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EFFECTS OF LPG - AIR ENRICHMENT WITH HRG GAS ON PERFORMANCE AND EMISSIONS OF A SI ENGINE

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ABSTRACT

The alternative gaseous fuels come to represent an attractive solution for the efforts to reduce in next future CO₂ emissions. Such fuels like LPG and CNG are intensively studied and promoted. The addition of hydrogen to the LPG/CNG-air mixture may contribute significantly towards accelerating the combustion process, with the beneficial effects on engine performance and emissions.

The present contribution describes the results of an experimental research where LPG-air mixture was enriched with a Hydrogen Rich Gas (HRG) produced by the electrical dissociation of water. Experiments were carried out at engine light and partial load. Detailed results of the measurements are shown, namely engine torque and efficiency, exhaust emissions, cyclic variability, heat release rates and combustion duration.

There are emphasized some possibilities to improving engine performance and emissions in correlation with the amount of HRG, the equivalence air-fuel ratio and the engine operating condition.