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## BIOETHANOL: THE WAY FORWARD

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### ABSTRACT

Since the early 1980's, light-duty vehicles in Brazil use predominantly gasohol - a blend of 22-25% of dehydrated ethanol in gasoline - or neat ethanol (with 4% water). Many benefits arose from the alcohol program: imports substitution, aid to agriculture, jobs creation and significant environmental improvements. Of this latter, are to mention lead phase-out, reductions in sulfur, particulate and carbon monoxide emissions. Increases in evaporative emissions are now controlled by advanced vehicle technologies. Acetaldehydes emissions from ethanol are far less toxic than formaldehydes from gasoline. Alcohol fuel presents 10.2:1 positive energy balance in its whole life cycle and is an excellent option for the Kyoto CDM: avoided carbon emissions amount 2.7 t CO<sub>2,eq</sub>/m<sup>3</sup> of anhydrous and 1.7 t CO<sub>2,eq</sub>/m<sup>3</sup> hydrated ethanol. The biofuel is safer and fulfills many quality requirements, especially influences in lambda, reducing emissions, miscibility and excellent anti-knock effect. Cold starts and corrosion are proven solvable problems. Almost half million of flexible fuel vehicles run in Brazil with E25 to E100 - a free market choice. Multifuel vehicles came to stay and should be promoted worldwide, improving security of supply and international trade, as well as contributing to the Kyoto targets and the Millenium Development Goals.

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