

ANOTHER WEARCHECK TECHNICIAN EARNS HONEYWELL CERTIFICATION

Senior mini-lab laboratory technician, Trevor Pillay, is the latest WearCheck diagnostic team member to receive his SOAP (spectrometric oil analysis programme) certification by US-based aircraft manufacturer, Honeywell.

Honeywell Aerospace has trusted WearCheck to conduct analysis on its used aircraft oil samples and filters from aircraft components for more than 25 years. The global company conducts regular audits on WearCheck's laboratories, instruments and condition monitoring processes to ensure that international standards continue to be met, and WearCheck has always passed every inspection.

As Honeywell Aerospace invents and manufactures technologies that address some of the world's most critical challenges around energy, safety, security, productivity and global urbanisation, it is critical that the company's suppliers meet stringent standards.

After the Honeywell samples undergo rigorous tests in WearCheck's laboratories, the accredited diagnosticians assess the results and make recommendations on what maintenance steps should be taken, if any. This work carries enormous responsibilities and is extremely unique and specialised. It is for this reason that Honeywell stipulates that the diagnosticians complete special training and certification, along with regular assessment to be re-certified at certain intervals.

Trevor, who has been with WearCheck for over 30 years, proudly joins the ranks of WearCheck's three other Honeywell-certified diagnosticians – Steven Lumley, Ravi Chetty and Daan Burger.

Several years back, Trevor joined the diagnostics department as a senior lab technician in the company's mini-lab, which handles specialist samples such as those from aircraft, automotive and industrial filters, greases, coolants, refrigeration and turbine oil samples.

Congratulations, Trevor!



Honeywell certification: WearCheck is proud of diagnostician Trevor Pillay, who recently received certification by Honeywell Aerospace, for diagnosing aircraft oil samples and filters

Vincent achieves MLA certification!



Vincent Mokwena, junior technician at WearCheck's Lubrigard division in Johannesburg, recently passed his Machine Lubricant Analyst (MLA) training through the International Council for Machine Lubrication (ICML).

The ICML training offers education and courses in the field of lubrication for industrial machinery and equipment. This includes topics such as lubricant selection, storage and handling, contamination control, and lubrication best practices. The goal of MLA training is to increase knowledge and skills in machinery lubrication, leading to improved equipment reliability and reduced maintenance costs.

Congratulations, Vincent! At WearCheck, we are always proud to see our team members achieving important goals.

WEARCHECK ON THE MOVE...

WearCheck India opens second laboratory



WearCheck India is soon to open the doors to its second laboratory in the country - this one in Durgapur, West Bengal - a major industrial and mining hub catering to the Eastern Region.

WearCheck opened its first laboratory in Chennai, Tamil Nadu in 2010. Following on from success of this venture and to meet the growing demand for top-drawer condition monitoring services in the country, a second laboratory is being launched.

Plant maintenance in the region is set to be revolutionised - speedy analysis and reporting on a wide range of condition monitoring services will be provided by this state-of-the-art laboratory. You can contact the new lab on +91 343 2545422 or visit us on the ground floor, MNA V21-C, Ambuja, City Centre.



ARC NOW IN NAMIBIA

WearCheck's Asset Reliability Care (ARC) division recently expanded into Namibia, where the highly skilled technicians will be servicing Rossing Uranium (LTD) RUL.

Some of the ARC services offered by WearCheck include vibration, thermography, on-line remote monitoring diagnostics, alignment and balancing, as well as other specialised techniques such as motion amplification, ODS (operational deflection shape) and resonance tests using transient and impact analysis. The value-added ARC services have not only been widely adopted by long-term tribology customers of WearCheck's but have also brought in a whole new set of clients for the company. Heading up the ARC division for the past 11 years is Philip Schutte, who is widely experienced in specialist condition monitoring services, including implementation and optimisation of ARC programmes.

Says Schutte, 'Our ARC programme, coupled with the oil analysis services, gives WearCheck customers the option of a truly 360° view of their assets, allowing maintenance teams to make informed plant maintenance decisions based on highly accurate, intelligent, advanced analysis in conjunction with reliable data. We have completely removed the guesswork from the maintenance game!'

WearCheck's ARC services in Namibia can be reached via Rohan Willer at rohan@wearcheckrs.com

WEARCHECK MOZAMBIQUE REOPENS IN TETE



WearCheck has a new 'state-of-the-art' container laboratory in Tete, Mozambique. The lab is located at the EnSerMo compound in Tete, is able to process both oil and fuel samples and is available for commercial use.

For more information, please contact Gabriel Perengue on +258 84 697 7006 or gabrielp@wearcheck.co.mz.

TECHNICAL TIP: ANTIOXIDANT ADDITIVES - the anti-ageing additive in your oil

BY STEVEN LUMLEY, TECHNICAL MANAGER



What are they?	Zinc dithiophosphates, hindered phenols, aromatic amines, sulphurised phenols
What do they do?	Retard oxidative decomposition
How do they do it?	Decompose peroxides and terminate free-radical reactions

Calling all pop quiz hot shots - what do blueberries, a jar of the most expensive face cream in the world and a drum of new engine oil have in common? They are all jam packed with oxidation inhibitors, or antioxidants, as they are also known.

In this instalment of the lube series, we are going to unpack the oxidation process and explore how antioxidants keep your oil young at heart.

Oxidation is perhaps the most common chemical reaction, not just in lubricant chemistry, but also in everyday life. Oxidation reactions take place during the combustion of fuel, when metal surfaces rust, when cleaning wounds with hydrogen peroxide and even when a cut apple turns brown.



Here's a bit of trivia - once exposed to oxygen, enzymes in your apple begin converting natural chemicals called polyphenols into melanin that gives the flesh a brown, rusty colour.

In a nutshell, oxidation is the loss of electrons or the increase in oxidation state of a molecule, atom, or ion in a chemical reaction. When it comes to lubricating oils, oxidation results in the sequential addition of oxygen to the base oil molecules, producing a number of different chemical species, including aldehydes, ketones, hydro-peroxides and carboxylic acids.

Oxidation is the primary cause of oil degradation, and it occurs at all temperatures, but is accelerated at higher temperatures. Like many chemical reactions, oxidation rates increase exponentially with increasing temperature due to the Arrhenius rate rule. For most mineral oils, a general rule of thumb is that the rate of oxidation doubles for every 10°C increase in temperature above 75°C. Oxidation is further accelerated by the presence of contaminants like water, and wear metals like iron and copper, which act as catalysts.

Oxidation in lubricants takes place through a complex series of chain reactions that consists of three key stages - initiation, propagation and termination.

In the initiation stage, one of the external factors (temperature, contaminants, wear metals etc) causes a free radical (or unpaired electron) to be generated in one of the organic species that is part of the lubricant. This process involves breaking a bond with a hydrogen atom.

The free radical is a highly reactive species that can react with oxygen to form a peroxide radical, that can generate additional radicals through reaction with more components in the lubricant. This step is known as propagation and leads to further decomposition of the lubricant



TECHNICAL TIP CONTINUED...

Eventually two of the radical species combine and form a stable compound. This is the termination step, because it removes free radicals from the system. However, the termination step is only effective in stopping the process if no more free radicals are formed during initiation.

In terms of its effects, oxidation typically results in impaired chemical and physical properties of the base oil and additives – increases in viscosity and organic acids, the formation of sludge and varnish, additive depletion - all of which, in turn, will have a detrimental effect on the system being lubricated.

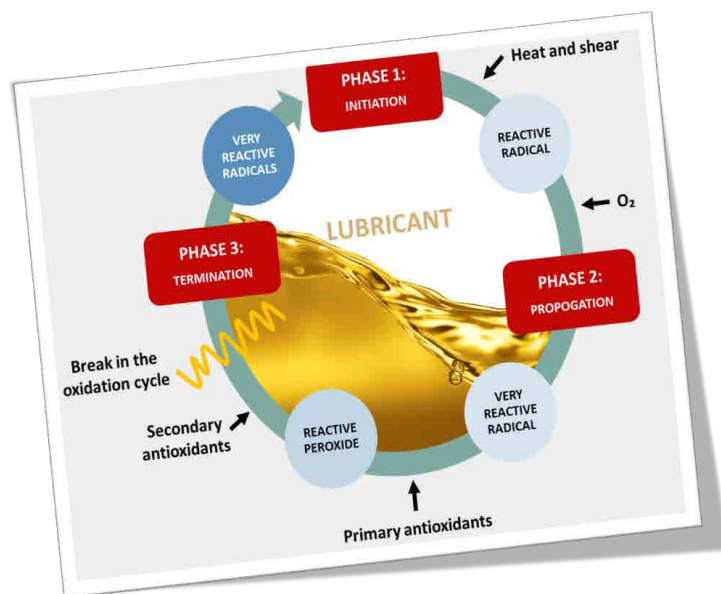
It stands to reason that improving oxidation resistance is critical to improving lubricant stability and the operational life of the lubricant which, in turn, allows for extended oil drain intervals. So, now for the start of the show.

Antioxidants are used to extend the operating life of your lubricant, and these days, nearly all lubricant formulations contain some kind of oxidation inhibitor in some concentration.

They function by interrupting the three-step oxidation process either through reaction with free radicals or decomposing peroxide radicals.

There are two main types known as primary and secondary antioxidants. The former inhibits oxidation by reacting with chain-propagating free radicals to form stable molecules. Primary antioxidants are basically free radical scavengers made from compounds like aromatic amines and hindered phenols.

The latter, secondary antioxidants, are peroxide decomposers that consume unstable hydrogen peroxides to form stable alcohols. It is for this reason that secondary antioxidants are also known as peroxide decomposers. These peroxide decomposers are made from phosphorus- and sulphur -containing compounds that include sulphides, phosphates and - my personal favourite - zinc dialkyldithiophosphates, or ZDDPs.



Besides functioning as an antioxidant, ZDDPs are also a very effective anti-wear agents in many applications. ZDDPs have been a mainstay of diesel engine oil formulation and performance for over 60 years, and with good reason - no single additive provides the same benefit as cost effectively as ZDDPs.

However, 'The Times, They Are a-Changin''. With new engine designs and the addition of emission-control technologies, come changes to oil formulations and, needless to say, additive selection.

With the restriction in phosphorus-containing additives like ZDDPs and increased oxidation-control requirements, formulators are increasingly turning to incorporating higher levels of ashless antioxidants in their blends. Adieu ZDDPs!

Be sure to look out for the next instalment of the lube series in the WearCheck Monitor, where we will introduce you to a whole new class of fascinating lubricant additives – surface property additives, starting with metal deactivators.

WEARCHECK GHANA TURNS 10!

On the 1st February, our Ghana laboratory celebrated its 10-year birthday.

Our MD, Neil Robinson, couldn't be prouder. 'Our Ghanaian team's decade of diligence has ensured the ongoing success of WearCheck in the region. We opened our first West African lab in Tarkwa in 2013, followed by a second lab in Kumasi in 2021 and a major upgrade of our Tarkwa lab that same year – this was all made possible through the hard work of our dedicated staff, as well as thanks to the amazing support of our customers in West Africa, for which we are supremely grateful.'

Hip, hip, hooray, here's to many more successful years for WearCheck Ghana!



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](#).

Cholera in drinking water

Cholera is the acute diarrhoeal infection caused by the ingestion of food or water that is contaminated with the bacteria called vibrio cholerae.

The infection can cause severe watery diarrhoea. It takes between 12 hours and five days for a person to show symptoms after ingesting contaminated food or water. The bacteria infect adults and children and can kill within hours if not treated.

How is cholera transmitted?

Cholera can be transmitted by ingestion of contaminated food or water. Sudden large outbreaks are usually caused by a contaminated water supply. Outbreaks and sporadic cases are often attributed to raw and undercooked seafood.

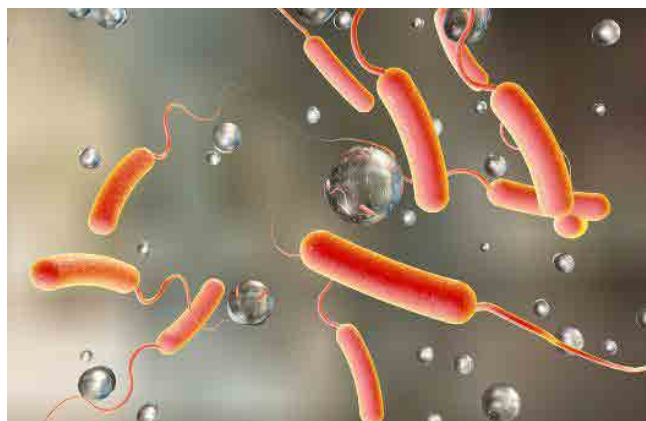
What are the symptoms of cholera?

- Profuse watery diarrhoea
- Vomiting
- Thirst
- Leg cramps
- Restlessness and irritability
- Dehydration
- Rapid heart rate
- Muscle cramps

Please note that many people do not develop symptoms, even though the bacteria are in their faeces for several days after infection, and are shed back into the environment - potentially affecting others. Young children can develop severe symptoms due to immature immune systems and under-developed immunity to a wide variety of common germs.

How do you prevent cholera?

- If you suspect that the water is not safe, treat it with chlorine /bleach products, boil it or filter it.
- Wash your hands often with soap and safe water.
- Use the toilet to get rid of faeces safely. It is important to teach young children the importance of using a toilet instead of defecating near a water source in the open.
- If at all possible, avoid travelling to areas or places with active cholera transmissions.



MAKING HEADWAY

The WearCheck family continues to grow as the company expands into new geographies, opens new laboratories and incorporates new technologies.

Here are some of our newest team members:

Nellie Mzamane - Receptionist, Johannesburg

“Hello, and welcome to WearCheck!” These are the first words you’ll hear from Nellie Mzamane, our new receptionist at WearCheck Johannesburg.

Nellie, who is studying towards her National higher certificate in Accounting through Vaal University, spent 13 years at SAA as a multi-skilled agent, helping with the issuing of tickets or chauffeuring customers around the airport.

Nellie enjoys reading, traveling, playing netball and singing.



Selina Motsamai - Customer Support Assistant, Cape Town

Selina joins the WearCheck team in the role of customer support assistant, where she is responsible for all customer support functions (including sales, after-sales services and general enquiries) as well as general office administration duties.

Selina gained 14 years work experience in the marketing, admin and sales support field, specifically in the petrochemical industry.

In her spare time, Selina loves art and paints from time to time.



FISHING FOR SUCCESS

WearCheck lab assistant, Hajra Ahmod, has once again conquered the world of angling, when she received her provincial colours in 2022 and fished in the SA nationals in Zululand for the KZN ladies’ team.

In 2023, Hajra fished the nationals again – this year it was hosted by Boland in Struisbaai, Cape Town.

Hajra shares the details of the gruelling 2023 national championships, ‘We fished for three days, eight consecutive hours each day. The weather and conditions always test every ability of each angler! Since the 2022 nationals last February, I’ve been training and preparing for the 2023 nationals. The ultimate goal and honour is to be selected for the Protea ladies team. I achieved my goal this year and placed 10th overall for this tournament.

‘The international ladies’ tournament will take place in Namibia in December 2023. I will be fishing amongst absolute legends of the ladies angling sector! Most exciting!’

Congratulations, Hajra! All of us at WearCheck wish you “tight lines” for the international competition in December.



LONG SERVICE LAUDED

LONG SERVICE VALUED

Hearty thanks to the members of our WearCheck family who have dedicated many years of service to the company! You are appreciated by your teammates and by our customers and suppliers – you form an essential cog in the WearCheck wheel that turns constantly to provide excellent condition monitoring services.

HR manager Michelle Padayachee, congratulated several long-serving staff members on hitting important milestones.



Johannes Rossouw
Senior Inspector



Lyn Gengan
Snr Customer Support (KZN)



Charmaine Thumbiran
Logistics Coordinator



Steven Lumley
Technical Manager

BIDDING FAREWEL: Josie Retires

We are sad to bid farewell to Josephine Rakolota, as she retires from WearCheck, where she worked for 23+ years.

Josephine, the Steelpoort customer support specialist, began her career as receptionist in WearCheck's Johannesburg office, after which she was promoted to customer support. A stint in Isando was followed by a move to Steelpoort, Limpopo, where she has been since 2015. She was promoted to sales and customer support in 2016. Josephine has completed several courses, including an introduction to business management through Damelin and a SHE (safety, health, environment) rep function course with NOSA.

Josie, we thank you for your very valuable and loyal service, and wish you all the very best for your golden years. We send you joy, happiness and prosperity as you embark on a new chapter.



FAREWELL SYTWELL



It is with very heavy hearts that we report the recent passing of Sytwell Ndlovu, who was part of our WearCheck family in Durban since July 2005. Sytwell served as a driver and was also a member of the stores team.

Sytwell was loved and respected by everyone who worked with him, and he is already sorely missed. His wife and two children are in our thoughts at this very sad time.

*"However long the night,
the dawn will break."*

– African proverb.



OUT AND ABOUT

Up-to-date knowledge of all the new and traditional condition monitoring techniques is a sure way for a company to boost its return on investment into a good predictive maintenance regime.

WearCheck's world-class training programme includes various courses targeted at maintenance personnel at all levels within an organisation. Trainers are highly qualified and experienced, and travel to different sites within South Africa and other African countries to share their knowledge with course delegates.

NAMIBIA TRAINING



Daan Burger, WearCheck diagnostic consultant, conducted a multi-day training course in Windhoek for a group of delegates from Debmarine Namibia, covering the fundamentals and formulation of lubricants, oil analysis and result interpretation.

MINING INDABA



As always, WearCheck attended the Investing in African Mining Indaba in Cape Town. WearCheck's stand at the conference is always a great meeting point for existing clients and potential new ones

WearCheck welcomes Cummins

A group of delegates from Cummins South Africa visited WearCheck's Johannesburg offices, where they toured the oil analysis laboratory and the WSL (WearCheck Specialist Laboratory).

In addition to building engines, Cummins SA designs and manufactures industry-leading, innovative filtration and air-intake products for diesel engines and gas-powered equipment in sub-Saharan Africa.

The Cummins group consisted of new graduates, developing technical service writers and product specialists.



Tumelo Seobi (white coat, back left), Laboratory Supervisor, in front of the Density Meters in the Fuel Testing Laboratory



Junior laboratory manager, Vincent Sithole (blue lab coat, back left), in WearCheck's Specialist Laboratory, explaining the Karl Fischer instrument which detects water in oil samples at low concentration levels.

PRODUCT PICK: Illuminating paraffin test kits

Illuminating paraffin (IP) is a highly refined hydrocarbon fuel which has been formulated to burn cleanly, with reduced charring. It is however, also the main adulterant of diesel.

Because of its chemical similarity to diesel and the lower tax levied on the product, it is often added illegally to diesel to bulk up the volumes and increase profit, by unscrupulous dealers or to conceal the theft of diesel during transport.

Due to its lack of inherent lubricity, the addition of IP to diesel has a detrimental effect on pumps and injectors. An eroded injector produces needle dribble and poor spray patterns, which is a major cause of piston crown meltdown. This is a result of the raw fuel burning directly on the piston itself at a much higher temperature than the melting point of the crown.

Poor spray patterns lead to loss of power, sooting, increased fuel consumption and smoke as the bigger fuel droplets fail to burn cleanly. Another effect is that these larger droplets reach the cylinder liner and thin out the lubrication film there, resulting in piston scoring and wear. This also results in dilution of the oil as the thinner oil is pushed past the rings into the sump. The resultant drop in the overall viscosity - and subsequent load-bearing properties of the oil - causes big end-bearing wear.

It is therefore highly recommended that you check your diesel for IP contamination before using it. WearCheck offers a simple way to determine the presence of IP in diesel. It works in a similar way to a pregnancy test.



The results appear in the central window: one line at “C” position indicates that the test is positive, in other words, there is Illuminating paraffin in the diesel sample. (please see the top test strip in the photograph).

When two lines appear in the test strip window - one at “C” and one at “T” position - it means that the test is successful, and that there is no Illuminating paraffin in the diesel sample .

**Please note that this test is currently not suitable for testing potential contamination of biodiesel.*

For the full range of tests, for peace of mind, you can always send samples to our lab in Longmeadow.

Grease analysis smooths the way to asset health



WearCheck’s grease analysis programme is used for a broad range of greased systems operating in a wide variety of applications, including wind turbines, industrial bearings, grease-lubricated gearboxes and hubs.

Our grease analysis programme is designed to monitor the health of the lubricant, the health of the machine and levels of contamination through a series of chemical and physical tests.

Monitoring grease condition is an important step in maintaining and tracking equipment reliability. It can detect lubricant breakdown and aid in identifying potential problems before they occur. Corrective actions can be taken before other signs of deterioration begin to show, such as increases in operating temperatures, noise, and vibrations. By tracking the condition of grease in an application, it can provide important information on the quality of the grease, how it is performing and help adjust relubrication intervals.

Regular grease analysis provides the first indication of machine damage due to incorrect lubrication, excessive wear or contamination.

UPSKILL YOUR WORKFORCE

The value of training

“Education is the movement from darkness to light”

Allan Bloom

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	5, 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 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
Middelburg	April 18,19	April 20
Kimberley	May 9,10	May 11
Steelpoort	May 16,17	May 18
Kathu	June 6,7	June 8
Cape Town	June 20,21	June 22
Bloemfontein	July 18,19	July 20
Durban	August 15, 16	August 17
Rustenburg	August 22, 23	August 24
Johannesburg	September 12, 13	September 14
Kathu	October 17, 18	October 19
Nelspruit	November 14,15	November 16

	Wind Turbine Oil Analysis : 2 day workshop
Location:	Two day workshop
Cape Town	November 8-9

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.

For more details on course content and prices, click here: <https://www.wearcheck.co.za/training.html>.

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



Public / Online Mobius courses*

Course	CPD points	Date 1	Date 2	Date 3
Vibration Analysis – CAT 1	4	past	15-19 May	11-15 Sep
Vibration Analysis – CAT 2	5	past	05-09 Jun	09-13 Oct
Vibration Analysis – CAT 3	5	past	10-14 Jul	13-17 Nov
Precision Maintenance - Balancing		17-18 Apr	14-15 Jul	04-05 Dec
Precision Maintenance - Alignment		19-21 Apr	16-18 Aug	06-08 Dec

CAT IV courses will take place 24-28 July 2023.

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 louis@wearcheck.co.za.

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

UPCOMING EXPOS

Enlit: 16 - 18 May 2023

LUBE TIP

Abrasive wear can cause a chain reaction in lubricated machinery. The typical chain reaction is: abrasive particles become work hardened, the work-hardened particles produce more particles, and then the new particles become work hardened. This chain reaction continues until the particles are removed by filtration or the machine fails.

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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