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Advanced materials for biogas upgrading

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In research, the adsorbents were investigated for the separation of CO₂ from CH₄, which is relevant for the upgrading process of raw biogas. The selectivity for a mixture of biogas, on an adsorbent depends on the adsorbent structure, types and concentrations of cations present in the framework, and accessibility of the cations to the adsorbate gases. The studies on synthetic materials nowadays are focused mainly on the use of cheap initial or waste materials, as well as on the implementation of modern highly effective methods for their preparation. The research tasks are targeted to maximize the renewable benefits of biogas upgrading via innovative smart structured materials, mainly zeolites, for the upgrading of biogas in order to support the technological progress in the economy and increase share of renewable biomethane as vehicle biofuel in total energy and fuel output. The appropriate structuring of the innovative adsorbents is a crucial for the very effective and profitable biogas upgrading process to remain the same gas separation quality both for the powder and structured form or granules. Biogas upgrading process using swing pressure adsorption technology with more efficient smart adsorbents will become much more attractive and available for the all biogas station owners and producers.

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Biography

Kristine Rugele has completed his PhD from Riga Technical University and has postdoctoral studies in this university. She has published more than 20 papers and has got extensive experience in consultancy in biogas enhancement.

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