By ECON, the Energy Conservation Company

Gasification for Conventional Vehicles

Gasification generally refers to the high temperature conversion of the chemical structure of a solid into a gas. The partial combustion of a wood fuel, for example, in an oxygen deficient atmosphere will produce gas or smoke which contains most of the combustible gases normally consumed in full combustion.

An extremely simple but easily pictured example of gasification may be seen in the flame of a wooden match or a candle. The flame above has heated the wood or the wax to the point that its solid structure has been converted to a gaseous state. If these gases in the clear space below the flame are diverted prior to their ignition they can be reignited elsewhere.

A gasifier is simply the device in which a fuel—wood in this case—is partially burned in a well-regulated, oxygen deficient environment. This pyrolysis, or partial combustion of dry forest/agricultural waste (or most any biomass), produces *smoke* which contains hydrogen, carbon monoxide and a smaller amount of methane. The soot or excess carbon in the gas stream must be filtered out and the gas cooled and cleaned prior to its use as a gaseous fuel in conventional vehicle engines.

The inherent difficulties associated with this alternative fuel system will always insure its use in only cases of extreme fuel rationing or the exclusion of all other conventional fuels.