



## The South African Institute of Tribology

Since 1985

*'Understanding Friction, Lubrication and Wear'*

SAIT's Office Hours: 09:00 – 15:00, Mondays to Thursdays; Fridays we work from home.

Telephone No. 011 804 3710: If no answer, please email [secretary@sait.org.za](mailto:secretary@sait.org.za)

# SAIT Technical Newsletter, November 2021

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**NB: The SAIT Offices will Close on 30<sup>th</sup> November 2021  
and will re-open on Monday 17<sup>th</sup> January 2022.**

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## Tribology

**Tribology is all about friction.**

**Electricity** will play a major tribological role in overcoming friction to 'save' the planet.

If only Alessandro Volta (1745-1827), Italian physicist whose invention of the electric battery provided the first source of continuous current, we could see where his invention has taken the world.

- 20% (103 EJ) of world total energy consumption goes to overcome friction.
- 18–40% of that can be saved by applying new technology.
- Energy efficiency is 3.4 times lower for ICE passenger cars compared to electric cars.
- CO<sub>2</sub> emissions are 4.5 times higher for ICE cars than electric cars on renewable electricity.

See: Tribology International Volume 135, July 2019, pages 389-396

And visit: <https://www.britannica.com/biography/Alessandro-Volta> and please also visit:

<https://www.sciencedirect.com/science/article/abs/pii/S0301679X19301446>

**Climate change:** Extreme weather events are 'the new norm'. See: <https://www.bbc.com/news/science-environment-59105963>

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## What is the Meaning of 'W'?

The 'W' in motor oil stands for '**Winter**'. The first number in the oil classification refers to the cold weather viscosity. The lower this number is, the less viscous oil will be at low temperatures. For example, a 5W-motor oil will flow better at lower temperatures than a 15W-motor oil. The higher the number following the 'W' refers to hot weather viscosity, or how fluid oil is at hot temperatures.

Please visit: <https://www.valvoline.com/about-us/faq/oil-types-weights-and-viscosity-faq>

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*Alessandro Volta demonstrating his battery's generation of electric current to Napoleon (seated) in Paris in 1801*

© Photos.com/Thinkstock



## **SAIT Training**

***Follow the path from data to information and into knowledge.***

### **Enrol Now for Lubrication Engineering Course 134: at CedarWoods of Sandton, Johannesburg, from 21 to 25 February 2022**

For further information and to download the website, go to the [SAIT Website](#) and scroll down to LE 134. Complete the form as soon as possible and return it to us at either [secretary@sait.org.za](mailto:secretary@sait.org.za) or [admin@sait.org.za](mailto:admin@sait.org.za). We look forward to seeing you there!

**Costs: SAIT Members: R18,750.00    Non-Members: R21,275.00    Students: R5,750.00 (proof of registration as a full-time student is required; UNISA while earning does not count.)**

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## **SAIT Membership**

If you are not already a SAIT Member, please consider joining us, to help save your machinery running costs, and to benefit the planet. It has recently been said that Tribology is The Science of the Future!

There are several categories of membership, with varying benefits for you, the Members. To find out more about SAIT Memberships, please go to <https://www.sait.org.za/membership/benefits/>, or email Isabel at [secretary@sait.org.za](mailto:secretary@sait.org.za) or Berice at [admin@sait.org.za](mailto:admin@sait.org.za).

Membership runs from March to February, with a bonus of the remainder of January and February if you join in January 2022.

### **Membership Fees for 2022/23 are:**

**Corporate Membership:** R8,211.00 incl. 15% VAT

**Private Membership:** R 828.00 incl. 15% VAT and

**Student Membership:** R 276.00 incl. 15%VAT. ***Please note that Proof of Registration as a Full-Time Student will be required with your application form. (If you are studying through UNISA and earning a salary, this does NOT count.)***

## **SAYTA, Under the Auspices of SAIT**



To promote Tribology among younger people in tribology-related industries, the South African Young Tribologist Association (SAYTA) was recently formed. Howard Benadé (left) and Henco Booyesen (right) will be running this group from January 2022 onwards.

The aim of this group is to function as a support network between young individuals working in tribology and related industry, also linking young members to experts in the industry. This will ensure continuity in the transfer of knowledge and experience.



The group will also focus on addressing current issues experienced in industry.

SAYTA will be formalized in the next few months and become more active.

***Younger SAIT members qualify, at no extra cost, to become a member of SAYTA.***

## SAIT Events

### Next SAIT Online Technical Webinar

This is scheduled for **18:00 on Wednesday 9 February 2022** on Zoom. Our **SAIT President, Patrick Swan**, will be the presenter. Further details will be available in the New Year.

### Summary of our Technical Webinar on 17 November 2021,

**Presented by Henco Booyen:**

### The Real Value of Used Oil Analysis

- The Real Value of Used Oil Analysis is to enable proactive maintenance and reduction of the total cost of ownership.
- BUT... If it is not done correctly, it's just another expense with no real value.
- We will gladly support all SAIT members with the knowledge to maximize the value of your used oil analysis program and connect you with the suitable analysis partners.



*Taking of Used-Oil Sample for Analysis*

To see Henco's Presentation, go to: <https://www.sait.org.za/events/tech-meetings/>

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## International Events

For a full list of upcoming international events please visit [Tribonet Conferences](#), where links take you to each event in full detail.

tribonet

The STLE logo consists of a stylized globe icon to the left of the text 'stle' in a bold, lowercase font. Below this, the full name 'Society of Tribologists and Lubrication Engineers' is written in a smaller font.  
Society of Tribologists and Lubrication Engineers

**Every Wednesday**, a new recorded webinar is available, 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](https://www.stle.org/WebinarWednesdays?utm_source=Real%20Magnet&utm_medium=email&utm_campaign=156033357)



**Early-bird registration,  
Deadline:  
February 15, 2022,**

**WEBSITE & CONTACT**

[www.wtc-2022.org](http://www.wtc-2022.org)

Information at: [registration@wtc-2022.org](mailto:registration@wtc-2022.org)

**At the World Tribology Conference in 2022, the SAIT will present their bid to host the 8<sup>th</sup> World Tribology Conference 2026 in September of that year, in Cape Town. Please support this bid in any way you can!**

## Contamination Corner

### Air – the insidious contaminant



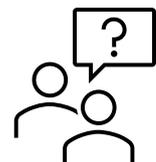
Lubricant foam has a low load carrying ability. Excessive foam build-up in a reservoir or sump will rapidly lead to excessive wear and catastrophic failure of the system. (Noria.com)

Too high a level of lubricant in an engine sump, by overfilling or mis-calibration of the level indicator (dipstick), causes the crankshaft and connecting rod big-end caps to whip up the lubricant into an all-pervading foam and rapid damage ensues. Air leaks into the oil flow or an open drop from a supply pipe into a hydraulic fluid reservoir can generate foam. Operationally, engines should not be overfilled, the level indicator correct, leaks stopped, and supply pipes extended to deliver return lubricant below normal liquid surface level in a reservoir.

## Did You Know?

**Here's a startling fact!**

**South Africa is a World-Ranked Greenhouse Gas Emitter!**



### Friction at Work

*'South Africa is the 12<sup>th</sup>-biggest source of Greenhouse Gases.'* Bloomberg Green, the environment section of financial website, Bloomberg, said in a March 2021 Report.

South Africa's per person emissions are higher than the global average and higher than those of countries such as China and India. But when measured historically, South Africa ranks low for cumulative emission.

Large industry could do with a Tribology Audit...

Please visit: <https://www.polity.org.za/article/south-africa-the-12th-biggest-source-of-greenhouse-gases-yes-but-thats-not-the-only-measure-that-matters-2021-04-19>



### From the President's Desk

Patrick G Swan

#### Lubricant Quality Monitoring

Lubricant quality monitoring in South Africa is primarily left to the honesty of each marketer. Fortunately, most marketers are honest, certainly on the more important specifications that are claimed for their lubricants, but maybe not so much on the finer details. This problem is certainly not restricted to South Africa, and in many less

developed countries may be more prevalent. **Unscrupulous marketers may even make grossly inappropriate performance claims for their lubricants.**

Because the end user cannot see or feel the actual quality of a lubricant, but the equipment that it is used in can, and the associated maintenance costs and lifespan of the equipment may be significantly and negatively affected, countries such as the USA and Great Britain have established collaborative platforms that action instances of incorrect performance claims. Marketers who make false performance claims are then confidentially advised and warned of the consequences of their actions. In cases where the marketers are clearly in breach and refuse to amend their performance claims the only avenue open to the quality platform is then to publicly name and shame the offending marketer.

**The SAI is considering such a collaborative platform for Southern Africa.**

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### Parting Shot!

The term "**Green Tribology**" has been around for a number of years; however, with recent developments it is becoming more and more important. With the impact of Climate Change and increased energy costs, being felt by everyone, the role that green tribology can play should be a core focus area.

Is this the case in industry and forums such as COP 26? I do not see it being reported on.

**Green Tribology** means energy saving and a total cost of ownership reduction, over the medium to long term – the discussion needs to change from short term gains to longer term sustainable gains. As a tribology community - let's get the discussion going!



*John Fitton  
SAIT Member*

## We Want to Hear from YOU

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



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**We wish you all a safe and joyful Holiday Season,  
And hope that Tribology plays its part in making 2022 a 'Smoother Ride'!**

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## Contact and Social Media



Telephone: +27 (0)11 804 3710  
during office hours. If no reply, please  
email us.



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

### The SAIT Mission:

**To promote technology transfer, whereby local tribological problems can be solved and products improved.**

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