

Adsorption Characteristic of a Two Layer Hollow Cylindrical Silica Bed



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Abstract Desiccant air conditioning systems are using the concepts of desiccant dehumidification and evaporative cooling. Apart from desiccant material, the flow characteristics and inlet conditions also play vital role in improving the dehumidification performance of a desiccant bed. This paper communicates the experimental adsorption characteristics of two layer hollow cylinder silica bed that is used in desiccant-cooling systems for warm and very humid climates, during adsorption processes. Air velocity varied between 1 and 5 m/s and experimental investigation concluded that moisture adsorption ability is increased respect to air velocity for hollow desiccant arrangement. 3.7 m/s air velocity illustrated 2.2 times higher dehumidification rate than 1 m/s.

Keywords Silica bed · Adsorption · Hollow cylinder · Air velocity