



TRIBOLOGIK®

NEWSLETTER

ISO 17025:2005

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Particle Quantifier Index (PQ) – A Complementary Test

The particle quantifier index test measures the mass of ferrous wear debris in a sample and displays this as PQ index by Hall Effect regardless the particle size.

The Hall Effect is a measurable induced voltage across a sample. The higher the observed Hall voltage, the higher the concentration of ferromagnetic wear debris present.

The PQ index is a unitless number. Results are provided as an index and can be trended over a wide range of ferrous debris and particle sizes. The larger the index, the greater the ferrous wear content.

The PQ test is relevant for any type of equipment and lubricant : engine, transmission, gearbox, hydraulics, compressors, etc., and specifically for differential, transmission and gearbox oils. However, it is not relevant for components where non ferrous debris are the major wear fragments.

A Complementary Test

Whereas ICP spectroscopy only detects small wear metal particles (less than 6 microns) of all types (23 ferrous and non-ferrous elements), the PQ index will only detect ferrous debris regardless of size. It is therefore fully effective when both tests are being used together :

- If both the PQ and spectro values increase, it is likely that many small particles are being generated, suggesting normally increasing wear over time.
- If the PQ index increases and there is no change or a decrease in the quantity of ferrous debris detected by ICP, this suggests that large particles are being generated, which may indicate severe wear (e.g. : pitting, erosion or chipping, shock condition, dirty filters, metal-to-metal contact. In such a case, a complementary analytical ferrography test may be recommended. Damage can then be prevented by taking proper corrective action without delay : Replace worn parts, inspect/replace filters, clean reservoir magnets, etc.

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- The PQ index however is not effective in detecting water introduced rust and corrosion particles as they can't be magnetised. This is to say that when spectroscopy detects a high iron content, together with a low PQ index, strong corrosive wear can be concluded in almost all cases.

For more information and details, contact your account manager.

WEBINAR – Manage your Oil Analysis Program using the Tribologik® web site

By **Nicholas Reich**

Date : Friday October 31, 2014

Time : 1:00 PM, Chicago time

Duration : 30 minutes

Reserve now with Nicholas : nreich@tribologik.com

GlobalMeet

You're invited.

You've been invited to a web meeting starting lundi 9 juillet 2012 at 11:35 Canada, Québec.

Have the meeting call you.
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