Synthesis of the adsorbent for C1/C2 separation

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Due to the high energy consumption of the demethanizer based on the cryogenic distillation, the new separation process development, which can be operated at the ambient pressure or the moderate temperature, was demanded. The adsorption process receives the attention from the associated researchers as the alterative. However, the adsorption process using commercial activated carbon, which was widely used for the hydrocarbons adsorption, has the limitation due to the similar kinetic diameter of CH_4, C_2H_4, and C_2H_6. In this study, the new adsorbent, which contains the microspores on the surface, was synthesized for the C1/C2 separation. The split ratio of C1/C2 was measured by measuring the quantity absorbed of CH_4, C_2H_4, and C_2H_6. The characterization was conducted for investigating the relationship between the quantity absorbed and the material properties.