New material for the wire mesh demister

Hisham T. El-Dessouky*, Omar A. Al Marshad

Faculty of Engineering, Chemical Engineering Department, Al Imam Mohammad Ibn Saud Islamic University (IMSU), P.O. Box 5701, Riyadh 11432, Saudi Arabia, emails: eldessouky111948@gmail.com (H.A. El-Dessouky), omaralmarshad@gmail.com (O.A. Al Marshad)

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ABSTRACT

An experimental investigation was made on the impact of various parameters on the dry pressure drop of wire mesh demister using three different materials of construction. The materials tested are the date palm fiber, industrial wire stainless steel 16 L, and *Luffa aegyptiaca* fiber. This study is limited to the measurement of the dry pressure drop using air as operating fluid. The dry pressure drop in the demister pad increases with air velocity and is inversely related to the wire size and the pad porosity. At constant air velocity, wire diameter, and pad porosity, the dry pressure for the date palm fiber is the minimum one followed by the *L. aegyptiaca*. The maximum dry pressure drop is observed when we used the stainless steel wire. Collected data are used to develop three empirical correlations for the dry pressure drop for the materials used.

Keywords: Mist eliminator; Wire mesh; Dry pressure drop; Date palm fiber; *Luffa aegyptiaca*; Thermal desalination

*Corresponding author.

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