



The South African Institute of Tribology

understanding friction, lubrication and wear

Newsletter, June 2012

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SAIT Provisional Programme 2012

Cancelled: 3 July 2012: Introduction to Lubrication Engineering – One-day course, 08:00 – 17:00 at the Breakwater Lodge, Cape Town. *This course is registered with ECSA, SAIMM number pending, and accredited with one CPD credit.*

Cancelled: 4 July 2012: Introduction to Wear & Materials: One-day course, 08:00 – 17:00 at the Breakwater Lodge, Cape Town. *This course is registered with ECSA, SAIMM number pending, and accredited with one CPD point.*

26 July: One-Day Seminar on 'Metal Working Fluids and Their Place in Industry.'

7 August: Technical Meeting – Ozzie Dawson.

13 – 17 August: 5-day Lubrication Engineering Course (79): Breakwater Lodge, Cape Town. *This course is registered with ECSA, number SAIMM 00459, and is awarded five CPD credits.*

10 – 14 September: 5-day Lubrication Engineering Course (80): Science Park, Kelvin, Sandton, Johannesburg. *This course is registered with ECSA, number SAIMM 00459, and is awarded five CPD credits.*

For further details of all SAIT functions, please contact Gill or Isabel at 011 802-5145/6 or e-mail either secretary@sait.org.za or admin@sait.org.za.

Seminar on Energy Saving through Material Selection: Report-back

This interesting seminar was well-attended by members and their colleagues, leading to excellent discussion and networking opportunities.

SAIT: 2012 Annual General Meeting

The SAIT's 2012 AGM was held at 18:00 on Thursday 29 June at Science Park, Kelvin, Johannesburg. It was well-attended by 17 current members. The president's report was presented by Patrick Swan on behalf of the outgoing president, John Fitton. The current financial statements were presented by David Beard and approved by the meeting.

John Fitton, 2011/12 SAIT President, was unavailable for re-election, but will see his current tasks through to completion.

The new committee for 2012 -2013 was elected as follows:

President:	David Beard
Vice President:	Patrick Swan
Treasurer:	Thomas Surmon
Membership:	Shawn Pharo
Tech. Programme:	Shawn Pharo and Thomas Surmon
Training:	Patrick Swan, David Beard, David Gamble, Neels Coetzer, Johnstone Chikwanda and Sam Manamela.
General:	Leslie Barker and Johan de Koker

After the meeting, there was a brief technical presentation by Dave Gamble, followed by some networking among members.

Tribology in Action – the Eternal Battle Against Water Erosion



Tribological forces are part of nature, sometimes causing enormous damage. Water is one of the most powerful of these forces. With its weight and speed against rock and soil, it corrodes and erodes the earth's surface, creating caves, destroying agricultural land and causing desertification.

Each raindrop, as it lands, creates craters in the soil. Particles disturbed in this way can travel as far as 5 feet. When rainfall increases to a point where the ground can no longer absorb it, surface water forms into thin sheets that sweep loosened soil downhill. This is known as sheet

erosion.



Fast-flowing sheets of water carry sediment with them, causing the formation of rills, which are small, concentrated paths through which the sediment and the water flows. Rills can be up to 30 cm deep on steep slopes and carry away much of the rich topsoil. If left unchecked, rills expand, becoming deep, steep-sided gullies, which carry topsoil-laden flood waters to rivers and ultimately to the sea.

Throughout history, engineers have found ways to prevent or control the various forms of water erosion, thus preserving agricultural land, buildings and construction areas.

Farmers terrace land by creating wide, level steps on sloped land, slowing water flow, giving it time to seep into the ground and thus preventing it from washing the land away.



Physical barriers of many sorts are used, from rocks and trees to cages made from materials as diverse as wickerwork, concrete and metal. Such 'cages' are known as 'gabions', and come in many forms. Retaining walls, flood walls and dams are all built by civil engineers to prevent erosion by water and other natural forces.



Covering loose soil with mulch is an excellent manner of preventing erosion, which also fertilises the soil.

Hydroseeding is a mulching technique by which large areas, such as golf courses, can be seeded with grass, shrubs or wildflowers. A mixture of seed, fertilizer and water is sprayed over prepared ground by tankers mounted in trucks, trailers, helicopters or aeroplanes. This method of covering ground

with growing matter is far more efficient than planting seeds or seedlings, or planting squares of turf, as the slurry promotes quick and even germination.



Other forms of mulch are as diverse as grass clippings, compost, shredded newspaper, cardboard, rocks and gravel. Technology has crept into the business of mulch, and rubber and plastic mulches are now available.

In construction of buildings, roads and bridges, an important part of a civil engineer's work is controlling the flow of water, preventing erosion on-site and after completion. Careful study is made of natural flow patterns, and the appropriate decisions are made about the optimum method of control.



Although man has come a long way in this field, engineers have yet to harness the power of water completely, as seen during last year's catastrophic tsunami in Japan. Unexpected and sudden strong flows of water still hold the power to obliterate cities, change landscapes, and destroy life in an instant.

Designing systems that work with the abrasive forces of water, is the best way of gaining some control against its devastating power.

References: http://en.wikipedia.org/wiki/Erosion#Water_erosion; <http://www.pm10inc.com/erosion-control.html> <http://aboutenvironment.wordpress.com/category/agriculture/>;



Your Tribology-Related Articles and Ideas are Needed.

Tribologists – we know you are a highly-intelligent, creative bunch of people! Please send *your* articles for placing in our newsletter. They should be interesting, easy for the layman to understand and, of course, must be about one or other aspect of tribology. Articles should be between 500 and 1500 words and can be e-mailed to admin@sait.org.za.

If you don't have the time to write the article yourself, please e-mail your suggestions to admin@sait.org.za, and Isabel Bradley, our Assistant Secretary, with research and write the article on your behalf.

International Tribological Events:

The Institution of Mechanical Engineers' **Tenth International Conference on Vibrations in Rotating Machinery (VIRM10)**, will take place from **11-13 September 2012**, Institution of Mechanical Engineers, Lecture Theatre, 1 Birdcage Walk, London, SW1H 9JJ United Kingdom. For further information go to www.imeche.org/events/c1326

21st International Baltic Conference Baltmattrib 2012 will be held in Estonia, Tallinn, from **October 18 to 19, 2012**. Visit the official conference website www.ttu.ee/baltmattrib2012 for further information. We are looking forward to seeing you in Tallinn.

We invite you to participate in the **VIII International Conference "Lubricants Russia - 2012"** which will be held on 14-15 November, 2012, in Moscow. **Lubricants Russia** has a reputation as the leading conference in the Russian lubricants industry. The caliber of the attendees and the Sponsors, coupled with excellent networking opportunities, unrivalled evening receptions, and a high-level program have earned **Lubricants Russia** the reputation it deserves. With the most senior level industry executives coming from more than 25 countries, the **Lubricants Russia** has become known as the place where deals are done and decisions are being made. This conference is a "must" for anyone in this market who is serious about the growth and development of our industry and who wants to have a stake in it. To register please contact Margarita Reshetneva: +7 495 502-5433, +7 495 778-9332, e-mail: Margarita@rpi-inc.com or visit our website: <http://www.rpi-conferences.com>.

RENEX Eurasia 2012, the trade fair for renewable energy technologies, energy efficiency and insulation, will take place in Ankara, Turkey from **15 – 18 November 2012**. Book your exhibition space today! Further information on RENEX Eurasia 2012 is available on www.hmsf.com/renex/eng/index.asp. For convenient travel packages or if you have any questions, please contact Ms. Lisa Kuntze on Tel: +27 (0)11 486 2775 or send an e-mail to lkuntze@germanchamber.co.za.

Fuels – Conventional and Future Energy for Automobiles: 15 – 17 January 2013, in Stuttgart/Ostfildern, Germany. This is a Call for Papers, which should be 30 minutes long, including discussions. Abstracts to be submitted by 15 June 2012, Acceptance of Papers by 1 August 2012, Submission of Manuscript by 31 October 2012. For further information, go to www.tae.de/fuels, phone +49 711-34008-35, fax +49 711 34008-65 or email martina.fischer@tae.de or info@tae.de.