

Wearcheck introduces two specialised add-on tests

WEARCHECK has introduced two additional tests to meet specific customer requirements. The tests are add-on services to Wearcheck's standard analytical programme, and are available by arrangement at extra cost.

Viscosity @ 100°C

Wearcheck measures viscosity at 40°C on all samples as part of its regular analytical programme but requests are received from time to time to have the test conducted at 100°C as well. For engine samples the viscosity at 100°C is sometimes preferred as the result is more indicative of how the oil behaves at the operating temperature of the engine.

By measuring the viscosity of a sample at both 40°C and 100°C it is possible to calculate the viscosity index of the oil which yields information about the behaviour of the viscosity with changing temperature.

Wearcheck is able to offer this service following the commissioning of ISL's latest

Houillon viscometer, the VH2 model. The main feature of the new viscometer bath is its dual solvent system which allows Wearcheck to change from 40°C to 100°C measurement with relative ease.

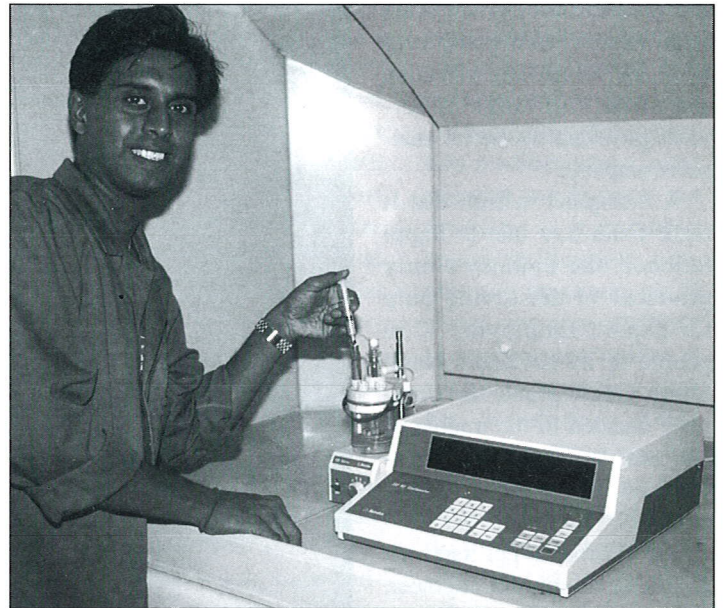
'The flexibility of the new bath means that it can be used routinely to complement the existing four-bath VH1 40°C system but can be quickly converted to perform tests at 100°C,' says laboratory manager Alistair Geach.

Low level water contamination

Wearcheck's new Karl Fischer coulometer is able to measure very low levels of water contamination in oil samples.

The equipment is ideally suited to samples with water levels of 100 ppm and below, and will be most applicable to samples from compressors and turbines.

'We have been offering this service to selected customers on a trial basis up to now,' says Alistair. 'It is now available to all customers.'



Lab assistant Trevor Pillay demonstrates Wearcheck's new coulometer which can measure very low levels of water contamination in oil samples.

SUCCESSFUL AUDITS

A NUMBER of audits have been conducted at Wearcheck in recent months either for recertification purposes or by prospective and existing customers.

The company's ISO 9002 quality registration by the SABS and its Bureau Veritas (marine) certification were confirmed, while Anglo American, Moss gas and Sasol inspected the Westmead laboratory and office.

New Contract News

Duiker Mining - Tselentis Colliery

TSELENTIS Colliery, an opencast mining operation near Ermelo in Mpumalanga, began using Wearcheck in January this year. Wearcheck sampling is used extensively on their large fleet of heavy mining / earthmoving equipment.

Safripol (Pty) Ltd

THIS LARGE industrial plant operating in Sasolburg has recently implemented Wearcheck's specialised industrial programme, making regular use of ferrographic analysis.

OIL ANALYSIS has long been a powerful method of reducing maintenance costs, improving productivity and providing peace of mind. Enlightened maintenance managers are now realising that the benefits of oil analysis can be increased dramatically by the company's approach to the programme, from staff commitment and providing feedback, to making effective use of the full range of services provided by the oil analysis company.

A company which did it right from day one is Sappi Saiccor, the country's only producer of dissolving pulp for export. Employing 1250 people in its KwaZulu Natal South Coast plant, the company decided in the middle of last year to implement a centralised oil analysis programme.

Sid Thorne, Sappi Saiccor's maintenance support engineer, explains, 'We have had a strong vibration analysis programme in place for several years. At the same time, the engineers in the various sections of the plant were doing ad hoc oil analysis when they felt the need, using a variety of service providers. The time had come to implement a standardised programme for the whole plant.'

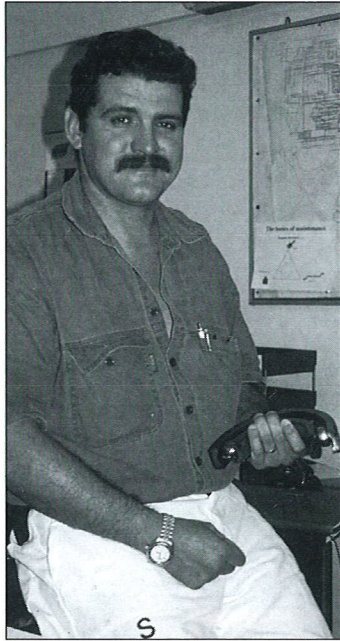
Research

Step one was to decide if it would be best for Sappi Saiccor to develop its own on-site laboratory. After conducting a feasibility study it was decided that this was not a viable option.

'The two major factors were the costs involved and the fact that our data base would have been too limited. With a specialist oil analysis company we knew we would have access to wear trends throughout southern Africa,' says Mr Thorne.

The next step was to select an oil analysis company.

Sappi Saiccor a model customer



Sid Thorne, Sappi Saiccor's maintenance support engineer

Again, this was done by the book, with Mr Thorne doing a comparative study of the three major service providers in the country.

'We looked at the analytical methodology of each company, the range of services provided, their customer base, location, the quality of technical training offered and cost. We all agreed that Wearcheck would suit our needs best, particularly because of their impressive laboratory and the comprehensive technical training they offered.'

Implementation

Mr Thorne immediately put 45 employees nominated from the plant on Wearcheck's basic training course. He and one of his senior vibration analysts then completed the advanced course on the tech-

nical management of oil analysis. Further in-house training was also conducted using a number of user-friendly teaching aids.

Believing that 'if you are going to do a job, do it properly', Mr Thorne signed up for Infocheck (Wearcheck's PC-based programme which enables customers to extract up-to-the-minute reports and statistics on their own premises and provide instant feedback) and went on the Infocheck training course.

Critical

He then asked key engineers throughout the plant to list 'critical' equipment (if it failed it would be critical to the plant) in their area of operation and supply information such as oil types and grades used, capacity, recommended resampling intervals and the unique functional location of each unit.

'Each section had input and this was important because it was one of the activities which helped them to buy into the programme,' says Mr Thorne.

About 180 components are now being monitored regularly from a variety of equipment including log loaders, turbines, bulldozers, conveyors, blowers, pumps, chipper drives, roll drives, presses and refrigeration units. This currently amounts to about 50 samples per month.

'We make use of all Wearcheck's services. We commission RPD ferrograms whenever necessary and have even had filter analysis performed on a turbine.'

Samples are delivered to Wearcheck twice a week, depending on need and feedback reporting is carried out every afternoon.

'One of the factors which influenced our choice of Wearcheck was their willingness to customise their service to suit our needs,' says Mr Thorne. 'For example, we redesigned our job cards to include all the information that Wearcheck would need to replace their standard sample submission forms. They were also happy to structure their data base in a way that would enable them to send separate management reports for our five major divisions.'

Easier

The whole operation, from the time the decision was taken to centralise the oil analysis programme until December last year when the system was up and running, took less than four months.

'We are becoming more familiar with the system every day and the Wearcheck diagnosticians are getting to know the conditions our machines work under, so it is getting easier all the time,' says Mr Thorne.

'Our maintenance staff are realising that oil analysis complements vibration analysis perfectly, giving them a fuller picture of the condition of our machines. They appreciate that this helps them to offer a better service to the mill.'

Improved

'We expect a dramatic decrease in maintenance costs and improved machine availability using oil analysis techniques as part of our preventive/predictive maintenance programme, recognising that the sample standard must be consistent.'

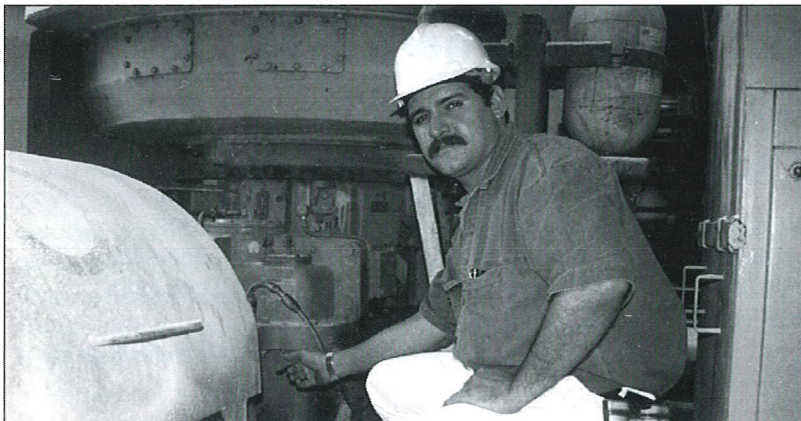
Three major saves

SAPPI SAICCOR has already experienced three major saves since adopting the Wearcheck programme in December last year.

A sample from the gearbox of a log conveyor, one of three operating in the wood yard, showed 64% water. An immediate inspection revealed that the oil dip stick had been dislodged and was hanging onto the side of the gearbox where it was being sprayed with water. The component was drained, flushed and refilled with new oil, and the dipstick was repaired. Resampling showed no further problems. Had the component failed and been out of action for any length of time this would have meant a costly loss of production.

Earlier this year, an oil sample from an Atlas Copco ZR5 compressor, one of four making up the central compressed air supply for the plant, showed 40% water content. Wearcheck recommended they check the oil cooler which was drained immediately. The exact problem has not yet been identified but, after replacing the oil, the unit is back up and running and is being monitored closely.

'If the unit had failed during one of the peak demand times this would have had serious repercussions as compressed air feeds a large portion of the plant's instrument controls and is critical to production,' says Mr Thorne. 'This was not something that was monitored in the past - before our oil



Sid Thorne inspects the roller mill gearbox at Sappi Saiccor.

Case Studies

analysis programme was in place the problem could have become far more serious before we became aware of it. The repairs could then have been major and we would have been reliant on the service contract with the agents which could have resulted in time delays as they are not always able to respond to calls immediately.'

Recently, when vibration analysis alerted the Sappi Saiccor maintenance team to a problem with a costly roller mill gearbox, one of only two in the country, an oil sample was sent off immediately to Wearcheck, and converted right away to an RPD ferrogram.

Vital

'We were concerned,' says Mr Thorne. 'This gearbox is virtually irreplaceable and vital to production.'

'The RPD revealed abnormal wear debris so we immediately replaced the oil and monitored it by sampling and performing an RPD every day for almost two weeks. We suspect that the debris was residual because there has been no increase in wear debris and the vibration has also settled down. We are now doing weekly monitoring and will gradually extend monitoring periods until we are back to normal scheduling.'

Vibration and oil analysis prevent bearing failure on dragline

ALTHOUGH different condition monitoring techniques are effective in their own right, often a combination of techniques adds impetus to a maintenance programme.

This was the case last year at Optimum Colliery, one of South Africa's leading opencast mining operations, where vibration monitoring and oil analysis prevented the failure of a dragline bearing.

'It is essential to be able to predict premature failures and destructive wear on our eight draglines well in advance because disrupted production would have serious cost implications for the mine,' says Peet Strydom, engineering condition monitor at Optimum which has been using Wearcheck's oil analysis programme for seven years and has an established vibration monitoring programme in place.

'So, when we found that the drag drum drive end bearing on Marion 1 started to show an abnormal vibration spectrum during scheduled vibration monitoring in July, we sent grease samples to Wearcheck for analysis straight away. An RPD ferrogram test confirmed that the bearing

showed excessive wear and would only last for approximately 500 hours from the sample date.'

Based on these findings, Optimum's maintenance team flushed and re-lubricated the bearing.

'Analysing the vibration readings was a complicated task because the dragline is a variable speed application, running at a maximum of 20 r/min, and it is difficult to interpret the results at such low speeds,' says Mr Strydom. 'After receiving Wearcheck's RPD ferrogram results we took weekly vibration readings to trend the wear rate of the bearing which enabled us to extend the bearing life by six months.'

The bearings were subsequently changed during a planned shutdown without unnecessary downtime, saving the company approximately R 288 000.

Says Gary Brown, joint managing director of Wearcheck, 'We have always advocated the use of any appropriate condition monitoring technique to enhance an oil analysis programme so as to provide as comprehensive a picture as possible of the condition of a company's plant and equipment.'

IT'S A SMALL WORLD

AS MORE of Wearcheck Africa's customers move into the global village, the diagnosticians are receiving phone calls and e-mail from end users from all over the world. Contact has recently been made from as far afield as Papua New Guinea, Argentina and Mali.

STAYING ENVIRO-FRIENDLY

WEARCHECK is constantly on the lookout for ways to improve its enviro-friendliness.

The latest initiative is that oil from sample bottles and compatible waste solvent from the laboratory is stored in 1000 litre containers for removal and conversion to fuel by Durban-based Fuel Firing Systems (FFS) Refiners.

Recent statistics show that less than 20% of the 330 million litres of lubricating oil bought in South Africa each year is recovered, in comparison with Europe's average rate of 30%.

The remainder, FFS Refiners believes, must be poured down the drain or put into containers and thrown away with the rubbish.

FFS Refiners' Don Hunter says that used oil is now valuable enough to ensure that it is not discarded because the more oil the country recycles, the more it saves on importing oil.

Buckets from bottles

Wearcheck's enviro-friendly drive extends to the sample bottles themselves. After being drained of oil, they are sent back to the manufacturer where they are reground and moulded into builder's buckets. The black outer 'postal containers' and caps are washed and inspected on Wearcheck's premises prior to being returned to the company's contract packers for re-use in Wearcheck sample kits.



Gavin Jackson of Industrial and Consumer Plastics displays the Wearcheck sample bottles manufactured by his company as well as a builder's bucket which his polymer reprocessing company produces after recycling the used bottles.

Sample bottles went fishin'

THE MAINTENANCE manager of a coastal company recalls an amusing situation which occurred when the company first signed up with Wearcheck.

'Being so close to the coast, fishing is a popular hobby for staff. We seemed to be spending more than we should on oil analysis until I discovered that several of my staff were using Wearcheck sample bottles as handy little containers to store their fish hooks. The problem



went away when I explained that the price of the bottles included the analysis service, and Wearcheck sold us some bottles at cost for their tackle boxes.'

PUBLICATIONS are welcome to reproduce articles providing that Wearcheck is acknowledged.

Wearcheck Technical Training Courses APRIL - JUNE 1998

Date	Course	Venue
21 April	2	Pinetown
22 April	3	Pinetown
23/24 April	4	Pinetown

18 May	2	Johannesburg
19 May	3	Johannesburg
21/22 May	4	Johannesburg

22 June	2	Johannesburg
23 June	3	Johannesburg
25/26 June	4	Johannesburg

Course 1: *A practical introduction to oil analysis* (8h30 - 12h30). By arrangement. Cost: R132 (Wearcheck customers), R181.50 (others).

Course 2: *The application of analysis and an introduction to troubleshooting* (8h30 - 16h30). Cost: R434.50 (Wearcheck customers), R605 (others).

Course 3: *Troubleshooting series* (8h30 - 16h30). Cost: R434.50 (Wearcheck customers), R605 (others).

Course 4: *The technical management of oil analysis and lubrication* (Day 1: 8h30 - 16h30, Day 2: 8h30 - 12h30). Cost: R836 (Wearcheck customers), R1089 (others).

Booking essential. All prices include VAT. For bookings phone Melanie Hynd on (031) 700-5460.

Infocheck Training Courses MAY - NOVEMBER 1998

Dates	Venue
12-14 May	Johannesburg
8-10 June	Pinetown
14-16 July	Johannesburg
8-10 Sept	Johannesburg
10-12 Nov	Pinetown

For more information, please phone Melanie Hynd on (031) 700-5460.

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