

## **Short Contact Time - Catalytic Partial Oxidation of Hydrocarbons and Oxygenated compounds: recent advance in pilot- and bench-scale testing**

A. Guarinoni, R. Ponzio, L. Basini

ENI Refining & Marketing Division, San Donato Milanese, Italy

### **Abstract**

ENI R&D has been active for fifteen years in the field of Short Contact Time – Catalytic Partial Oxidation (SCT-CPO) for producing Hydrogen/Synthesis Gas. From the beginning the experimental work addressed at defining either the fundamental principles or the potential of the technology. Due to the very good experimental response of the SCT-CPO method to changes of operating variables, sustained by favourable economic evaluations, the field of investigation has been progressively widened. From methane, the first hydrocarbon to be reformed, the range of Hydrocarbons “processable” via the SCT-CPO technology extended to Natural Gas, Light Hydrocarbons like LPG, Liquid Fuels, even those characterised by high levels of unsaturated and sulphurated molecules and, lately, to Oxygenated Compounds like glycerine. The oxidant can be either Air/Enriched Air or Oxygen. On the basis of Hydrocarbon/Oxidant utilised, three different Technologies have been identified with their own peculiarities and fields of application:

Technology 1: Air Blown SCT-CPO of Gaseous Hydrocarbons and/or Oxygenated Compounds

Technology 2: Oxygen Blown SCT-CPO of Gaseous Hydrocarbons and/or Oxygenated Compounds

Technology 3: Enriched Air/Oxygen Blown SCT-CPO of Liquid Hydrocarbons and/or Oxygenated Compounds

The versatility of the technology makes it the ideal candidate for meeting variable Hydrogen demand, a feature that is very appreciated in refineries contexts. The presentation will give some indications on the current status of each technology and will focus on the experimental results recently obtained, either at pilot- and bench- scale level.