WEAR CHECK
Condition Monitoring Specialists
THE MONITOR
ISSUE 87

WEARCHECK IS GROWING AND GOING PLACES

Our Cape Town operations just received a massive boost in the form of brand new offices and laboratory in Brackenfell. Now, our Cape Town transformer laboratory, the sales office and our sister operation - Set Point Water laboratories – are all at the same premises.

WearCheck Cape Town's laboratory and offices are now at Unit 25, The Reserve 3 Business Park, 2 Capricorn Way, Brackenfell, and the phone number remains the same: (021) 001 2100.

Gert Nel, transformer division manager for WearCheck, is happy to have all the Cape-based services under one roof. Customers are benefiting as the new location is very accessible from major roads and is also closer to many customer operations, making sample drop-off even easier.

'Business operations will be even more streamlined with our teams now all in one place, and samples will be processed quickly,' said Nel.

All under one spectacular roof – WearCheck Cape Town has consolidated the sales office, the transformer laboratory and the Set Point Water laboratories into a high-tech new workspace in Brackenfell. Pictured at the launch is Transformer Division manager Gert Nel (grey shirt), with some of the delegates

WearCheck recently relocated their Cape Town operations to a new laboratory/office in Brackenfell, which houses the company's transformer laboratory, their sales office and sister operation Set Point Water laboratories

WearCheck Tete moves to Maputo

Our Tete, Mozambique laboratory has relocated to Matola, Maputo.

WearCheck Mozambique country manager, Louis Odendaal, looks forward to welcoming customers to the new laboratory. 'Our move to Maputo is 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 via the courier service.'

WearCheck Maputo is 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

WearCheck Maputo is open for business! Pictured here in the laboratory are Sales & Technical Support, Gabriel Perengue (left) and Frank Chokonda, Zimbabwe Lab Manager (right).

WearCheck Mozambique staff are standing by to welcome customers to their new lab, which opened in December. Seen here are (left) Helder Jose, Lab Supervisor , (Middle) Gabriel (Right) Frank.

INHIBITORS IN MINERAL INSULATING OILS

by Cathy Jones
WearCheck Transformer Diagnostician

Mineral insulating oils undergo degradation in the presence of oxygen to give a number of oxidation products. The final products of oxidation are acidic compounds that can result in sludge. This sludge increases the degradation of the cellulose insulation as well as causing damage to the components of the electrical unit. One way to prevent this damage is to incorporate an oxidation inhibitor that will delay the free radical process of oxidation.

Uninhibited electrical oils contain no additives but, by careful selection of crude oil and refining techniques, will contain natural inhibitors.

Inhibited oils contain small amounts of antioxidant – an additive that will inhibit oxidation, thus increasing chemical stability.

These inhibitors will retard the oxidation process until such time as they are expended. The rate at which this happens is dependent upon the amount of oxygen available, soluble contaminants and catalytic agents in the oil as well as the temperature of the oil.

Modern transformers are either sealed to exclude air and moisture or protected by an inert atmosphere, such as Nitrogen, so that the benefits of the inhibitors can be extended over many years. As the inhibitors are depleted, so the rate of oxidation increases.

Oil regeneration and purification can improve the oil so that it regains most of its original characteristics, but has no effect upon restoring inhibitors. Both Fuller's earth and activated alumina promote the removal of inhibitors and the reclaimed oil has even less resistance to oxidation. To offset this, synthetic oxidation inhibitors can be used to extend the life of the reclaimed oil.

Inhibitors can be analysed by means of High Pressure Chromatography, which is carried out in WearCheck's Durban laboratory.

It should be noted that additives in inhibited oils are depleted at a greater rate than the natural inhibitors in uninhibited oils. This would influence the monitoring intervals, so it is advantageous to know the type of oil to be analysed.

WearCheck India boosts service with new lab equipment

WearCheck India recently added a brand new Flash Point Tester D93 to their laboratory.

The advanced instrument was installed successfully by Acute Scientific Engineer in our laboratory in Chennai.

Flashpoint testing measures the temperature at which a volatile material vaporises, forming an ignitable mixture.

Country manager for WearCheck India, Nissar Ahamed, is delighted to add the new technology to their high tech lab. 'We carried out a few diesel and biodiesel samples using the 70 ml cell, and everything works perfectly. We tested the new machine against our internal standards such as 15W40 and hydraulic oils and are pleased to report that it shows perfect results,' he said.

WearCheck in Chennai, India, recently added a brand new Flash Point Tester D93 to their repertoire of world class laboratory instruments

A sneak peak - Kathu lab coming soon!

Work is progressing steadily on WearCheck's new site at Kathu, which we aim to open in May The laboratory will consist of three converted containers equipped with the latest scientific instruments with experienced laboratory staff offering world class service.

HOOKED ON FISHING

WearCheck lab assistant, Hajra Ahmod, has taken the world of angling by storm, after being selected to fish for the KZN ladies' team at the Nationals in February.

A biomedical scientist by training, Hajra joined the WearCheck family in 2020. Outside of her laboratory work, she loves all things outdoor- fishing, animals, science and adventure.

Hajra, a self-described tomboy, who is "hook, line and sinker" addicted to the sport, takes up the story.

'When I was aged 7 my dad took me and my sister (my die-hard fishing partner) to the Durban harbour on weekend family outings – this is where my love for fishing began. Over the years, fishing became a daily hobby for me. At University, it was a great stress reliever during exams.

'These days, I fish various different facets including freshwater, dam fishing for bass and trout, rock and surf for edibles and inedibles (sharks and skates), boat fishing in the harbour as well as deep sea fishing, fly fishing, and ultralight spinning with artificials (lures). Basically, any type of fishing and I'm there!

'My favourite facet is rock and surf. I began fishing for inedibles in December 2020 after Ray Thompson, my mentor, introduced me to this facet. I have fished various areas including St Lucia, Cape Vidal (my favourite place) and Mtunzini in the Northern region, Port St Johns in the Transkei, Scottburgh, as well as Kokstad and the Drakensburg inland.

'My most exciting experience was fishing Kokstad during the 2021 winter with temperatures at -11. We were fly fishing for rainbow trout over an actual frozen body of water.

'In 2021 I began fishing competitively after joining Reunion Angling Club, and I became the first female ambassador for our most well-known, oldest tackle store - The Kingfisher - and the brand they carry, Daiwa. And then, most exciting, I was selected to be a part of the KZN ladies' team for 2022 to fish the Nationals and represent my Province.'

Hajra Ahmod, WearCheck lab assistant, shows off a giant sand shark that she caught while training for the Fishing Nationals recently.

Hajra Ahmod proudly wears her KZN Angling Team blazer after being selected to represent her province in the Nationals in February.

At the Nationals, held at Zululand, Mtunzini and Port Dunford, Hajra competed against 26 other talented and experienced ladies from around South Africa.

Hajra and her sister, Saffiya, were two of the first people of colour (out of three) to make the KZN ladies' team.

'The Nationals are not for the faint-hearted', says Hajra. 'We fished for three consecutive days, eight hours per day in blistering heat, deep water wading, the most challenging big sea and very few fish. Overall, I placed 9th across all provinces. My sister placed 8th.

'Importantly, catch and release is something I try to promote to maintain our ocean and keep fishing sustainable. A lot of our local reefs are absolutely overfished leaving behind exhausted stocks and more additions to the endangered list.

'This goes hand in hand with quick handling of fish, especially bigger sharks and rays. We assist those around us with landing and releasing these specimens as quickly as possible to ensure they swim off strong.

'My goal as an angler is to introduce more females to the sport and encourage more ladies to fish with us - there is massive room for opportunity in this facet.

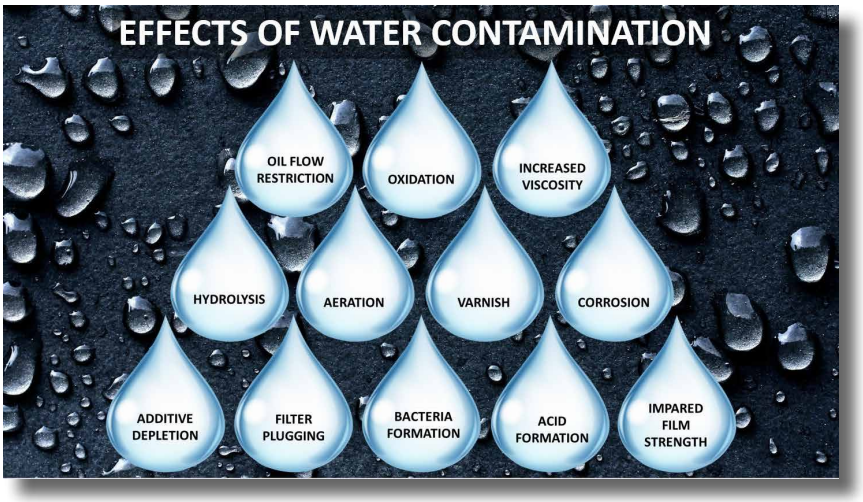
'I fish almost every day after work in every type of weather – from pouring rain to thunderstorms, extreme heat and cold – you name it, I am there fishing in it!'

What does Hajra do when she isn't fishing? 'I am preparing for the next fishing trip or cleaning my fishing tackle!"

So, what's so special about fishing? In the words of American ichthyologist Eugenie Clark (also fondly known as The Shark Lady), "Sharing the fun of fishing turns strangers into friends in a few hours."

TECHNICAL TIP: DEMYSTIFYING DEMULSIFIER ADDITIVES

BY STEVEN LUMLEY, TECHNICAL MANAGER



What are they?	Organic soaps and soaps of fatty acids, organic polymers.
What do they do?	Encourage water to separate out of oil.
How do they do it?	Break down the oil-water interface so that water droplets can coalesce and sink.

The effects of water on oil and the system being lubricated are insidious. Water is one of the most destructive contaminants in almost all lubricants and applications. It attacks the base oil, the additives blended into the oil and the mechanical system being lubricated.

Water can hasten the oxidation of a lubricant and ultimately shorten its service life. It encourages the build-up of sludge and varnish, and causes metal parts to rust and corrode.

But wait, there's more! Water can also deplete the lubricant's film strength, making components more vulnerable to wear, while stripping the lubricant's additives which impacts its performance and diminishes its ability to protect metal surfaces.

Many oils separate well enough from water on their own, but some base oils and additives are prone to forming a stable emulsion when water is present, and, as such, require the addition of a demulsifier additive.

Demulsifier additives prevent the formation of a stable oil-water mixture or an emulsion by changing the interfacial tension of the oil so that water will coalesce and separate more readily from the oil.

This is an important characteristic for lubricants exposed to steam or water so that free water can settle out and be easily drained off at a reservoir. Most engine, gear, hydraulic and turbine lubricants are formulated with this additive.

Just to be clear, demulsifier additives don't stop the ingress of water into the oil but instead allow the water to separate out more readily and in so doing limit its destructive potential.

An interesting fact about this lesser known additive - the chemical compounds used to create demulsifier additives are actually the same group of chemicals that are used to form stable oil-water emulsions in oil-water-based metal-working fluids and fire-resistant fluids but in much lower quantities. That's right folks, the same stuff that demulsifies can also emulsify if large enough quantities are added.

Be sure to look out for the next instalment of the lube series in the WearCheck *Monitor* newsletter, where we will review our final interfacial additive – dispersants.

WINNING WITH WEARCHECK!

The winner takes it all!! Morné van Niekerk of Earthmovers is the winner of the lucky draw prize for customers who completed the 2021 WearCheck customer survey.

Here, he receives his prize from Philip Croucamp, WearCheck's national sales manager (right).

The WearCheck family has grown with the recent acquisition of Set Point Water Laboratories. Incorporating these specialised water analysis skills into our business, means we can offer our clients diverse testing and analysis options. Visit our website for more info.

The importance of water quality monitoring

By Moses Lelaka, Technical Water Lab Manager

When we turn on the tap and run a hot bath, fill up the glass of water for drinking, go for a swim in the deep blue oceans or fry up a freshly caught fish from the lakes, rivers and dams or even streams, most of us take it for granted that these are all safe actions. The truth of the matter is that the scientists, water boards, engineers, local authorities and water quality specialists are working tirelessly behind the scenes to ensure that the quality of this precious commodity is as high as possible.

Living organisms need water to survive. All oxygen-dependent organisms need water to aid in the respiratory process. Some organisms such as fish can only breathe in water. Other organisms require water to break down food molecules or generate energy during the respiratory process.

Water quality is a very critical practice carried out in countries around the globe. The South African Department of Water and Sanitation has committed to effectively implement the blue drop and green drop certification programmes which call for excellent drinking water and wastewater quality management in the country. The World Health Organisation (WHO) has continually produced guidance on the management of drinking water quality since 1958 when it published the international standard for drinking water.

What is water quality? Water quality can be defined as the measure of suitability of water for a particular use, based on these characteristics:

- Physical characteristics - temperature, colour, sediments suspended in water
- Chemical characteristics - dissolved oxygen, acidity nutrients, dissolved salts, pH etc
- Biological characteristics- bacteria, algae and waterborne plants

Human activities cause changes in these attributes and thus affect living resources over time. Sewage, industrial chemicals, heavy metals from industrial processes, and household cleaners are just a few examples of materials that are commonly discharged into rivers and streams.

Additional water pollutants include chemicals, pesticides, fertilizers, motor oils, litter and other components of polluted runoff.

The other way that human activities impact on the water quality is by changing ecological process that naturally purify water. Healthy aquatic ecosystems such as wetlands, streams, bays, and oceans have natural processes that purify water of wastes. Micro-organisms decompose organic waste into nutrients that can be absorbed by plants.

Wetlands act as natural filtering systems as they trap sediments, hence preventing the sediments from reaching the streams.

The most common direct impact on wetlands includes removal of vegetation and building/construction. All these activities can result in increased flooding, extinction of certain species as well as the decline in water quality.

Why monitor the water quality?

- Monitoring provides the evidence necessary to make decisions on managing water quality today and in the future. This alerts us of the current, ongoing and emerging problems to determine compliance with drinking water standards and to protect other beneficial uses of water such as irrigation.
- Water quality monitoring also assists the law-makers and water managers to formulate new policies to better protect human health and the environment.

WearCheck's experienced team of water analysts tests a wide range of water samples every day to determine the water condition and whether it is safe for human consumption, swimming, irrigation, industrial use and whether it complies with the strict disposal requirements.

MAKING HEADWAY

As the demand for WearCheck's world-class condition monitoring services grows throughout Africa, the team is expanding to accommodate the surge in work, and certain members have been promoted, all to ensure that the company's signature customer service excellence continues to shine.

We welcome some exciting new team members, and congratulate those who have been promoted:

DURBAN - South Africa

When you pick up the phone and call WearCheck, the first person you're bound to encounter is our bubbly new receptionist, Bongiwe Mpanza.

Devashnee Chetty has been appointed as customer services officer based at WearCheck's Westville office.

Lynette Pillay has been promoted to transformer lab manager, based at WearCheck's Westville transformer laboratory.

CAPE TOWN - South Africa

Hugo Lochner has joined WearCheck's Cape Town team, where he handles technical sales.

INDIA

Bhupendra Dilip travelled from WearCheck India to undergo diagnostic training at WearCheck in Durban recently.

OUT AND ABOUT

Daan Burger, WearCheck consultant, conducted oil analysis training at DP World in Maputo, Mozambique. Some of the delegates are pictured here hard at work in the classroom

LONG SERVICE

Dedicated team members who work hard and give the company many years of faithful service are some of WearCheck's greatest assets, and the company appreciates their loyalty.

HR manager Michelle Padayachee praised the faithfulness of staff members who have served WearCheck for many years. 'We are grateful for your loyalty and commitment. Thanks to your insight and long experience, our team is able to provide top class service to our customers.'

Michelle mentioned several team members who have reached important long service milestones recently. 'This year, Pearl Joseph celebrates 40 years with WearCheck – that is four whole decades!

'Diagnostician Rowan Maartens has been with WearCheck for 40 years, although for the last year he has served as a consultant, he is still part of the team. Eva Francis has notched up 35 years in the WearCheck family. Well done!'

Accounts clerk Pearl Joseph has worked at WearCheck for 40 years

Diagnostician Rowan Maartens has worked at WearCheck for 40 years, and has diagnosed over 2,75 million samples

Admin clerk Eva Francis, in the data processing department, has worked at WearCheck for 35 years

SIZWE RETIRES AFTER 43 YEARS AT WEARCHECK

1978 was the year when Sizwe Ndlovu joined the WearCheck family, 43 years ago. In the early 1970s, WearCheck began operating - initially as a soil analysis company - which later changed to oil analysis in 1976.

So, Sizwe began his career as stores assistant, where he was responsible for keeping the stores clean and tidy at the then fledgling oil analysis company.

Fast forward 43 years, and Sizwe was in charge of the store-room, as well as holding many other responsibilities, which included looking after all the chemicals used in the laboratory. He re-ordered chemicals and gas cylinders when stocks got low and filled all the machines with chemicals. Sizwe also completed a course in the control of Hazardous Materials and Basic Fire Fighting training.

And in August last year, WearCheck bade a fond farewell to Sizwe on his retirement after a very loyal career with the company, which has grown from four employees operating out of a Durban garage to over 350 employees in nine countries with a sophisticated network of world-class laboratories.

The only employee who has been at WearCheck longer than Sizwe is laboratory supervisor Vigie Manikum, who is in her 47th year with the company. And, keeping it in the family, Sizwe's brother Wellington Ndlovu has been with WearCheck for 38 years.

Managing direction Neil Robinson, who has been with WearCheck himself for 20+ years, bade a fond farewell to Sizwe. 'On behalf of all of us, Sizwe, we thank you sincerely for your loyalty and long service, and we wish you well in your golden years. We will miss you!

WearCheck's storeman Sizwe Ndlovu, who worked at the company for 43 years, retired recently

ARE YOU GUARDING YOUR ASSETS?

LUBRIGARD
Lubrication-Enabled Reliability
A WearCheck Service

In today's highly competitive global economy, the concept of machine reliability has led many an organisation to make the paradigm shift to proactive maintenance practices that take a holistic approach to asset management and contamination control.

This focus on asset management and contamination control has highlighted the important role lubricants play in achieving machine reliability. Lubricants are no longer seen as merely consumables, but rather as an integral part of a mechanical system having just as much merit as the componentry they lubricate and protect.

With this emerging proactive maintenance mind set, we no longer count the cost of the oil but rather the cost of lubrication, and with good reason. Effective lubricant management can help enable organisations to achieve Total Cost of Ownership (TCO) savings through lower maintenance costs, reduced equipment downtime and improved machine reliability.

Lubrication is fundamental to driving asset reliability for asset-intensive industries like the mining, construction, transport and processing sectors and while seemingly not complicated, precision lubrication requires a structured, holistic approach to develop, successfully implement and most importantly sustain.

To support our customers in their transition to world-class lubrication practices, WearCheck is proud to announce that it has launched a new division – Lubrigard.

Lubrigard specialises in the development and implementation of Lubrication–enabled Reliability (LER) programmes. LER encompasses all lubrication-related activities that improve equipment reliability and asset optimisation.

Some of the Lubrigard solutions on offer include the design and construction of lube rooms, on-site lubrication surveys, lubricant storage, handling and dispensing and well as filtration.

Combining unique services, a wide range of products, and subject matter expertise, Lubrigard can help you increase uptime, reduce costs, and gain greater efficiencies for your equipment.

For more information on our LER programmes, please contact Chris Hattingh on +27 83 625 0808 or chrish@wearcheck.co.za. You can also visit our website.

LUBRIGARD IS PROUD TO PARTNER WITH:

PULSARLUBE
CFT Centrifugal Filtration Technology
DES-CASE
RMF SYSTEMS A Des-Case Brand
SAMOA
Checkfluid

UPSKILL YOUR WORKFORCE

The value of training

"An investment in knowledge pays the best interest."

Benjamin Franklin

The return on investment for training maintenance staff is extremely favourable – staff who know how to take samples correctly, interpret reports from diagnosticians and take swift maintenance action where necessary are key to boosting the efficiency of a condition monitoring programme.

WearCheck's professional trainers run a selection of training courses across a range of condition monitoring and reliability solutions sectors. Many of these courses attract sought-after CPD (continuing professional development) points for delegates.

Customer training courses run by WearCheck, and the duration:

Course	Days
Precision Shaft Alignment	2, 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
Oil Analysis 1	2
Oil Analysis 2	1
WearCheck Practical (English / Zulu)	½
WearCheck Customised	2

Oil Analysis & Wind Turbine 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)
Location	**Two day workshop**	**One day workshop**
Bloemfontein	July 19-20	July 21
Durban	August 16-17	August 18
East London	June 21-22	June 23
Johannesburg	September 13-14	September 15
Kathu	June 7-8	June 9
Kathu	October 18-19	October 20
Namibia	November 8-9	November 10
Port Elizabeth	May 24-25	May 26
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 locaton. Customised training on offer includes sampling of lubricating and transformer oils, lubricant storage and handling, introducton 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
Vibration Analysis – CAT 1	4	9-13 May	12-16 Sep
Vibration Analysis – CAT 2	5	13-17 Jun	10-14 Oct
Vibration Analysis – CAT 3	5	18-22 Jul	21-25 Nov
Precision Maintenance - Balancing		15-16 Aug	12-13 Dec
Precision Maintenance - Alignment		17-19 Aug	14-16 Dec

WearCheck has been an accredited training partner for the internationally-acclaimed Mobius Institute since 2015, and all the Mobius courses can be attended online or in person.

All Mobius courses are presented at various venues throughout Africa, and many of them have an online option.

For more information or to book a Mobius training course, please contact Louis Peacock on +27 71 680 2967 or louisp@wearcheck.co.za.

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

LUBE TIP

Low oil level is a serious cause of contamination in the hydraulic system. When the oil level is low, more air gets into the tank, and this often leads to destructive cavitation in the pump and to condensation on the tank walls, which generates sludge. Sludge decreases the lubricity of the oil, producing scoring and friction on surfaces with close tolerances.

UPCOMING EXPOS

African Mining Indaba: 9 – 12 May 2022

African Utility Week/Enlit: 7- 9 June 2022

Electra Mining Africa: 5 – 9 September 2022

Windaba: 12- 13 Octover 2022

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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