NEW PROCESSES FOR LOW-TONNAGE CONVERSION OF HYDROCARBON GASES

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Abstract: Despite of significant progress in industrial GTL (gas-to-liquids) technologies, even the world class facilities have only marginal limits of profitability. One of the main reasons is the high expenditures for syngas production. As a consequence, there are no expectations of the significant increase of traditional GTL in the nearest future. The paper discusses two alternative possibilities for new generation of GTL processes. The first one is decreasing the expenditures on syngas production by the transition to a new technology of matrix conversion. The second is the development of alternative "without syngas" GTL routs via direct partial oxidation or oxycracking of hydrocarbons, such as direct oxidation of methane to methanol, selective oxycracking of heavy components of natural and associated gases, oxidative coupling of methane to ethylene with subsequent catalytic carbonylation and/or oligomerization of oxidation products.

Keywords: natural gas; associated oil gas; GTL; syngas; matrix conversion; partial oxidation; oxycracking; carbonylation; oligomerization

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