



“understanding friction, lubrication and wear”

SAIT News, October 2014

"SAIT TRIBOLOGY 2015"

<http://www.sait.org.za/Tribology-2015/tribology-2015.htm>.



Professor Gwidon Stachowiak, Head of the Tribology Laboratory, School of Civil & Mechanical Engineering, Curtin University, Perth, Australia



Professor Wilfred Tysoe, Distinguished Professor, University of Wisconsin-Milwaukee, Wisconsin, USA.

Please visit our SAIT Tribology 2015 Conference Website <http://www.sait.org.za/Tribology-2015/tribology-2015.htm>.

This conference promises to be full of fascinating papers and equally fascinating presenters and delegates. Registration will open at the end of October – watch this space for updates, information and teasers.

REGISTRATION NOW OPEN!

REGISTRATION FEES:

The registration fee includes attendance at all conference sessions, the proceedings, lunch, teas, cocktail party, banquet, a technical visit and 14% VAT.

Payment:

<i>SAIT members</i>	<i>R6 783</i>
<i>Non-members</i>	<i>R7 467</i>
<i>Presenting Authors *</i>	<i>R4 161</i>
<i>Exhibitors</i>	<i>R4 161</i>
<i>Students **</i>	<i>R2 166</i>
<i>Banquet (accompanying persons)</i>	<i>R 380</i>



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- * Authors:** *Only one presenting author per paper at the discounted fee.*
- ** Students:** *Students are bona-fide fulltime registered undergraduate or postgraduate students, and student registration forms should be accompanied by a signed statement by the Head of the Department verifying student status. Note: Students’ fees do not include the social events of cocktail party, banquet and technical visits.*
- Cancellations:** *Cancellations should be in writing, as follows:
by 28 January 2015: 20% Admin fee
from 10 February: No refund.
Substitute delegates will be accepted.*
- Payments:** *By cash, electronic funds transfer (EFT) or direct deposit. All bank charges are payable by the participant. Banking details are on the Registration Form (click to download).*

Please contact the SAIT Secretariat at tel. 011 804-3710 or e-mail secretary@sait.org.za.

We look forward to meeting Tribologists from all corners of the world at our Conference. Our Conference website is at <http://www.sait.org.za/Tribology-2015/tribology-2015.htm>.

Conference Sponsors:





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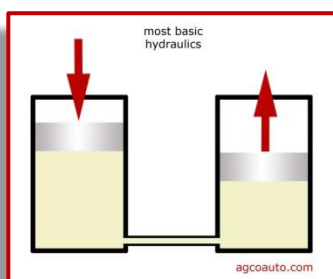
Examining the Details – How to prevent Excessive Downtime and High Costs in Hydraulic Systems

By Leon Bradley, SAIT Member.

On 14 October, the SA Institute of Tribology presented an afternoon seminar on ‘Hydraulics’

David Beard gave a thorough rundown on the ‘Basics of Hydraulics’; a timely reminder of the

operation and importance of choosing the appropriate fluid, pump, filters, seals and associated components for each hydraulic system. All these basics that we take for granted, *or forget*, were stressed as part of a whole, without which your hydraulic system will be at risk. An oil may look clean, but the human eye can generally only see particles of 40 micron and greater; hydraulic systems require filtering down to 16, 10 or even three micron. Hydraulic oils have a broad role to ensure correct lubrication, transmission of



power, corrosion inhibition, air release, low volatility, low foaming and more.

Patrick Swan reminded us of the factors required to achieve efficiency in hydraulic systems; the choice of hydraulic oil is paramount, not only the viscosity but the protection it offers the



system and components from abrasion, overheating, degradation of seals and more.

In modern hydraulic systems, pressures are as high as 450 bar and clearances may be as fine as 0.5micron. We all know that viscosity decreases with temperature increase, so the correct Viscosity Index additive must be chosen to counter this phenomenon; if the viscosity is too low there will be leaks and loss of efficiency, if the viscosity is too high, the additional mechanical energy required will also reduce efficiency. The Viscosity Index Improver (VII) has to be carefully chosen for each application. Field tests have shown that by choosing the correct oil, productivity can be increased by 24% and fuel consumption reduced by 16%.



John Fitton presented statistics showing that 54,8% of expenditure on oils in SA is on hydraulic fluids – from experience, we know the frequency of loss through spillage, leaks and broken hoses

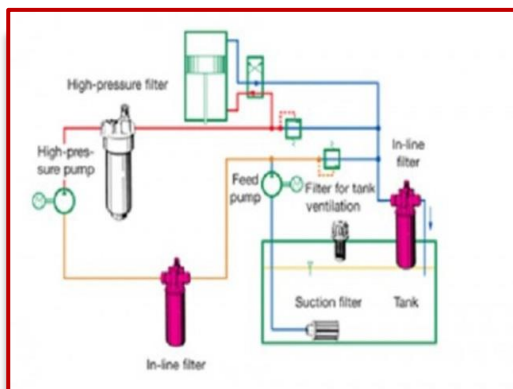
in the field, is a major contributor to this high usage – indicating that prompt and preventative maintenance would reduce usage dramatically.

It was interesting to find that most of the international standards that we have relied on for years are considered inadequate by many OEMs; they have produced their own superior standards.



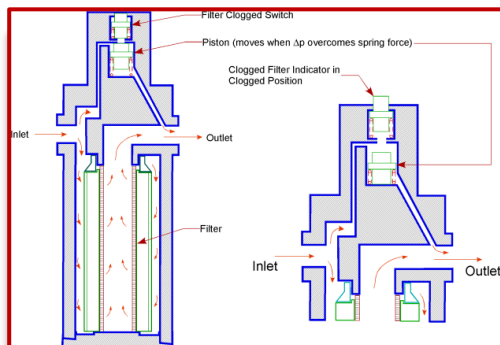
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Philip Craig showed the importance of correct and appropriate filtration, statistics show that up to 80% of hydraulic system failures are due to contamination of the oils. A Portable Particle Counter with built in memory for data recording was presented; the unit gives direct readings in terms of ISO 4406; an invaluable tool for fleets of off road hydraulic intensive machines. It was agreed it is essential to clean even new hydraulic oils, by filtration,.

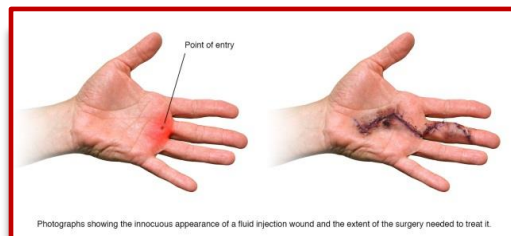
All four presenters are specialists in their field and gave an excellent thought provoking seminar.



Does it make sense to look at detail?

When we consider the annual spend on hydraulic oils, component repair and downtime, it's a no-brainer to reduce costs by attending to detail.

The SAIT regularly presents such seminars at no charge, open to all - including non-members. This really does make much more than cents!



Editor's note: Hydraulic injection injuries occur when hydraulic injection injuries should be treated as urgent medical emergencies. If left untreated, they can lead to amputations and even death, as hydraulic fluid is toxic to the human body.

The website, WebMD says:

“Puncture wounds caused by the injection of a substance under high pressure into the skin are serious injuries. High-pressure equipment may be used for paint, paint thinner, grease, oil, fuel, or other liquid solvents. Most high-pressure injection injuries affect the hands and fingers. These injuries are at high risk for infection, swelling, underlying tissue injuries, and possibly amputation. The risk of amputation increases if medical treatment is delayed for 6 hours or more.” Read more at <http://www.webmd.com/first-aid/tc/high-pressure-injection-wounds-topic-overview>



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Report-back on Lubrication Engineering Course 93



Delegates to Lubrication Engineering 93 with Lecturer, Neels Coetzer and SAIT Secretariat, Gill Fuller and Isabel Bradley.

Johannesburg, 20 – 24 October 2014

17 Delegates attended this course in Johannesburg, one of them from Ghana.

Lecturers were David Beard, Thomas Surmon, Dave Gamble, Patrick Swan and Neels Coetzer, all members of the SAIT Executive Committee.

The results will be published in the November issue of SAIT News.



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SAIT Programme 2014-15

2 – 6 February 2015: Lubrication Engineering Course (94) – Science Park, 1 Northway off Marlboro Drive, Kelvin, Sandton, Johannesburg. Download the full information and registration form here: [/za_members/23661/ftp/documents/lu-be94jhb.pdf](http://za_members/23661/ftp/documents/lu-be94jhb.pdf)

SAIT Tribology 2015 - International Conference - 10 to 12 March, University of Pretoria Conference Centre. For full details go to <http://www.sait.org.za/Tribology-2015/tribology-2015.htm>. To register, download this form: [/za_members/23661/ftp/documents/Trib2015RegistrationForm.pdf](http://za_members/23661/ftp/documents/Trib2015RegistrationForm.pdf), complete it and return it to secretary@sait.org.za.



Course Attendance:

We ask that, should a delegate not be able to attend a course for which they have registered, they let us know as soon as possible, so that we can accommodate people from the waiting list. Delegates can phone either Gill or Isabel at 011 804-3710, or e-mail Gill at secretary@sait.org.za or Isabel at

admin@sait.org.za. We will be happy to carry your registration forward to a future course at no further cost.

For further details of all the above, please contact Gill or Isabel at 011 804-3710 or e-mail either secretary@sait.org.za or admin@sait.org.za

International Tribology Events:

TriboBR

Second International Brazilian
Conference on Tribology - TriboBR-2014

Second International Brazilian Conference on Tribology - TriboBR-2014, 3 – 5 November 2014. For more information go to the website: <http://www.abmbrasil.com.br/seminarios/tribologia/2014/general-information.asp>



X Anniversary International conference "Lubricants Russia 2014" - €1195*, 12-13 November 2014

and International conference "Greases Russia 2014" - €450*, 14 November 2014. For more information please see:

<http://www.infineuminsight.com/trends/technology-trends/trends-2014-coming-soon>

<http://www.rpi-conferences.com/conference/?cnf=139>

http://www.rpi-conferences.com/conference/?cnf=139&pg=delegat_about



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Malaysian International Tribology Conference

**Malaysian International Tribology
Conference 2015 (MITC2015),
Penang, 16-17 November 2015. For
full information, go to:
<http://mitc2015.mytribos.org/>**



**The 10th International Colloquium
“Fuels” Conventional and Future
Energy for Automobiles will take
place from 20 to 22 January 2015 in
Stuttgart / Ostfildern. Current
information and online submission of
papers at www.tae.de/fuels**