

SAIT Newsletter,

August 2019

Tribology on a grand scale was recently recorded in a 7,1-magnitude earthquake in Southern California. Plates sliding past each other cause friction and heat. Subducting plates melt into the mantle, and diverging plates create new crust material. Subducting plates, where one tectonic plate is being driven under another, are associated with volcanoes and earthquakes.

Scientists now have a fairly good understanding of how the plates move and how such movements relate to earthquake activity. Most movement occurs along narrow zones between plates where the results of plate-tectonic forces are most evident.

There are four types of plate boundaries:

- Divergent boundaries -- where new crust is generated as the plates pull away from each other.
- Convergent boundaries -- where crust is destroyed as one plate dives under another.
- Transform boundaries -- where crust is neither produced nor destroyed as the plates slide horizontally past each other.
- Plate boundary zones -- broad belts in which boundaries are not well defined and the effects of plate interaction are unclear.

California Earthquake, July 2019

The San Andreas fault zone, which is about 1,300 km long and in places tens of kilometres wide, slices through two thirds of the length of California. Along it, the Pacific Plate has been grinding horizontally past the North American Plate for 10 million years, at an average rate of about 5 cm/yr. Land on the west side of the fault zone (on the Pacific Plate) is moving in a north-westerly direction relative to the land on the east side of the fault zone (on the North American Plate). Please visit the [U.S. Geological Survey](#).



ETT – Essential Tribology Terminology

Three of Tribology's terms that are used and agreed upon:

- **Spindle Oil** A high-quality, low-viscosity oil for the lubrication of high-speed spindle bearings, such as those used in textile mills.
- **Straight Mineral Oil** An oil which contains no compounds or additives.
- **Strong acid number** Strong Acid Number or SAN is a measure of just the strong acids present in oil. It is an indication that the alkaline additives in a diesel engine oil have been exhausted and there is a risk of severe engine corrosion.

SAIT Training

Follow the path from data to information and into knowledge:

Lubrication Engineering 122 was held recently at [CedarWoods of Sandton Conference Centre](#).

Of the twenty delegates attended the course, 18 passed, 7 with Distinction! Our congratulations to all those who passed, and special congratulations to Johan Herselman, Johan Welgemoed, Kaveshan Palavar, Paul Kamande (top of the class!), Loyiso Ntaka and Lee-Anne Subrayan-Govender, for their distinctions.



Delegates to Lubrication Engineering 122

We received the following comments from our candidates:

“Thanks again for world class training”.

And “I really enjoyed your lectures. I passed with 65%-70% though I have no Engineering background ... I was inspired.”

The SAIT Training schedule for the remainder of 2019 is:

- **LE 123:** 26 - 30 August 2019, Cape Town: *there is still space available, please [register](#) as soon as possible, or contact the SAIT Secretariat at 011 804 3710, admin@sait.org.za or secretary@sait.org.za for further information.*
- **LE 124:** 30 September to 4 October 2019, Johannesburg
- **LE 125:** February 2020, Johannesburg (TBA)

Costs: SAIT Members: R16 031 Non-Members: R17 894 Students: R4 922

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STLE examinations at SAIT

The South African Institute of Tribology will host three examinations of the Society for Tribologists & Lubrication Engineers (STLE) on **22 November 2019**. The venue is Science Park, Kelvin, and time is from 09:00 to 12:00. ***The exams are open to SAIT members in good standing.***

- **Certified Lubrication Specialist (CLS):** Although not compulsory, it is highly recommended that you first attend the SAIT five-day 'Lubrication Engineering' course. A distinction of 75% is a good indication of success in the CLS exam, where the standard is high and the pass mark is 70%. The recommended books for the CLS exam are the STLE Alberta Section 'Basic Handbook of Lubrication' Third Edition, and/or the AIST 'The Lubrication Engineers Manual' Fourth Edition.
- **Oil Monitoring Analyst (OMA I and OMA II)**
- **Certified Metalworking Fluids Specialist (CMFS)**

Recommended reading for all modules is on the [STLE website](#) under "Professional Development".

For further information, costs and to register, please contact Gill, Isabel or Berice at the SAIT offices: Tel. (+27) (0)11 804 3710 or email secretary@sait.org.za or admin@sait.org.za.

International Events:

- **October 17, 2019, in Lansing Michigan USA, the Petroleum, Quality Institute of America,** in conjunction with the Michigan Department of Agriculture & Rural Development, is running a joint industry forum – '**Regulations and Realities in the Lubricants Industry.**' The objective of the forum is to advance efforts to improve the consistency of quality and product integrity of lubricants in the market. **The Forum will take place at the Michigan Department of Agriculture and Rural Development's Heffron Metrology Laboratory in Williamston, Michigan. There is no fee to attend and it is open to lubricant manufacturers, distributors, retailers, and regulatory representatives.**
- In January 2020 the **22nd International Colloquium Tribology** will take place at the Technische Akademie Esslingen. The conference provides an international exchange forum for the industry and the academia. Leading university researchers present their latest findings, and representatives of the industry inspire scientists to develop new solutions. Discussions and co-operations enable attendees to meet current tribological challenges. One of the main topics is the forthcoming e-mobility technology, its various aspects and its consequences for the lubrication and tribology community.
- A.V. Chichinadze Association of Tribology Engineers at RUSEA continue to register participants and speakers for [International Tribology Symposium YarTribNord - 2019](#) held in Yaroslavl, **September 17-19, 2019.** *Information about the revised registration terms, participation conditions and paper submission order are in a 4-page pdf document available from the SAIT – admin@sait.org.za*
- **Global Lubricant Week 2019** – will be held at the Radisson Royal Hotel in **Moscow** October 8-11, 2019. 650 participants from 25 countries with 50 speakers over 4 days. For more details

please contact, contact Elena Konstantinova Tel: + 7 495 502-5433 / +7 495 778- 9332 e-mail: konstantinova.elena@rpi-inc.ru and at [Global Lubricant Week 2019, Moscow](#)

- **IndiaTrib 2019**, is the International Conference being organized by the Indian Institute of Science and Tribology Society of India. The conference will be held at the Indian Institute of Science, Bangalore from the 1st - 4th of December 2019. IndiaTrib – 2019 is going to be a unique event with a galaxy of international tribology experts who have already confirmed their participation as plenary and Keynote speakers. This could be a once-in-a-lifetime opportunity to hear from among the best tribologists around the world. Please follow on <https://indiatrib19@tribologyindia.org/pdf/IndiaTrib-2019.pdf>
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Local Event

The 8th African Base Oils and Lubricants Conference is coming up on **5-7th of November** in **Cape Town, South Africa**.

The Conference and Seminar will focus on the challenges and opportunities for the African market, with topics covering the African free trade agreement, Environmental challenges and IMO 2020.

Hear from

Chevron Base Oils// Engen Petroleum// Paccgate// Hi Tech Oils & Grease// Puma Lubricants// ROSE Foundation// Siddharth Grease and Lubes

Looking at Grease demand in Africa?

New for this year, the pre-conference seminar will focus on grease demand in Africa. With topics focusing on wind turbines and the mining industry, the seminar will give specific time to discuss strategies in grease.

Meet across the market

The agenda includes 7+ Hours of networking time, including a drinks reception on Day 1. With both international attendance and representation from across Africa.

The agenda for 2019 can be found [here](#)

How to register

If you are looking to attend, you can register by:

- 1) Email – Please return the attached registration form to lauren.waugh@icis.com
 - 2) Phone – Please get in touch on +44 207 911 1310 and I can register your place by phone
 - 3) Online – Register online [here](#) using **Promotion Code: AFBO19TEL1** to register your place with the **up to £200 discount before August 30th**
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Contamination Corner

Taking a strong view on contamination control, Steven L. Lumley, WearCheck Technical Manager, states – “In today’s highly competitive global economy, the concept of machine reliability has led many an organisation to make the paradigm shift to proactive maintenance practices. This means taking a holistic approach to asset management and **contamination control**.”

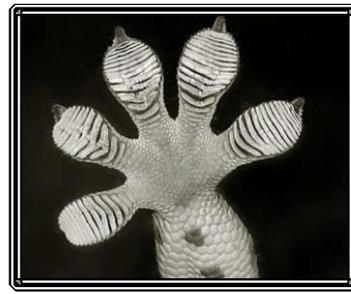
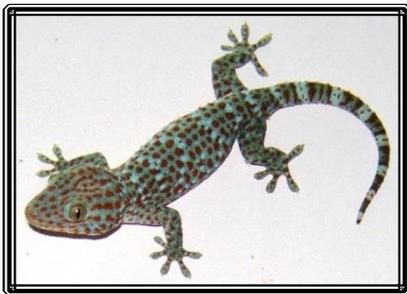
Lumley adds – “This focus on asset management and contamination control has highlighted the important role lubricants play in achieving machine reliability. Lubricants are no longer seen as merely consumables, but rather an integral part of a mechanical system having just as much merit as the componentry they lubricate.”

According to a recent study performed by a prominent oil filter manufacturer, 70% of loss of machine life is attributed to metal surface degradation. This surface degradation is largely caused by mechanical wear which, in turn, is predominantly due to particulate contamination. In hydraulic systems this figure is higher, with 83% of all system failures being attributed to particulate ingress. Particulate contamination can irreversibly damage metal surfaces, shorten the service life of equipment and cause unexpected downtime.

For a detailed review of contamination control please visit and **download this useful pdf bulletin**. [‘Keep It Clean’](#).

Lessons from Nature

Nature has amazed us since the beginning of time. It provides the foundation for all of our best ideas. The animal world provides the inspiration behind one of the new inventions in the world of **tribology** – namely micro-structured material designed with spatial variation to create one directional friction.



This product is based upon studies of the feet of the gecko. The toes of the gecko are covered with millions of tiny, spatula-shaped hairs. These hairs allow the gecko to easily run up walls and across ceilings. However, it retains the ability to effortlessly release its grip at the same time.

For more info please visit TRIBONET <https://www.tribonet.org/friction-in-only-one-direction>

PARTING SHOT

Did You Know?

A baffle plate is a plate or mechanical device designed to restrain or regulate the flow of a fluid. The simple baffle plate is an important component in a hydraulic reservoir to **keep hydraulics healthy**. **This is what baffle plates can do:**

- They allow the fluid time to cool, and
- They let fluid de-aerate and settle out water and dirt.

And here's a useful, practical benchmark – a good rule of thumb for residence time in a reservoir is three to five times the pump output. If the system is highly contaminated, residence time may be 10 times the pump's gallons (litres) per minute

Reference: www.noria.com



Talk to us

Please let us know what topics are of interest to you, or submit interesting articles, that we can share with the SAIT community. This will assist in disseminating information to all involved in Tribology.

Please send your thoughts to admin@sait.org.za.

Please also let us know what would interest you for technical sessions / webinars – or any interesting presenters that you would like to hear from.

Thanks in advance for your assistance.

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and regularly check our [Website](#) for updates.**

