THE INFLUENCE OF USING LEAN MIXTURES GASOLINE-HYDROGEN ON THE PERFORMANCES OF A SPARK IGNITION ENGINE

¶

FODOR Dinu, MITRAN Tudor, PATER Sorin
¶ Universitatea din Oradea
dfodor@uoradea.ro

Key words: stand, mixture, hydrogen, dispersion, consumption

There are at present many methods of reducing fuel consumption of the engine running on lean mixtures. Several variants have bean conceived such as: the Toyota chamber [7], [8] permitting combustion of lean mixtures with air/fuel ratio λ = 1,35-1,5 with a minimum cyclical dispersion and a 10-15% reduction of fuel consumption.

Adding small quantities of hydrogen in SI engines with carburetor allows the burning of lean mixtures, improves the performances, and reduces fuel consumption and emissions in exhaust gases.

The last testing was made on the roll stand in accordance with the norms 15 CEE as well as the polluting emissions standard.

As it can be seen in fig.1 the test has been performed by comparison with a production car with the same loading at stabilized speeds.

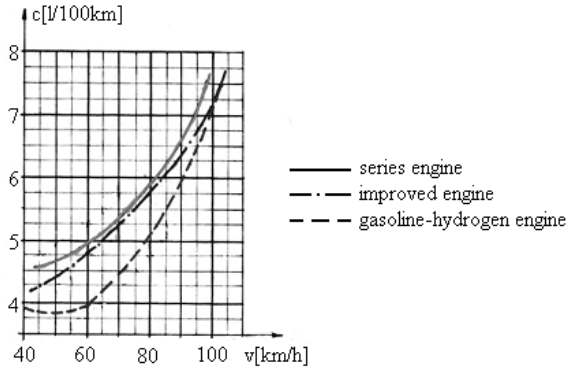

Fig. 1. Comparative consumption diagrams on the roll stand

Bibliography

[1] Satpov, E.V., Ramenskiy, A., Kuznecov, V.M, *Iseledovanie mocinostnyh, economiceskih i toksiceskih harakteristik dvigatelja, rabotajuscego na benzovodorodnyh smesjah*. In: Avtomobilnaia promyslenosti, nr.11, 1979, p.35.
[2] MATETE, WOLF, *Hydrogen And The Big Energy Options.* In: H.E.4, 2, 1972.
[3] xxx , *Hydrogen Update.* In: Hydrogen Progress, Nr.9, 1979.
[4] FURAHAMA, S. *Two-Stroke Hydrogen Injection Engine*, In: H.E.4, 6, 1979.
[5] BRADFORD, W.B., FINCH, J.G., Prlor, Mc.A. *The Ignition Of Some Explosive Mixtures By Modified Oil Discharges,* In: Journal Of The Chemical Society, May 1, 1934, P.75-79.
[6] LEWIS, B. ELBE, G., *Combustion, Flames And Explosions Of Gases*. In: Academic Press, 1961.
[7] GRUNWALD, B., T*eoria, calculul şi construcția motoarelor pentru autovehicule rutiere.* Bucureşti, Editura Didactică Şi Pedagogică, P. 80; 90; P. 857-861.
[8] GRUNWALD, B., RADCENCO, V., O *Metodă de calcul al paremetrilor procesului de ardere în M.A.S.* Metalurgia Şi Construcția De Maşini, Nr.7, 13 (1961), P.574-581.