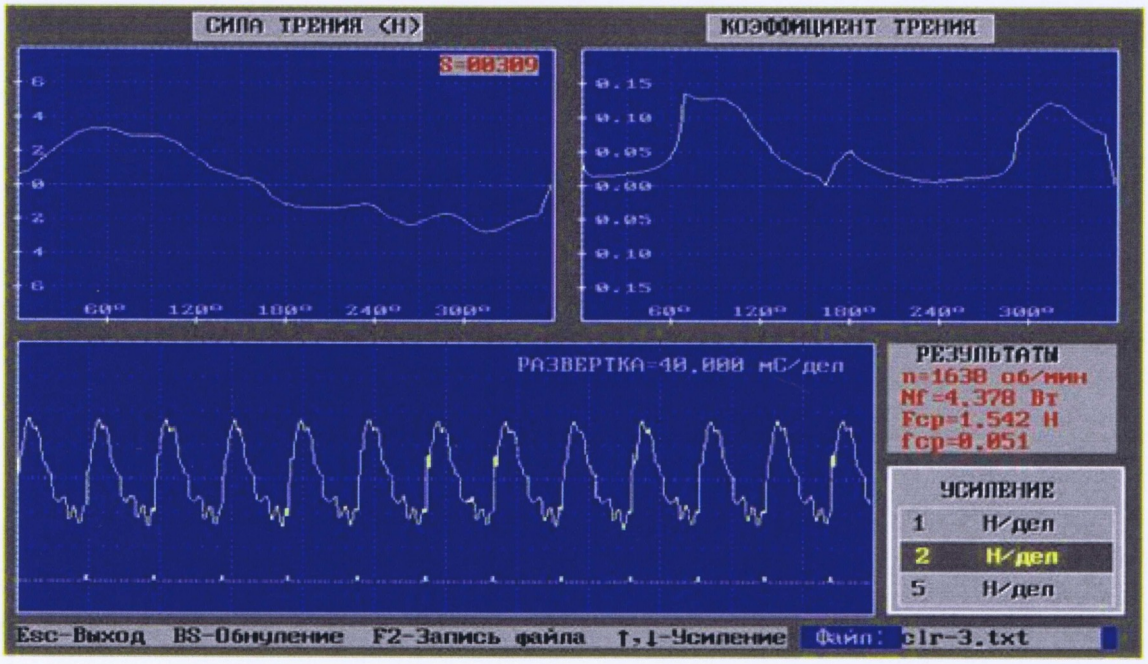
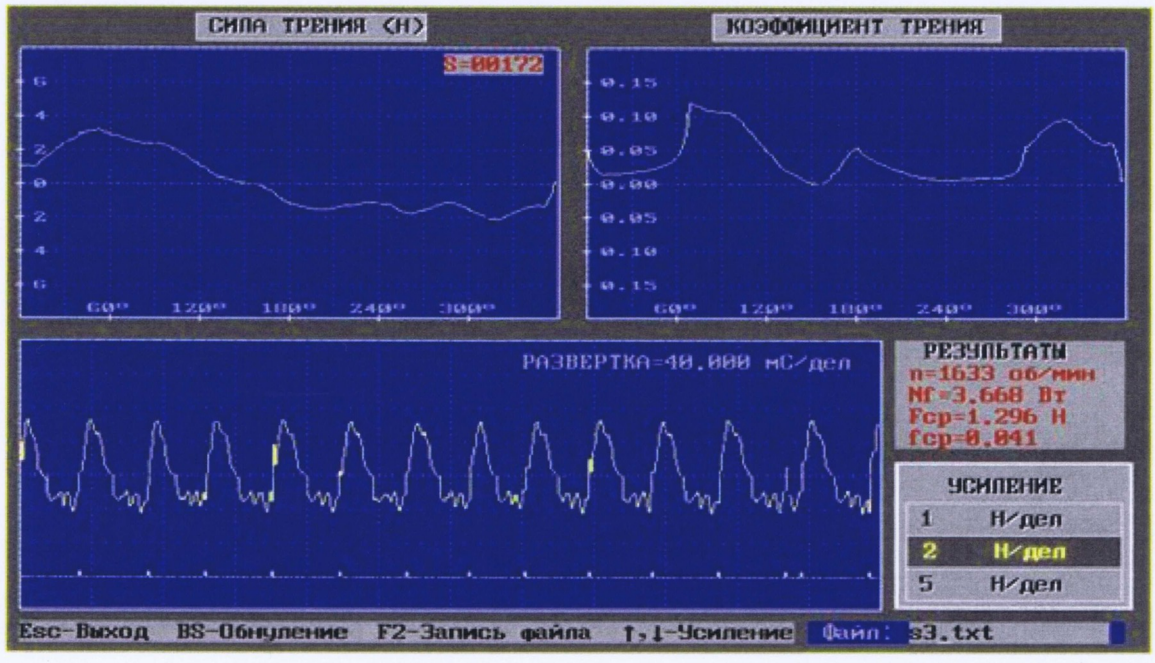
Mating "piston-cylinder" of Bauman Moscow State Technical University piston tribometer. continued

Proof of the superior anti-frictional properties of **SMT^{2TM}** was demonstrated during tests utilizing the Bauman Moscow State Technical University's unique piston tribometer. The piston tribometer simulates operation conditions in real piston machine and measures the following parameters: friction force, friction coefficient, and loss of power due to friction. As illustrated in the following piston tribometer computer monitor screen readings, in comparison with "pure" motor oil, **SMT^{2TM}** reduced all the friction parameters an average by 17%. In addition, these experiments established that **SMT^{2TM}** also excelled in tribological properties compared to the chlorinated paraffin metal conditioner (FENOM).

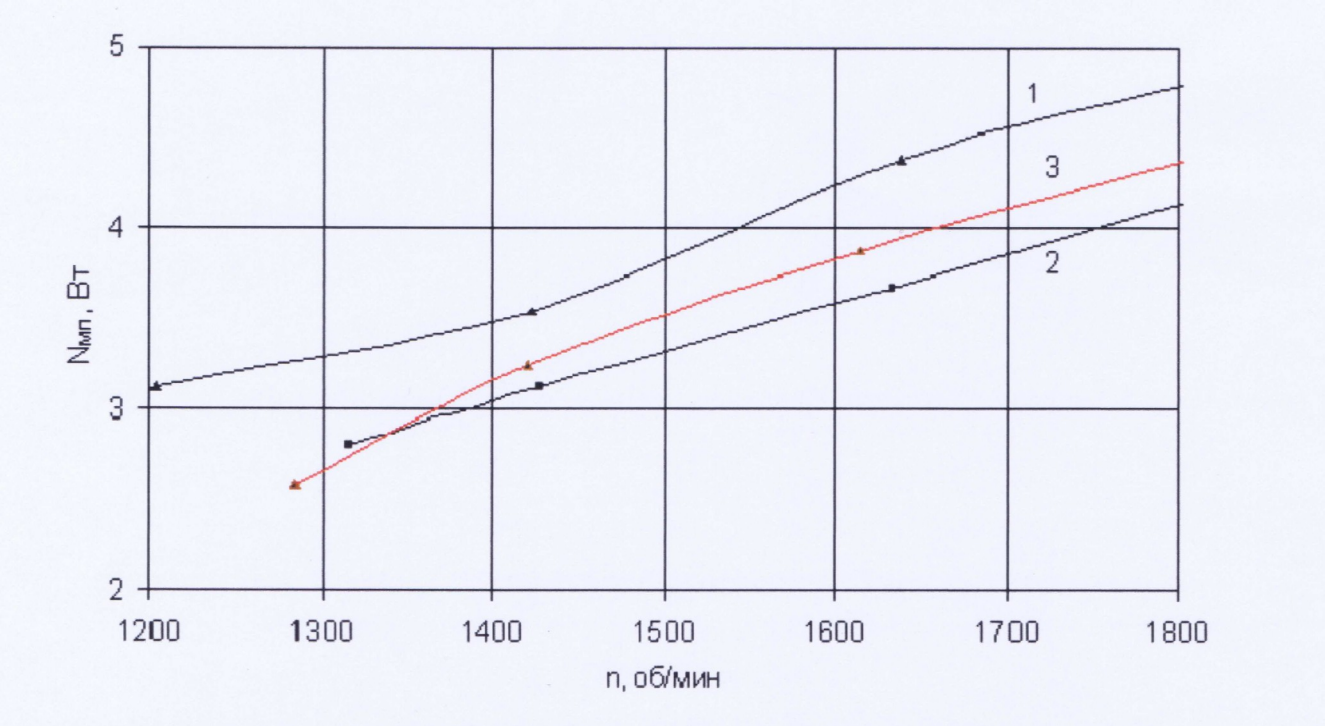


Piston tribometer computer monitor screen copies of "pure" motor oil



Piston tribometer computer monitor screen copies of "pure" motor oil Plus SMT2™

Mating “piston-cylinder”
of Bauman Moscow State Technical University piston tribometer.



Friction loss power of piston tribometer
1. “pure” motor oil
2. “pure” motor oil with SMT2
3. motor oil plus chlorinated paraffin (FENOM)

Referring to the STRIBECK CURVE below, the SMT^{2TM} curve is located under (lower friction) the curves corresponding to "pure" motor oil and oil with chlorinated paraffin metal conditioners (ER and FENOM).

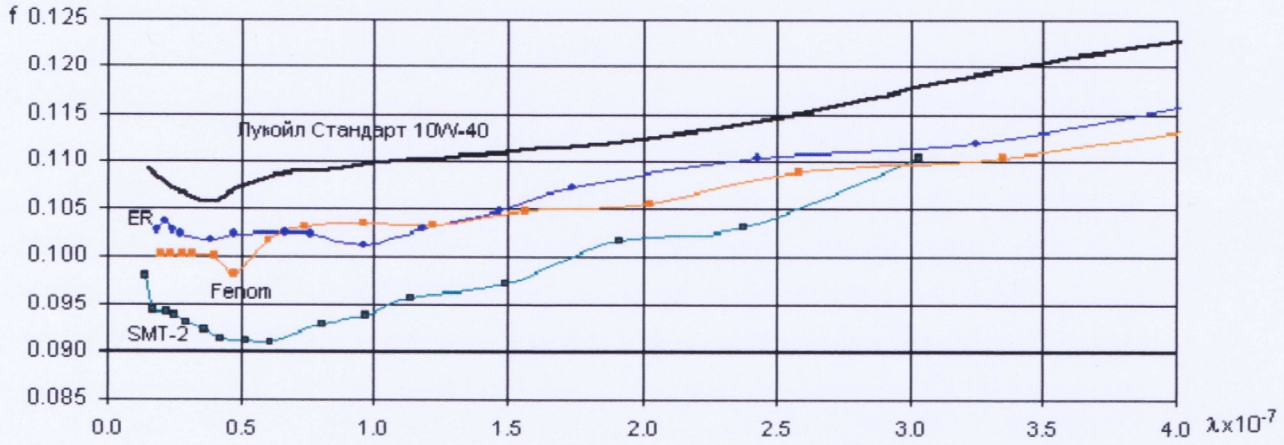
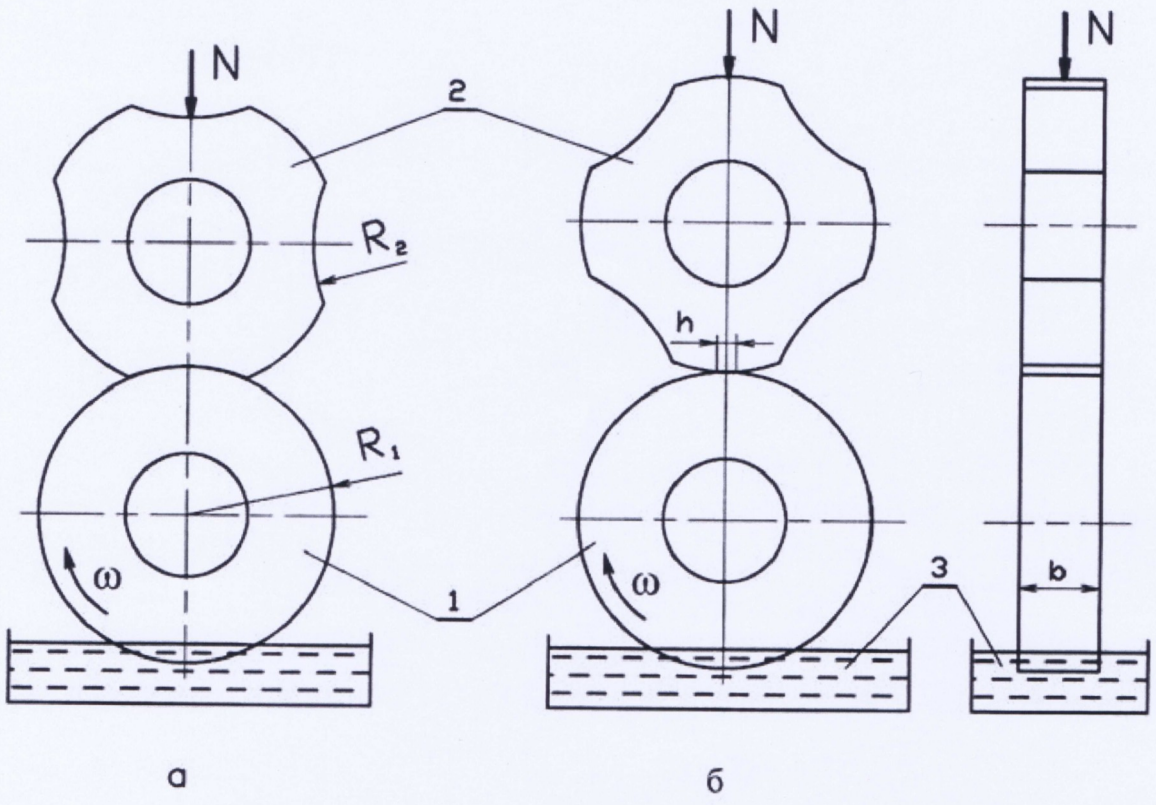


Figure 3. STRIBECK CURVE for pure lubricant and anti-friction additives

Figure 8. Friction couple "disc-shoe" used at Stribeck curves test



a-friction test; b-wear test; 1-revolving steel disc; 2- motionless iron shoe; 3- investigated lubricant

According to tribological tests with four-balls friction machine (ASTM-D-4172), blending 5% **SMT^{2TM}** into a synthetic motor oil resulted in the reduction of wear on average by 97%.

Average wear reduction of 97%

According to test report #14-K/02 of 18.02.2002 from the Gubkin Russian State University petroleum and gas testing laboratory, a test by standard four-balls method (GOST 9490-75) it was observed that blending 5% **SMT^{2TM}** into the Lukoil Standard SAE 10W-40 API SF/CC mineral oil:

-increased welding load by 25%;
-increased critical load by 50%;
-increased scuffing index by 50%;
-decreased wear area diameter by 17%.

Increased weld load by 25%
Increased critical load by 50%
Increased scuffing index by 50%
Decreased wear area diameter by 17%

According to test report #18-03 of 4.03.2002 of Bauman Moscow State Technical University (Research Center "Tribotechnica"), a test by Stribeck curve method demonstrated that the presence of 5% **SMT^{2TM}** mixed into SAE 10W-40 API SF/CC mineral motor oil reduced:

-the average friction coefficient by 13%
-linear wear by 18%

Reduced average friction coefficient by 13%
Reduced lineal wear by 18%

As can be seen in the results for these tests
<u>SMT2 significantly out performs</u>
all other products tested,
and can reduce friction and wear
in all lubricant reliant machinery.