TTT_Tapping-Torque-Testsystem

Regarding the so-called "Carry-Over-" or "Spill-Over-Effect"

Dear Madam, dear Sir

As you may know, in comparative measurements of lubricants – "water miscible fluid" (MWF / Emulsion) or "neat and soluble oil" - we are confronted with a problem that is either called "Carry-Over" or "Spill-Over-Effect".

Involved is the mechanism of action, when surface-active additives form so-called reaction layers like iron sulfides, pyrite (FeS). These layers may change the crystalline surface-structure of the tool; they may change the electronic situation locally and enlarge its surface. Attention should be paid to the fact then that in the moment of functioning the additives do not sit on top of the surface – as often is read in books – **but rather become the surface themselves**. Therefore it sometimes may not be possible to remove these residues from the tool by "*chemical-cleaning*" with agents like gasoline, acetone and air drying.

In order not to falsify the results of a measurement series and the results of the measurement series of media/lubricants to be compared with, we are challenged to optimize our TTTmethodology adjusting it to new findings.

Resultant we recommend conducting two additional measurements for each series, discarding***** the first two measurements, not adding them to the creation of a sum-cut. This is the only way to remove all residues from the tool by *mechanical friction* (mechanical-cleaning) thus avoiding influence and distortion by Carry-Over resp. Spill-Over.

The addition of three "cleaning-cuts" for each medium to the TTTmethodology is indeed the only viable way which in the light of serious consideration may cover various advantages.

Firstly, by mechanical cleaning we avoid falsification of measurements, secondly, with analysis we gain additional parameters of evaluation and insights into the properties and efficiency of additives. And thirdly we can convert this perception in practical experience and at the same time prove factual knowledge by cause and effect.

***** With "discarding" is meant, not to include these cuts into the measurements of the medium. We however recommend storing these cuts in an extra file

By this procedure we prevent a possible Carry-Over-Effect which may distort / falsify the next measured formulation.

Hoping to have informed you in achieving flawless measurement results with the TTT_methodology - we faithfully remain.

Best regards
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