

600f Scale-up and Start-up of a Meat Analog Product

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Scale-ups and start-ups are always challenging. In the not too distant past many of the tools that we now take for granted did not exist. Many food manufacturing operations were controlled manually. This case history will look at the challenges of starting up a new meat analog facility with a complex process and manual controls. The case history will cover start-up of a 6 stream dosing system with manual controls. In addition a series of unsteady state heat transfer issues involved in the cooking and cooling of the meat analog will be addressed. This paper will also show how fundamental thermophysical data (density, heat capacity, thermal conductivity, thermal diffusivity) were measured and employed. Since meat analogs are fabricated foods, development of the thermophysical database was essential for the multiple component heat transfer calculations. In addition an ingenious method of turning a long pipe into a rheometer will be discussed. The rheological data were used to help design the piping system.