

ABSTRACT

Frying is one way to cook a raw food source by conducting the heating tool in high temperature. The frying method with a sand based heat conducting medium has more advantage not only because of the larger heat contact area, but also the heat transferred through conducting and convecting process. So that the important/urgent thing in sand based frying tool is the equally transferred heat so the heating process occurs continuously. Based on the expert user's opinion, it may conclude that the thickness of the frying plat and the burner type affect the heat transfer on the sand. But it is necessary to validate the correlation between width of plat and the burner type affecting the heat transfer which is still, an opinion. So this study did a thermal analysis using the fine element method on the suggested tube design from the paper/project "Design of sand based cracker frying machine design to reduce the MSDS risk using the reverse engineering method and redesign approach" by Purwitasari (2016). The analysis is done to the excess value of sand temperature to the combination of various tube thickness and the burner type to get the correlation between those two variables, and to increase the heat performance of the suggested machine. The analysis conclude that there is a solid correlation between the excess value to the burner type and the plat width, it also concluded that the good burner type is the t-shaped pipe burner with the thickness of tube is 0.8mm.

Keywords : Finite Element Method, Heat Transfer, Sand Medium Frying Machine