NEW PROCESSES FOR LOW-TONNAGE CONVERSION
OF HYDROCARBON GASES

V. S. Arutyunov¹, V. I. Savchenko², V. M. Shmelev¹, I. V. Sedov², A. V. Shapovalova¹,
I. G. Fokin², A. V. Nikitin¹, L. N. Strekova¹, A. I. Tarasov¹, A. S. Dmitruk²,³,
and K. A. Timofeev¹

¹N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin
Str., Moscow 119991, Russian Federation
²Institute of Problems of Chemical Physics, Russian Academy of Sciences, Chernogolovka,
Russian Federation
³Faculty of Fundamental Physical and Chemical Engineering, M. V. Lomonosov Moscow
State University, 1-52 Leninskiye Gory, GSP-1, Moscow 119991, Russian Federation

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 carbylation 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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**Contributors**

**Arutyunov Vladimir S.** (b. 1946) — Doctor of Science in chemistry, professor, head of laboratory, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences,
Shapovalova Oksana V. (b. 1987) — Candidate of Science in chemistry, research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; shapovalova.oksana@gmail.com

Fokin Ilia G. (b. 1983) — research scientist, Institute of Problems of Chemical Physics, Russian Academy of Sciences, 1 Academician Semenov Av., Chernogolovka, Moscow Region 132432, Russian Federation; ilia@icp.ac.ru

Nikitin Aleksey V. (b. 1988) — research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; nikita.nikitin@rambler.ru

Strekova Ludmila N. (b. 1954) — Candidate of Science in chemistry, associate professor, leading research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; strekova@bk.ru

Tarasov Aleksandr I. (b. 1991) — junior research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; totalrock79@gmail.com

Dmitruk Anna S. (b. 1992) — student, Faculty of Fundamental Physical and Chemical Engineering, M. V. Lomonosov Moscow State University, 1-52 Leninskiye Gory, GSP-1, Moscow 119991, Russian Federation; anitadmitruk@gmail.com

Timofeev Kirill A. (b. 1993) — student, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; krotmod@yandex.ru