

## MATRIX CONVERSION OF METHANE INTO SYNGAS WITH LOW CONTENT OF NITROGEN

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**Abstract:** The paper describes recent results on a principally new type of reformers based on the noncatalytic conversion of hydrocarbons into syngas in volumetric matrix burners. The use of enriched air and oxygen allowed us to produce syngas with low content of nitrogen for petrochemical applications, including production of methanol, syncrude oil, and others. The effective recuperation of heat of the produced syngas inside the matrix cavity enabled us to operate at optimal values of oxygen excess coefficient  $\alpha = 0.34\text{--}0.36$  thus making it possible to obtain in such simple noncatalytic process very high yields of nitrogen-free syngas with a concentration of  $\text{H}_2$  exceeding 50% and that of CO exceeding 30%.

**Keywords:** natural gas; methane; syngas; matrix burner; partial oxidation

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