



## ***HYDROGEN from BIO-FUELS***

N-GHY is a private company created in early 2002 to develop efficient fuel processors for fuel cells systems.

N-GHY proposes a patented reforming technology based on a high temperature non-catalytic process, easily adaptable to any type of fuel, coupled with a catalytic unit for reformat gas clean-up.

The capabilities of this technology are now being demonstrated to produce hydrogen from heavy fuels such as colza methyl ester and even colza oil or sun flower oil. Running conditions for a complete conversion of the hydrocarbons into H<sub>2</sub>, CO and CO<sub>2</sub>, without the formation of any soot or solid carbon, have been defined.

N-GHY is actually working on a test bench rating a thermal power of 20kW.

Customised units delivering hydrogen mixtures suitable for PEMFCs or SOFCs and ranging a few kW to a few tens of kW can be designed and realised.

### ***Hydrogen production with CO<sub>2</sub> sequestration***

N-GHY proposes a patented process to produce pure hydrogen based on high pressure autothermal reforming of any fossil fuels or bio-fuels with water and pure oxygen. Hydrogen is extracted from the reformat gas through a permeation membrane. Excess water is easily condensed by cooling. High pressure also allows the condensation of the carbon dioxide which can be stored in a tank for further valorisation or sequestration.

Efficiencies as high as 85% can be reached.

This reforming process can advantageously be coupled with an electrolysis process : the oxygen is valorised while extra hydrogen is produced.

Reforming tests with pure oxygen are currently under progress at a 20kW scale. N-GHY is looking forward for partners to realise a complete prototype of the process at the 200kW scale in 2004/2005.

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