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Cleaning of a renewable energy source with vitreous waste and natural zeolite membranes

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At present, the substitution of the conventional fossil fuels by renewable energies like biogas has increased. Biogas compounds are mainly methane ($CH_4(g)$, 55-70%); carbon dioxide ($CO_2(g)$, 30-45%) and hydrogen sulfide ($H_2S(g)$, 0-3%). It is essential to reduce or to eliminate this last component since it provokes various negative impacts. Because of this, the defined general objective is to propose an effective method for biogas purification using vitreous waste and natural-zeolite membranes. In the present work, the application of membranes for biogas purification was considered innovative. These membranes were obtained from glassy materials of waste matter and natural zeolite. These zeolite membranes were synthesized for the first time. The procedure for the synthesis of the membranes from natural zeolite, the structural and functional characterization of these, as well as the performance of the vitreous membranes and the identification and foundation of the factors influencing the biogas purification are the most important contributions achieved. The phenomenological mechanism using glassy and natural zeolite membranes and the variables that influence the process of biogas purification were also determined.

Biography

Lianys Ortega Viera is a teacher in the Chemical Engineering Faculty of Technological University of Havana "José Antonio Echeverría", Havana, Cuba. Since 2015, she has edited 4 volumes below, published by Academic Press: Ingeniería Hidráulica y Ambiental (2015 and 2016), Boletín de la Sociedad Española de Cerámica y Vidrio (2016) and Revista Mexicana de Ingeniería Química (2017). She has degrees in Engineering, including MS in Environmental Engineering and PhD in technical sciences.

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