

APPLIED THERMAL ENGINEERING

DESIGN · PROCESSES · EQUIPMENT · ECONOMICS

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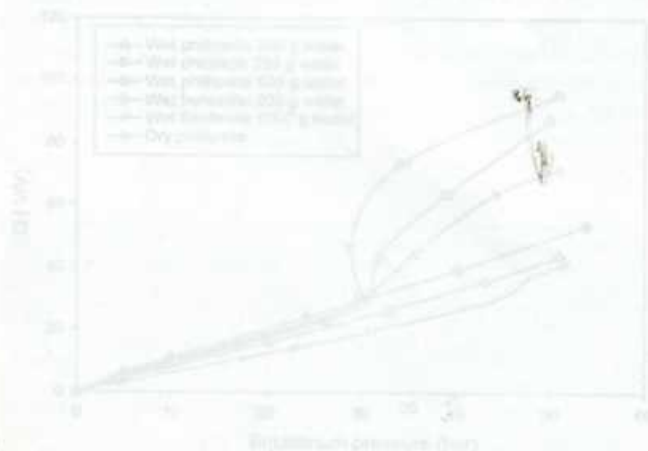
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As the water content increases, the value of Q/VV increases. However, it makes it more difficult for methane to diffuse. Since methane has a very low solubility in water and hydrates cannot occur inside dry phillipsite, the possible solution would be the hydrate formed by water adsorbent [6].

The maximum value as reported by Celzant and Maiche (1996) for AC with a surface area of 1000 g/m^2 is using 250 g water at equilibrium pressure of 60 bars and 7°C was 100 VV. This value is higher by 20% than that of wet phillipsite obtained in this work at the same conditions. Conversely, at 32 bars, the value of methane uptake for wet phillipsite (24 VV) is higher than that of the wet AC (40 VV). Activated carbon has a large micropore size distribution which requires higher pressure to form hydrate than is required for wet phillipsite [21].

3.7.3. Discharge dynamics

As previously mentioned, the amount of methane that can be delivered by adsorbent is more important than the time needed

Fig. 4. Relationship between equilibrium pressure and Q/VV for phillipsite at 7°C .