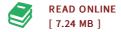


Computational Fluid Dynamics Modelling of a CSRTC Dryer

By Oyeniyi, Samuel / Aviara, Ndubisi

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Drying is a preservation method widely used in which water activity of food is decreased to minimize biochemical reactions of degradation. In order to improve the control of this unit operation, it is important to use accurate models to simulate the drying operation most especially the air flow and temperature distribution in the dryer as this is responsible for the uneven drying of the products which is one of the most reoccurring situation in a static convective dryers. This research work tends to simulate the thermal profile of the dryer system and the thermal analysis of the energy and exergy accounting of the dryer. The Computational Fluid Dynamics (CFD) model was designed with SolidWorks 2014 while the flow simulation was performed using SolidWorks Flow Simulation (SWFS) 2014 SP4.0. and then applied to the analysis of the flow parameters. Cut plots of the drying air parameters were generated and explained. The average drying air temperature obtained in the process of the Computational Fluid Dynamics (CFD) simulation was in agreement with the experimental drying temperature with emphasis on the drying tray. The energy and exergy analyses of the dryer were also analyzed. | Format:...



Reviews

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