

A collage of energy-related images including a wind turbine, solar panels, a power plant, and sunflowers.

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WEARCHECK BOOSTS TRANSFORMER SERVICES



FEATURING: Wind power | Smart grid development

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New transformer monitoring technology gives speedy results

Managing director Neil Robinson says WearCheck's multi-million rand investment in new monitoring equipment has relieved some of the current sample volume pressure and reduced turnaround times in line with customers' expectations, ensuring that transformer oil samples are processed and analysed even faster than before (see page 4).

EDITOR

Roger Lilley
Cell: 082 569 7495
Email: rogerl@nowmedia.co.za

ADVERTISING

Katia dos Santos
Cell: 076 410 6909
Email: katias@nowmedia.co.za

Mark Yelland
Cell: 074 854-1597
Email: marky@nowmedia.co.za

DESIGNER

Adèle Gouws
Email: adele@dezignhq.co.za

PUBLISHED BY

EIA Publishing (Pty) Ltd
Tel: +27 (0)11 327 4062
Fax: +27 (0)11 327 4094
Email: energize@nowmedia.co.za
Physical address:
Now Media Centre
32 Fricker Rd, Illovo, Johannesburg
South Africa
Postal address:
PO Box 55251, Northlands, 2116

PUBLISHER

Nico Maritz
Email: nicom@nowmedia.co.za

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WEBSITE

www.energize.co.za

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New transformer monitoring technology gives speedy results

Information from **WearCheck**

WearCheck recently invested several million rand in four brand new laboratory instruments for its transformer division laboratories in Johannesburg, Durban and Cape Town.

Managing director Neil Robinson says the company's investment in the equipment has relieved some of the current sample volume pressure and reduced turnaround times in line with customers' expectations, ensuring that transformer oil samples are processed and analysed even faster than before.

WearCheck's transformer division now has an additional two new high-speed gas chromatographs (GCs) in the Joburg and Durban laboratories, and an additional new PCB (polychlorinated biphenyl) chromatograph, as well as an additional new HPLC (high performance liquid chromatography) in both the Cape Town and Durban labs.

"Getting the analytical test results and diagnoses to our customers as fast as possible is a priority for us," says Robinson, "and our investment in the new instruments has ensured that our transformer sample testing capacity is more than doubled. Our transformer division also recently moved to a new, larger laboratory in Westville, where we offer a wide range of specialist transformer monitoring techniques."

The new Perkin Elmer GCs – designed and manufactured in The Netherlands – each have a carousel that can hold 120 prepared samples and standards. Added to the 80-sample capacity of the existing GCs in the Durban laboratory, with more samples being processed at any one time, the sample turnaround time has been significantly reduced. The same instrument was bought for the Johannesburg lab, boosting their existing GCs.

"One of the great advantages of the new GCs is that they can be pre-loaded with samples before a weekend, and they will continue operating for 48 hours. Our older models require reloading every 24 hours," says transformer division manager, Gert Nel.

"The primary function of the GC is to perform dissolved gas analysis (DGA) – a highly effective preventive maintenance tool which has formed part of WearCheck's condition monitoring programmes for more than ten years," says Nel.

He explains further that the new PCB instrument determines the presence of PCB in electrical equipment containing insulating oil, which must be tested at least once and after every maintenance event to determine the PCB level. According to the latest version of SANS 290:2016, the current maximum allowed PCB level in oil is 50 ppm (parts per million or mg/kg). If the PCB level exceeds this limit, the oil must be drained and disposed of in an approved manner. As PCB molecules are highly toxic, this is an important test in transformer maintenance and management for both health and environmental purposes.

"The additional HPLC," continues Nel, "separates mixtures of compounds in transformer oil to identify and quantify the individual furanic compound concentrations of the oil. The results enable our diagnosticians to predict the remaining useful life of the paper insulation of the transformer with high accuracy, giving an exceptionally good indication of the remaining useful life of the transformer itself."

Nel observes that new instruments have already reduced sample processing time. "Our transformer customers in various business sectors such as mining, power generation, transport, manufacturing, industrial and marine maintenance are receiving their results at high speed, which enables them to make critical maintenance-related decisions in good time and reduce the risk of unplanned transformer failure," he says. ■



Senior analytical chemist, Lynette Pillay, feeds samples into the new HPLC (high performance liquid chromatography) machine at WearCheck's transformer laboratory in Durban.

Contact details:

E: support@wearcheck.co.za

W: www.wearcheck.co.za

T: +27 (31) 700-5460