

Study of a Developed Model Describing a Vacuum Membrane Distillation Unit Coupled to Solar Energy

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Abstract : Desalination using solar energy coupled with membrane techniques such as vacuum membrane distillation (VMD) is considered as an interesting alternative for the production of pure water. During this work, a developed model of a polytetrafluoroethylene (PTFE) hollow fiber membrane module of a VMD unit of seawater was carried out. This simulation leads to establishing a comparison between the effects of two different equations of the vaporization latent heat on the membrane surface temperature and on the unit productivity. Besides, in order to study the effect of putting membrane modules in series on the outlet fluid temperature and on the productivity of the process, a simulation was executed.

Keywords : vacuum membrane distillation, membrane module, membrane temperature, productivity

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