



ChemTech

International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.11 No.09, pp 142-146, 2018

Thermo-energetic study of a continuous fluid bed dryer with vertical sectioning

Luis Obregón Quiñones^{1*}, Lawer Acevedo Castro¹
and Alvaro Romero Estrada¹,

¹Research Group on Sustainable Chemical and Biochemical Processes, Universidad del Atlántico, km 7 Antigua vía Puerto, Colombia

Abstract : At present, there are fluid bed dryers with high residence times higher than 20 minutes for the thermal treatment of granular materials in the pharmaceutical and food industry. In the present work, a continuous fluid bed dryer was designed with a very low residence time (2 seconds) to improve production. A thermo-energetic study was carried out using the infrared thermography method, which allows the analysis of the thermal profile along the bed, letting the determination of the energy losses based on the heat supply, considering the lack of isolation of the system. The dryer consisted of vertical sectioning with countercurrent flow air-solid. The results show an air temperature decrease higher than 50°C as it goes along the bed, resulting in approximately 1% in heat losses through the walls of the equipment. Therefore, the losses of thermal energy do not guarantee a uniform drying regarding the solid that flows through the bed causing a low energy efficiency.
Keywords : Infrared thermography, powder dryer, continuous drying, energy.

Luis Obregón Quiñones *et al* /International Journal of ChemTech Research, 2018,11(09): 142-146.

DOI= <http://dx.doi.org/10.20902/IJCTR.2018.110918>
