International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.9, No.07 pp 523-531, 2016

Modeling of a solar collector of parabolic dish and a plate heat exchanger to improve the industrial drying process of calcium propionate

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Abstract : Spray drying is a method of producing a dry powder from liquids solutions and is widely used in the food industry. However, fossil fuels is used to generate the hot air, which produce ambiental pollution. In this work will be used renewable and clean energy to design a solar energy concentrator, and its overall thermal energy generation at different operating conditions was evaluated. The system consist of three parabolic dish solar collectors coupled to a plate heat exchanger. In this design, the mathematical models of the different equipment involved in the system (solar collectors, heat exchangers, pump, pipes and fittings, etc) were established.
Keywords: Solar radiation, thermal energy, solar parabolic dish collector.

Álvaro Realpe *et al* /International Journal of ChemTech Research, 2016,9(7),pp 523-531.

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