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Analysis of opportunities to improve the effectiveness of work of membranes for carbon dioxide recovery

Abstrakt. In the paper the possibility of improving of the effectiveness of work of membranes for CO₂ recovery was analyzed. Several structures of membrane systems and their impact on the separatek carbon dioxide were presented. A single-stage membrane system does not guarantee the achievement of high CO₂ purity and recovery ratio. Therefore, to obtain suitable CO₂ purity and also the high efficiency of the process, the installation with recirculation or multistage systems are applied. For the calculation the Aspen software was used. The influence of process parameters such as pressure before and after the membrane, the membrane surface and the structure of membrane installation for carbon dioxide recovery ratio and purity of the separated CO₂ were determined. Also, the influence of these parameters on the energy consumption of the process was analyzed.