

# FIRST WEST AFRICAN LABORATORY FOR WEARCHECK

WearCheck recently expanded their African footprint into West Africa with the opening of a world class oil analysis laboratory in Ghana.

Strategically situated in Tarkwa near the gold fields several hundred kilometres inland and west of the capital Accra, WearCheck Ghana is positioned to service the burgeoning local mining industry.

In addition to the mines, many other Ghanaian industries are set to benefit from using oil analysis as a key proactive maintenance tool, including construction, automotive, shipping, aviation, industrial, electrical and petrochemical.

WearCheck MD Neil Robinson views the expansion into West Africa as the next step in WearCheck's ongoing strategic expansion. 'The stable Ghanaian economy and good governance were important factors in our decision to select Ghana as our starting point in the region. Another drawback is the fact that several of our South African mining clients also run operations in Ghana, and we wanted to support them by offering the same high quality condition monitoring services they already use in South Africa.'

The WearCheck network currently includes a presence in seven countries (South Africa, Zambia, India, Dubai, Zimbabwe, Namibia and now Ghana), and includes nine world-class laboratories, all located in areas best positioned to serve particular industries or industry

clusters. Demand for WearCheck's services has played an influential role in determining new locations for laboratories.

A local service and an excellent sample turnaround time are some of the drawcards at WearCheck Ghana. Oil samples are processed in the world-class laboratory, which has the full complement of laboratory equipment on a par with all WearCheck's laboratories.

The sample processing is overseen by laboratory supervisor Samuel Yenyi, a Ghanaian national who has a wealth of knowledge and experience in oil analysis.

Says Neil, 'The use of oil analysis as a key proactive maintenance tool is guaranteed to reduce operating costs. The ultimate goal of oil analysis is to save customers money. By reducing unscheduled downtime, oil analysis increases the availability of machinery, improving productivity and boosting the bottom line.'

WearCheck has made it a priority to give customers easy access to reports. There are several options for receiving the data, including online, via SMS, fax, email or by post.

WearCheck Ghana can be reached on telephone +233 (0) 354 431-6512, and the laboratory is located at Sector 7, Teberebe Junction, Tarkwa, Ghana.



*Daniel Bookye, customer sales and support officer for WearCheck Ghana, calibrates a modern software-controlled viscometer bath in WearCheck's first laboratory in West Africa, which opened recently. WearCheck Ghana offers oil analysis, an on-site sampling service and a 24-hr sample turnaround time*

# PRODUCT PICK: RELIABILITY SOLUTIONS



*Philip Schutte,  
reliability solutions  
manager for  
WearCheck*

The newest trend among modern day industrial operations is a sharp focus on total plant health through the use of proactive maintenance services, which improves the availability of individual machines and boosts the reliability – and therefore the productivity – of the plant.

Some of the key elements of any condition-based monitoring are oil analysis, vibration and thermography; while proactive maintenance enhances component health through alignment and balancing.

With the recent formation of its reliability solutions division, WearCheck has positioned itself as the only company in Africa – and one of only a handful globally – that can provide a complete condition

monitoring solutions to the mining, power, pulp and paper, sugar, manufacturing and other industries.

The philosophy of optimal plant maintenance has evolved significantly over the years, with each subsequent approach ensuring longer component life, greater plant reliability and fewer breakdowns with a strong focus on being cost effective rather than cheap.

Originally, plant operators used preventive, or time-based, maintenance, where machine parts were simply replaced as soon as they reached their life expectancy, regardless of their condition.

The predictive maintenance approach came next, where routine monitoring of the real conditions of the machinery components could reveal early failure, giving plant managers the chance to react timeously and avoid breakdowns. According to WearCheck's reliability solutions manager Philip Schutte, 'If you can't plan it, you can't control it.'

The latest approach – proactive maintenance – is the search for ways to extend the life of components to prevent premature failure, thereby boosting general plant health. Says Philip, 'Any good proactive maintenance programme will boost both plant availability as well as plant reliability.'

## WearCheck on show at Zambian mining expo

WearCheck Zambia represented the company at the recent ZIMEC (Zambia International Mining and Energy Conference) exhibition in Lusaka, Zambia. Boniface Yuwama – who provides sales and technical support at WearCheck's laboratory at Kitwe – was on hand to showcase WearCheck's condition monitoring services to local industries.

WearCheck is a member of The Set Point Group, which was also represented at ZIMEC.



*WearCheck Zambia had a stand at the recent Zimec exhibition in Lusaka, Zambia. Manning the stand is WearCheck Kitwe's sales and technical support consultant, Boniface Yuwama*

## New offices for WearCheck in Eastern Cape

WearCheck's oil and fuel analysis facility recently moved up a gear with the opening of a brand new office to service the Eastern and Southern Cape.

WearCheck introduced oil analysis to the region more than 30 years ago - initially with travelling technicians; and later through technical support consultant Leon Marshall, who has serviced an established WearCheck client base from his Port Elizabeth-based home office for the past nine years.

Located in Sidwell, Port Elizabeth, the new office will serve as a meeting venue for WearCheck customers, and as a depot where WearCheck products – such as sampling kits – can be purchased.

Leon is enthusiastic about the new office. 'It is situated in Set Point House – the building of our parent company, The Set Point Group – which gives us access to a variety of amenities such as meeting rooms and convenient access to our products and services.

'The location in the industrial suburb of Sidwell is very convenient for the majority of our customers for the collection of sample kits. In

addition, I will continue to provide a delivery service of WearCheck products to customers in the PE metro area.'

'For convenience, certain sample kits are pre-labelled with the WearCheck laboratory address. So once a customer has taken the sample, they simply drop the sealed kit off at the nearest post office,' said Marshall. 'For faster turnaround time, there are courier options.'

While the majority of Leon's customers require industrial or automotive oil analysis, he also covers fuel (petrol and diesel), engine coolant and transformer oil analysis.

A mechanical engineer by profession, Leon provides technical backup to customers in an area stretching from Umzimkulu on the KZN border, all the way to Mossel Bay in the Southern Cape. After graduating from UCT he spent over 20 years administering fleets of construction equipment before joining WearCheck. He has been located in the Eastern Cape for 33 years and is familiar with many of the technical players in the region.

WearCheck's new offices are located at 34 Cadle Street, Sidwell, Port Elizabeth.

For more information, please visit [www.wearcheck.co.za](http://www.wearcheck.co.za) or contact Leon Marshall on tel 082 290 6684.



*Leon Marshall provides technical support for WearCheck in the Eastern and Southern Cape. He is seen here outside WearCheck's brand new offices in Port Elizabeth*

## It's a small world

Technical enquiries about oil analysis were recently received from:

- An environment assessment company in Japan
- An original equipment manufacturer (OEM) in Korea
- An earth-moving company in Eritrea

# LUBE TIP

From: *The Critical Role of Additives in Lubrication*, by Pete Oviedo, Noria Corporation

## Too Much of a Good Thing

When using oil additives, more is not always better. As more additive is blended into the oil, sometimes there isn't any more benefit gained, and at times the performance actually deteriorates. In other cases, the performance of the additive doesn't improve, but the duration of service does improve.

In addition, increasing the percentage of a certain additive may improve one property of an oil while at the same time degrade another. When the specified concentrations of additives become unbalanced, overall oil quality can also be affected. Some additives compete with each other for the same space on a metal surface. If a high concentration of an anti-wear agent is added to the oil, the corrosion inhibitor may become less effective. The result may be an increase in corrosion-related problems.



Lyn Gengan has worked at WearCheck for 25 years



Charmaine Thumbiran has worked at WearCheck for 20 years

## Long Service Recognition for dedicated staff

Dedicated employees who commit themselves to working at WearCheck for long periods of time are highly beneficial to the company, because they are very familiar with the workings of the company, they are well-trained in their specific tasks, and they get to know our customers very well. This continuity contributes significantly to WearCheck's success.

So said HR manager Michelle Padyachee in recognition of long-serving WearCheck staff, in particular two ladies from the Pinetown branch who recently reached important milestones: Lyn Gengan (customer support assistant) – 25 years, and Charmaine Thumbiran (KZN sales co-ordinator) – 20 years.

## Technical tip: sulphur testing *by John Evans*

### Why is the spectrometric analysis of sulphur so important in oil analysis programmes?

Perhaps the most well-known test associated with oil analysis goes under the acronym of SOAP or Spectrometric Oil Analysis Programme. This involves analysing the oil sample for a variety of elements using a laboratory instrument called a spectrophotometer. The elements that can be detected can all be found in the periodic table of elements, which you may remember from school chemistry lessons.

Most oil analysis programmes will analyse at least a dozen elements depending on the sophistication of the spectrophotometer. WearCheck analyses more than 30 elements on each sample, and they can be placed into three broad categories: wear metals like copper and iron; contaminants such as silicon and sodium; and oil additives comprising zinc or phosphorus.

One element that is often not analysed is sulphur. This is because the spectrophotometer needs to be specially tuned to detect it. Sulphur is both an oil additive and a contaminant.

In oil analysis, it is important to be able to identify the oil in use, check that it agrees with that which the customer thinks he is using, and that it is suitable for the particular application. Viscosity is probably the most important physical property of an oil, but the chemistry – which includes magnesium, calcium, zinc, boron, phosphorus and sulphur – also needs to be known in order to properly identify an oil.

In terms of engine and hydraulic oils, sulphur is part of a series of compounds (called dithiophosphates) which make up the anti-wear and anti-oxidant part of the oil additive package. In gear oils sulphur is reacted with other chemicals (fatty acids) to impart the EP or extreme pressure properties of the gear oil. In the case of gear oils, the level of

sulphur can be used to estimate the GL (Gear Lubricant) rating of the oil; the more sulphur there is, the more EP additive is present.

Sulphur is also found as a naturally occurring constituent of most mineral base oils. A typical mineral engine oil might have a sulphur content of around 8000 ppm – roughly half of this will be in the base oil and the other half will be part of the additive package. As a general rule of thumb, higher viscosity base stocks have higher sulphur contents. The oil refineries can remove this contaminant but only at a cost.

Synthetic oils, where the base stocks are manufactured in a laboratory, do not contain any sulphur before additives are blended in. Therefore knowing the sulphur content of the oil can help distinguish mineral oils from synthetic oils, although this method is not foolproof.

Sulphur is also a contaminant found in fossil fuels, after all, diesel and petrol are simply lighter fractions of heavier lubricating oils. The sulphur content of diesel has received much attention over the past few months as the government has legislated that the sulphur content of diesel must be lowered from 3000 ppm to 500 ppm. This follows on a drop from 5000 ppm to 3000 ppm some years ago.

Simply put, sulphur is bad for the engine, the oil and the environment. Being able to spectrophotometrically analyse sulphur is a cheap, easy and effective way to determine how much sulphur is actually present in the diesel. (Note: 1% = 10000 ppm.)



John Evans, diagnostic manager for WearCheck



# MAKING HEADWAY



*Pieter van Tonder*

## High voltage expert joins the team

Pieter van Tonder recently joined the WearCheck family as a technical specialist based in Johannesburg. Bringing with him a wealth of expertise as a transformer oil technician and diagnostician, Pieter has more than 20 years' experience in the condition monitoring and high voltage testing industry. He will also manage the transformer oil regeneration section at WearCheck.



*Samuel Yenyi has been appointed as laboratory supervisor for WearCheck Ghana*

## Remote technical expertise

As WearCheck's remote laboratories technician, Samesh Pillay assists with quality control of all technical, safety and analytical matters in several of the oil laboratories that are further afield than the home base in Pinetown, including Zambia, Ghana, India, Dubai as well as Middelburg and JOAL (Johannesburg oil analysis laboratory).

He was promoted to this position in January after working as a laboratory assistant for five years in the Pinetown laboratory.

Samesh holds a BSc degree from the University of KwaZulu-Natal, and has undergone a number of in-house training courses.



*Samesh Pillay*



*Daniel Boakye has been appointed as customer sales and support officer for WearCheck Ghana*



*Meshach Govender*

## Managing excellence

Pinetown laboratory manager Meshach Govender has been with WearCheck for six years. He has worked his way up the ranks, starting as a laboratory technician after completing a BSc degree in chemistry at the University of Kwa-Zulu Natal, Westville.

Meshach became increasingly involved in the Pinetown laboratory, and undertook pioneering work in breakdown maintenance and the integration of new instruments into the laboratory which detect the remaining useful life of an oil (the RULER). Now, as head of the laboratory, he is dedicated to ensuring his team of scientists and technicians remains committed to providing outstandingly reliable results for customers, with a focus on accuracy, precision and short turnaround times.



*Joanne Gopalu was recently promoted to accounts assistant, after serving for five years as a laboratory assistant in WearCheck's Pinetown branch*

# SKILLS TRAINING ADDS VALUE

A key factor in ensuring that investment in oil analysis yields the highest possible returns, is for customers to be well trained in each stage of the process – from sample taking to interpreting results, taking corrective action and management of the programme.

WearCheck has created a range of tailored training courses aimed at employees who engage in the oil analysis process at every level, from unskilled workers to senior management.

The courses are currently offered in English, Afrikaans and Zulu, and are being developed in Portuguese for customers from Mozambique and Angola. Course instructors are based in South Africa, but they travel to a variety of local and foreign destinations to run courses, including Namibia, Tanzania (Mwanza), Zambia (Kitwe), Dubai and India.

The selection of training courses includes:

## **OIL ANALYSIS ONE: FUNDAMENTALS OF LUBRICATION AND OIL ANALYSIS (TWO DAYS)**

This course provides a firm theoretical and practical knowledge of the basics of lubrication and oil analysis, and creates an understanding of the role – and importance – of accurate implementation of that knowledge into the work environment, and how best to attain the company's profit goals. It is aimed at a range of maintenance staff, from sample takers to condition monitoring management staff.

**Cost: R4 392.00**

## **OIL ANALYSIS TWO: REPORT INTERPRETATION (ONE DAY)**

This provides a firm theoretical and practical knowledge of the process of the interpretation of the oil analysis laboratory tests into a mechanical diagnosis. It is a pre-requisite to complete Oil Analysis One, to do this course. It covers the diagnostic process, trend analysis, elemental families and case studies, and is tailored to benefit line managers and senior management.

**Cost: R2 196.00**

## **NETCHECK COURSE: (ONE DAY)**

WearCheck's software programme allows customers to receive reports via email, create their own databases, and to produce graphical representation of analysis results.

**Cost: R2 196.00**

## **OIL ANALYSIS THREE: OIL ANALYSIS MANAGEMENT (HALF DAY)**

This course covers the management of an oil analysis programme, from implementation to measurement of the oil analysis programme for financial reward. It is aimed at condition monitoring management staff.

**Cost: R936.00**

## **WEARCHECK PRACTICAL (IN ENGLISH OR ZULU), (HALF DAY)**

This course is run on-site, covers a general introduction to oil analysis and is aimed at unskilled workers involved in sample taking and other aspects of the process.

**Cost R525.00**

**WearCheck Customised** – oil analysis for workshop technicians, a full day course costing R1278.00 plus VAT per delegate.

All courses include course material, refreshments, giveaways and certificates. Prices exclude VAT and are subject to change.

All courses can be presented at the customer's premises for a minimum of seven delegates. There may be an additional charge for the lecturer's travel and accommodation, if needed.

To book, please call Michelle van Dyk on (011) 39206322 or email [training@wearcheck.co.za](mailto:training@wearcheck.co.za)

## **Well played, WearCheck!**

The WearCheck soccer team came out tops in the recent Set Point Soccer Tournament 2013, trumping opposition team Pneumax four goals to zero in a nail-biting final in Johannesburg, and driving the spectators wild.

Members of the victorious WearCheck team included staff from greater Gauteng, Steelpoort and Khutala. They were: Senzo Mthethwa, Danny Nkomo, Isaac Mabaso, Sibusiso Manala, John Maribeng, Timelo Seobi, Sampa Phiri, Sergeant Tlou, Fortune Mpengesi, James Tshabalala, Rolet Mashego, Captain Makofane and Michael Masenola.

Congratulations to all who participated – both as players and supporters.



*The victorious WearCheck soccer team*

# 2013 TRAINING COURSES

Venue	NetCheck Software package	Oil Analysis 1 Understanding oil and its analysis	Oil Analysis 2 Report interpretation	Oil Analysis 3 Management
<b>KwaZulu-Natal</b> Pinetown	19 August	20 - 21 August	22 August	23 August
<b>North West Province</b> Rustenburg		17 - 18 September	19 September	20 September
<b>Gauteng</b> (Kempton Park)	14 October	15 - 16 October	17 October	18 October
<b>Namibia</b>		20 - 21 August	22 August	

## ARRANGE A TRAINING COURSE NEAR YOU

Training courses can also be arranged in any of the following areas:

Bloemfontein	Cape Town	Kimberley	Makopane	Middelburg
Nelspruit	Port Elizabeth	Rustenburg	Steelpoort	Botswana
Namibia	Tanzania (Mwanza)	Zambia (Kitwe)		

## International network in action

Members of the International WearCheck Group (IWG) meet annually to discuss the latest developments in proactive maintenance approaches in their region.

Spanning the globe, the IWG is an association of independent laboratories that is dedicated to oil and wear particle analysis. WearCheck Africa's relationship with the IWG allows for the ongoing exchange of technical information and the ability to offer a worldwide service.

This year, members of the IWG met in Canada in July.



*Pictured here are: Front row, left to right: Jon Fazenbaker (USA), Bill Quesnel (Junior) (Canada), Jesus Terradillos (Spain). Middle row, left to right: Akos Nemesnyik (Hungary), Alistair Geach (Canada), Bill Quesnel (Senior) (Canada). Back row, left to right: Neil Robinson, MD of WearCheck Africa (RSA), Andre Verlinden (Belgium), Ken Hills (USA) and Bart Coen (Belgium)*

## 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 [melanie@wearcheck.co.za](mailto:melanie@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 [melanie@wearcheck.co.za](mailto:melanie@wearcheck.co.za). Before you do this, why not check out the 56 titles already available on the website: [www.wearcheck.co.za](http://www.wearcheck.co.za)

## JOINING TOGETHER TO SUPPORT THE PLANET ♻️

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