



# TECHENOMICS INTERNATIONAL

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Press Release

## Tribology at the heart of Techenomics

### What is tribology and why is it so important?

Tribology is at the heart of the total fluid management service that Techenomics provides. But what is tribology and why is it so important for Techenomics?

Tribologist and Techenomics Laboratory Manager, Newman, Western Australia, Dr Gopal Kumar, explains that tribology is a scientific discipline involving the study of interacting surfaces in relative motion.

As such, the science addresses friction, wear and lubrication, with these being areas in which Techenomics specialises.



**CHRIS ADSETT**  
CEO OF TECHENOMICS

The company's services are geared towards assessing these areas, analysing results on a case-by-case basis and providing solutions to help operators gain greater performance and achieve cost savings from their engines and mechanical equipment.

These services are carried out by specialist staff trained in tribology utilising state-of-the-art equipment in accredited laboratories. This work is complemented by the Inorganic Fullerene Tungsten Disulphide (IF-WS<sub>2</sub>) products, or Liquid Tungsten, distributed by Techenomics.



Dr Gopal Kumar with Techenomics Newman staff

Dr Gopal said that the importance of tribology was recognised by early civilisations when animal and plant oils were used to reduce friction in moving parts. However, the systematic study and understanding of the science began with the Industrial Revolution when the use of metals and machinery became more prevalent.

When it comes to wear analysis, tribology helps in understanding how, where and why components wear out. Dr Gopal said that by studying wear patterns and mechanisms using analytical tools, one can identify areas prone to failure and take preventative measures.

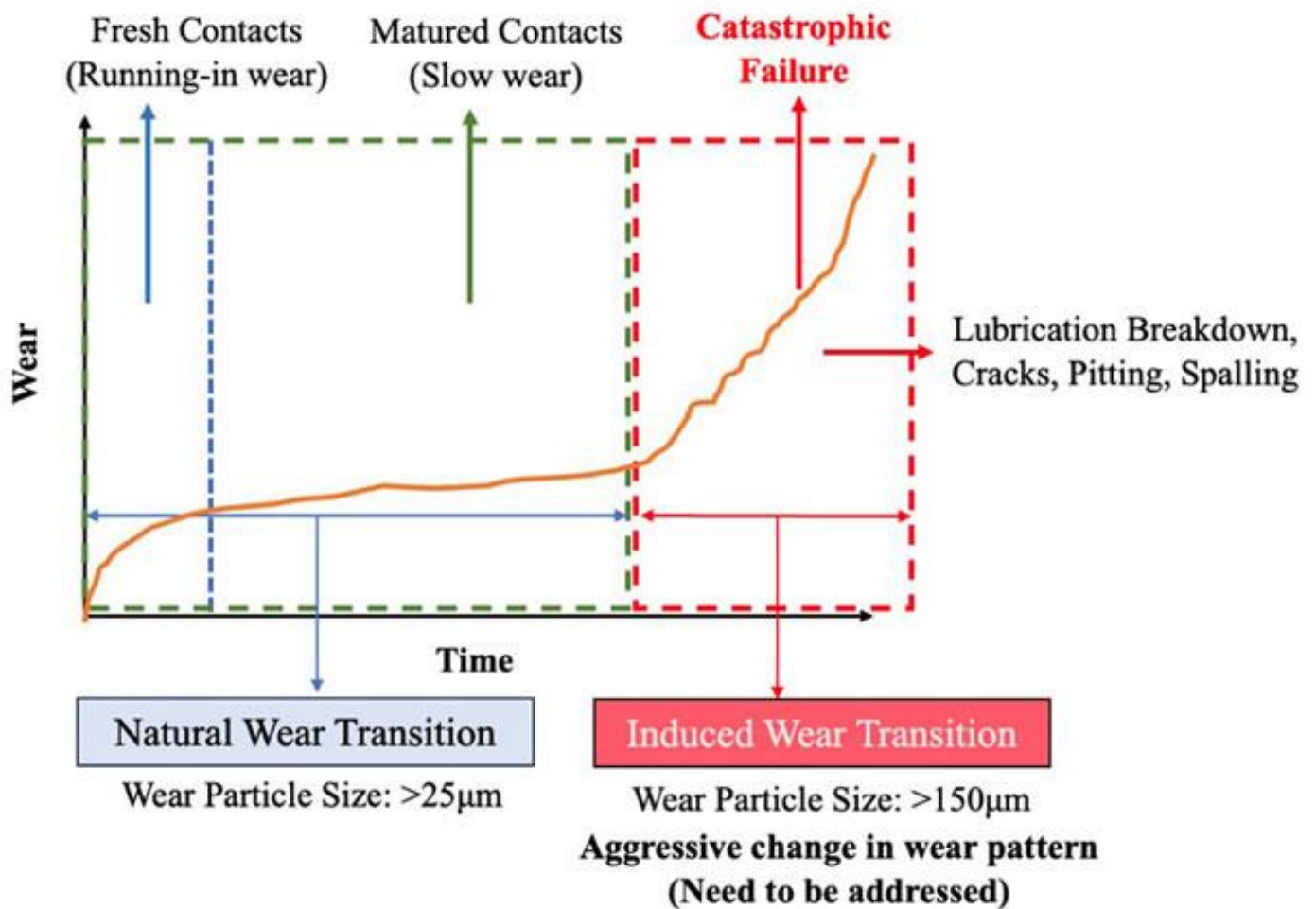
He said lubrication management was another key area of tribology that Techenomics specialised in.

“Proper lubrication is essential for reducing friction and wear between moving parts. Tribology guides the selection of the right lubricants and lubrication strategies based on operating conditions, loads, temperatures and speeds.”

Tribology also provides insights into the factors contributing to component failure.

“By monitoring frictional behaviour, surface interactions and wear rates, maintenance teams can predict potential failures before they occur,” Dr Gopal said.

“This allows for proactive maintenance, preventing costly breakdowns and unplanned downtime.”



The transition of wear from natural to induced leading to failure of the components.

Tribology studies are at the core of Techenomics as they are key to establishing effective maintenance strategies such as condition-based maintenance.

The company’s CEO Chris Adsett said: “By employing sensors and monitoring systems that track wear patterns or lubricant conditions, maintenance can be scheduled based on actual conditions rather than fixed intervals, thereby optimising resources and reducing necessary downtime.”



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He added: “Through proper lubrication practices and wear management, tribology contributes to extending the lifespan of machinery components and lubricants.

“Reduced friction and wear translate into less stress on equipment, leading to prolonged machine life. Additionally, proper lubricant selection and maintenance extend the life of lubricants, reducing the frequency of replacements and contributing to cost savings.”

Another initiative of Techenomics at this mine was a HCM audit of the Truck Shop and Bulk Lube Storage facilities which helped improve fluid management procedures.

“As a result of the on-site efforts supported by Techenomics at its extensive off-site facilities, the mine’s team was able to detect problematic areas that were causing downtime, unexpected failure and costly repairs,” Chris Adsett said.

*For more information about Techenomics International contact Chris Adsett, [c.adsett@techenomics.com](mailto:c.adsett@techenomics.com); in Indonesia Freddy, [freddy@techenomics.com](mailto:freddy@techenomics.com); in South East Asia Siti, [siti@techenomics.com](mailto:siti@techenomics.com), in Mongolia Tumees, [tumees@techenomics.com](mailto:tumees@techenomics.com), or Otgoo, [otgoo@techenomics.com](mailto:otgoo@techenomics.com), in Australia Dr. Abu Bakkar Siddique, [siddique@techenomics.com](mailto:siddique@techenomics.com); in Western Australia Dr Gopal Kumar, [gopal.kumar@techenomics.com](mailto:gopal.kumar@techenomics.com), in Africa Sugraa, [sugraa@techenomics.com](mailto:sugraa@techenomics.com); or for Liquid Tungsten globally Chris Adsett, [c.adsett@techenomics.com](mailto:c.adsett@techenomics.com).*