



SAIT Technical Newsletter, April 2021

Bringing the Committee Closer to the Members and the Wider Tribological Community

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Tribology

Tribology needs consistent definition and explanation – and it has nothing to do with human tribes! This definition from the SAE-endorsed Bosch Automotive Handbook is worth restating and promoting:

Tribology is defined as ‘The study of the phenomena and mechanisms of friction, lubrication and wear of surfaces in relative motion’. The complexity of the task makes a synergistic approach essential. The disciplines involved include material science, physics, chemistry, and mechanical engineering.

Evergreen, blocking Suez Canal



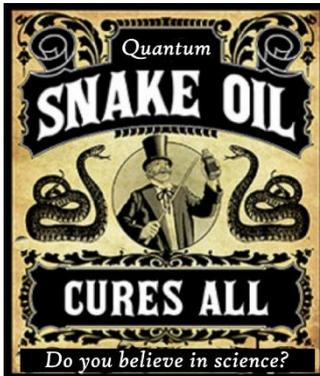
Evergreen finally being ‘tugged’ away from the sandbank



Nothing could be a better study of friction than the 224,000t container ship the **Evergreen** straddling the Suez Canal. Firmly lodged on a sand bar no amount of ‘tugging’ seemed to move the

behemoth blocking an average of 50 ships that passed through the canal every day in 2020. Lloyd’s List estimates Evergreen’s blockage of the Suez Canal cost \$400 million (R6 billion) per hour. Tribology to the rescue... ?

'Tis the season for snake oil:



Chaos on the Suez Canal, shortages of spiralling-priced base oil, combined with the absence of enforceable standards all plays into the hands of opportunistic micro-blenders. And it's not just in lubrication that 'snake oil' scams abound – the Internet is alive with phishing and fake news. Short-term greed and desire for a quick fix sees containers of magic potions being applied to sophisticated machinery with long-term deleterious results.

An article by Jake Venter in Car magazine and published 18 Mar 2009 titled 'Fuel – Impotent Potions' (not available on the internet)- indicates that nothing has changed. 'There are no fairies at the bottom of the garden.'



Training

Please review the SAIT Website at <http://www.sait.org.za/events/training/> and read our Training Newsletter, coming out towards the end of the month.

SAIT Events

SAIT Membership Fees: A reminder that SAIT Membership Fees for 2021/22 are due; relevant invoices were emailed in early April. We understand that the lockdown has caused financial difficulties, but will appreciate it if those Members who can do so pay their membership fees as soon as they are able, and let us have Proof of Payment by email at admin@sait.org.za. If you are unable to pay currently, please contact the Secretary at admin@sait.org.za to arrange for continuation of your membership. Thank you.

We will keep you informed of all updates and changes to our schedule.

International Events

For a full list of upcoming international events please visit [Tribonet Conferences](#) where links take you to each event in full detail. For news on the Plenary Speakers and important dates, please read on.



Every Wednesday, a new recorded webinar is available for free to all STLE Members. We also provide links to TLT articles related to the webinar topic. *For more information, please go to:*

https://www.stle.org/WebinarWednesdays?utm_source=Real%20Magnet&utm_medium=email&utm_campaign=156033357

The **7th World Tribology Congress**, to be held in Lyon, France, **has been postponed until July 2022**, please visit [WTC2021](#) for more information.

For further information on Speakers, Events, and Important Dates for WTC2021, please read on.

Visit the [Speakers Page](#)

The Congress Program: A very rich and intense program which includes:

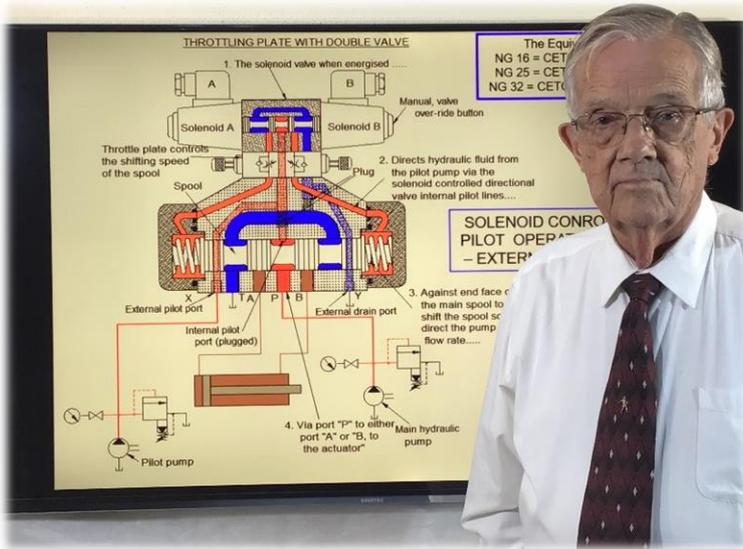
- > Young Tribologists Events: 3-Minute Thesis Contest, Career Fair, Evening
- > Sponsor Lectures, 40 Invited Talks, 17 blocks of Standard Sessions
- > Poster Sessions, Exhibition
- > Social Program: Welcome drink, Live show and party, Conference Gala Dinner and visit the [Program Overview Page](#).

Please note this international fuel event

13th International Colloquium Fuels
15-16 September 2021 Ostfildern Stuttgart Germany

In person and online – a hybrid event

Contamination Corner



Garnett Cross, SAIT Member Since 1985

Hydraulic cleanliness – here are some real-life examples in the following info nuggets from Garnett Cross:

“When SAIT was established, I saw the absolute necessity to incorporate the standards of Tribology in the design and maintenance of hydraulic systems. By requiring companies using hydraulics, to maintain correct standards in their oil handling, they have saved a considerable amount in downtime and equipment loss”.

- One mining company was replacing a 460 litre per minute piston pump and a radial hydraulic motor approximately three times per year. The solution was to install ten-micron bi-directional filters in the ‘A’ and ‘B’ lines of the closed loop hydrostatic system lines. After seven years the pump and motor were still working, performing without a problem.
- One company wanted to replace their 30-solenoid operated directional control valves with another make as they were replacing the solenoids daily. The standing order for solenoids was 125 per month. Once the oil was filtered the company had no more problems. That was the worst incident that was encountered. Solenoid failures are generally two to three per month, once correct filtration is applied solenoid failures almost cease.

Garnett Cross concludes: ‘The SAIT has been a source of learning for me in that I have learned from their technical meetings their seminars and conferences both local and international. There are many aspects of the hydraulic industry which rely heavily on tribology’.....Please visit the SAIT website for a message from Garnett Cross who reviews his membership of the SAIT since its inception in 1985 at <http://www.sait.org.za/about/blog/>

FAQS – Did You Know?



A couple of frequently asked oily questions:

- **Can one oil cater for all the different types of engines on the market?** No! Engine manufacturers in Europe, Japan, and the USA design engines for specific purposes. They are all high-powered and they all need different types of lubricants.
- **Do all oils offer the same level of protection?** No! Just as engines and technology have advanced over the years, oil research and development have also progressed. Oil formulations can differ depending on the type and amount of additives used and the way in which the base oil was refined.

<https://www.wearcheck.co.za/info/faq/faq-oils.html>

Tribology is a Science of Benchmarks & Standards

So then, why do we tolerate defunct, out of date or withdrawn standards?

SABS 1361 (SANS 1361) Engine lubricating oil for petrol engines (for API Service Category SF) and for light duty diesel engines (for API Service Category CC) was withdrawn on 6 October 2006 and not replaced. Yet 1361 still appears as a requirement in tender documents and as a standard on some lubricant products. One can only wonder what a product quality check would reveal where anything goes.

The current local SABS standards are worth repeating and updating in the marketplace. The problem is that these standards are entirely voluntary and unenforceable:

- **SANS 1843:2019** – High performance engine lubricating oil for diesel engines (for API Service Category **CJ-4**)
- **SANS 1517:2019** – High performance engine lubricating oil for diesel engines (for API Service Category **CI-4**)



From the President's Desk – Patrick G. Swan



Here we are, 36 years after the founding of the South African Institute of Tribology in 1985. One person has seen it through all these years – Gill Fuller who has executed over 200 training courses, technical meetings, and SAIT events with thousands of delegates. As Gill Fuller takes retirement from the SAIT, it is time to salute Gill who acted as secretary for all these years.



You are invited to submit your tributes to the SAIT for the attention of Isabel Bradley at admin@sait.org.za, which we will assemble and place on the SAIT website.

Thank you, Gill – the SAIT salutes you.

Parting Shot!



The challenge for all manufacturers of quality lubricants is to remove commoditised thinking from the mindset of their marketing teams, buyers, and product consumers. Quality lubricants should **not** be considered as commodity items, as they can significantly assist reduce maintenance and energy costs, while improving production efficiency.

However, if the mindset of the lubricant manufacturer and the end user is that it is just a commodity then the opposite will occur and price rules, not the cost of lubrication. It is much harder to change thinking and behaviour than to fix the price which is the easy route out of the problem.

We Want to Hear from YOU



1. Please let us know what topics are of interest to you: submit interesting paragraphs or articles that we can share with the SAIT community, by sending them to admin@sait.org.za, for forwarding to The Editor. This will assist in disseminating information to all involved in Tribology.
2. Please let us know what would interest you for technical sessions or webinars
3. Please let us know of interesting presenters from whom you would like to hear.

We look forward to hearing from you!

**Please Like the South African Institute of Tribology – SAIT
on Facebook and regularly check our Website for updates.**