

传递现象

## 连续循环式吸附空气取水系统

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摘要

关键词 [复合吸附剂](#) [连续循环式](#) [吸附工况](#)

分类号

## CONTINUOUS CYCLE UNIT FOR EXTRACING WATER FROM AIR

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### Abstract

A continuous cycle unit to extract water from air was built, in which a new composite adsorbent  $\text{SiO}_2 \cdot x\text{CaCl}_2 \cdot y\text{H}_2\text{O}$  ( $\text{CaCl}_2$  mass content is 38.4%) prepared by the authors was used. Each adsorber contains 1.5kg adsorbent. The operating characteristics of the unit were measured in the condition of February and March in east China. When adsorption and desorption time was two hours, 0.27kg fresh water was obtained on night-time operation (air average temperature  $10.4^\circ\text{C}$  and relative humidity 77%), and 0.15kg fresh water was obtained on day-time operation (air average temperature  $22.2^\circ\text{C}$  and relative humidity 44%). When macro-porous silica gel is taken as adsorbent, 1.0kg adsorbent could be filled in each adsorber, and 0.06kg fresh water was obtained in the condition of air average temperature  $17.8^\circ\text{C}$  and relative humidity 55% with the same operation time.

**Key words** [composite adsorbent](#) [continuous cycle](#) [adsorption condition](#)

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