Town	November 15-16
East London	October 25-26
Port Elizabeth	September 20-21

All the public courses listed in the WearCheck training schedule can be presented at the customer’s site of preference in South Africa or abroad.

We have the pleasure of offering customised training content to suit your requirements, your dates and your location. Customised training on offer includes sampling of lubricating and transformer oils, lubricant storage and handling, introduction to oils and concise oil analysis for workshop technicians.

WearCheck offers other on-site courses on request:

- WearCheck Practical (in English or Zulu) (half day)
- WearCheck Customised – oil analysis for workshop technicians

For more details on course content and prices, please view Training at www.wearcheck.co.za. To book the above courses, please contact Michelle van Dyk on training@wearcheck.co.za or call +27 31 700 5460 or +27 82 381 3321

MOBIUS TRAINING

PUBLIC / ONLINE MOBIUS COURSES*

Course	CPD points	Date 1	Date 2	Date 3
Vibration Analysis – CAT 1	4	17-21 Jan	9-13 May	12-16 Sep
Vibration Analysis – CAT 2	5	14-18 Feb	13-17 Jun	10-14 Oct
Vibration Analysis – CAT 3	5	14-18 Mar	18-22 Jul	21-25 Nov
Precision Maintenance - Balancing		11-12 Apr	15-16 Aug	12-13 Dec
Precision Maintenance - Alignment		13-15 Apr	17-19 Aug	14-16 Dec

To book a Mobius training course, please contact Eddie Pieterse Jnr on +27 83 793 0923 / edwardfp@wearcheck.co.za or Louis Peacock +27 71 680 2967 / louis@wearcheck.co.za.

The vibration courses can be presented online or onsite at a customer's premises for a minimum of seven delegates. For on-site training, there may be an additional charge for the lecturer's travel and accommodation.

Please note that Precision Balancing and Shaft Alignment courses can not be conducted online.

TAKE A TRIP INSIDE THE LAB

Have you ever seen inside a laboratory? Would you like to? Well, you can easily take a virtual 360° tour of WearCheck's Westville laboratory, where oil analysis and transformer oil analysis and other condition monitoring tests are conducted. Simply click [here](#) and enjoy the tour!

UPCOMING EXPOS

Due to ongoing Covid-19 lockdown protocols, these events are tentatively planned for 2022:

CBM Conference: 5 - 7 April 2022

African Mining Indaba: 9 – 12 May 2022

African Utility Week/Enlit: 7- 9 June 2022

Electra Mining Africa: 5 – 9 September 2022

Windaba: Dates to be confirmed

HIGHLIGHT YOUR SUCCESS

If oil analysis has helped prevent a major failure or saved your company money, we would like to feature this in *Monitor*. Our writer will contact you for the details and will write the article for your approval. Simply email marketing@wearcheck.co.za and we will contact you.

TECHNICAL BULLETIN TOPICS?

Is there a particular subject you would like to see featured in a *Technical Bulletin*? Simply email your suggestion to marketing@wearcheck.co.za. Before you do this, why not check out the more than 60 titles already available on the web site: www.wearcheck.co.za

Planet-friendly option

WearCheck no longer prints hard copies of our *Monitor* and *Technical Bulletin* publications. Should you wish to be included on our digital mailing list please scan the QR code or e-mail a subscribe request to: marketing@wearcheck.co.za.



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