

Saving energy by great potency of latent heat removal using activated carbon derived from waste bioresources for adsorption air conditioning systems

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Abstract:

According to the prediction of the International Energy Agency (IEA), electricity consumption for air conditioners will be the main trigger for the surge in world electricity demand in 2050. By 2050 electricity consumption for air conditioners will contribute about 35% to the growth in electricity demand in Southeast Asia, including Indonesia. The efficiency of the use of air conditioning is therefore very important. Activated-carbon is a highly porous material used in adsorption refrigeration systems due to its strong adsorption of various refrigerants as adsorption pairs. The goal of this initiative is to achieve energy savings in air conditioning systems using low-cost adsorbent desiccant dehumidification. The measurement of effective adsorption of the water adsorption isotherms offered that the activated carbons have a promising potential for dehumidification. In addition, an increase in the cooling COP of air conditioners has been expected.