

# **Improving the Environment Protection and the Economy of I.C. Engines with the New Type of Additive**

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## **Introduction**

The requirement of our age is to improve the efficiency of the energy consumption and to reduce the quantity of the environment poisoning materials. The I.C. engines are the primary key to solve this problem. It is necessary to reduce the wear, the fuel and oil consumption, the harmful emission, and to exclude the environment poisoning components from the lubricants. The new type of lubricant additive gives possibility to solve these problems.

## **The new type of lubricant additive**

The new type of additive is an organic compound, chemically bound to metal surface, has positive and negative charges, creates 1  $\mu\text{m}$  thick multimolecular layers on the rubbing surfaces and sticks together the wear and other particles floating in the oil through their positive and negative charges. This results in 0.002% floating particle concentration instead of the usual 0.015%. The new additive layer on the particle surfaces impedes the oxidation catalyst effect of the Fe in the oil. The new additive is multifunctional: i.e. friction reducer, anti-wear, extreme pressure, anti-oxidant, rust inhibitor and it is effective without pour point depressant and viscosity index improver. The necessary concentration in the oil ranges between 1/5-1/10 of the usual additives. The advantageous results with it appear in greases and cutting lubricants, too.

## **Test results**

Tests were made by RICARDO Consulting Engineers Ltd. (UK), WUMP Benzina Kolin (Czech Republic), field tests in Hungary, in the UK and in the US with buses, tractors, trucks and cars.

The Wear was reduced by 50%, the fuel consumption by 20-25%, the oil consumption by 55%, the harmful emission by 70%, the compression of the cylinders were restored in the used engines nearly to the original value.

### **Extending the oil change cycles**

The advantageous test data opened the way to exploring the possibility of increased oil change cycles. These tests were made with intercity buses. The buses are now over 7000 000 km running without changing the oil. The favorable properties with the new type of additive remained unchanged /1, 2, 3/.

### **Summary**

The new type of additive opens the way to realize the wastless use of materials and energy recommended by the UN Conference of Environment and Development in Rio de Janeiro 1992.

The new type of additive eliminates the poisoning components from the oil of I.C. engines and from the other lubricating materials. It is possible to reduce the increasing rate of CO<sub>2</sub> by reducing the fuel consumption.

### **References**

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- [2] Fodor, J.: Increased Oil Change Cycles to Protect the Environment.  
14<sup>th</sup> International Colloquium Tribology, TAE, Jan. 13-15, 2004, Esslingen, Germany
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