

## 含水果颗粒液态食品物料通电加热温度场研究

### Ohmic heating temperature field of liquid food materials with fruit granule

投稿时间: 2004-3-15 最后修改时间: 2004-12-16

稿件编号: 20050536

中文关键词: 液态食品; 通电加热; 水果颗粒; 温度场; 电导率

英文关键词: liquid food; Ohmic heating; fruit granule; temperature field; electric conductivity

基金项目: 吉林大学青年教师基金项目资助

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中文摘要:

利用自行设计研制的测试系统对含水果颗粒液态食品物料通电加热中颗粒中心与液态物料的温度及电导率变化进行测试, 研究得出不同固液混合食品物料通电加热中温度和固液两相电导率的变化规律; 固液两相的电导率及其加热中的变化不同是物料加热中非均匀温度场产生的主要原因, 加热装置的管壁和入料口散热及电极板附近局部过热对物料在装置加热中的温度分布也有一定影响。研究结果对进一步研究含颗粒食品电加热特性、研制实用的通电加热装置及开发高品质的含颗粒食品有参考价值。

英文摘要:

Temperatures and electric conductivities of granule center and liquid phase of liquid food materials with fruit granule were examined, respectively, with a self-designed testing system. Temperature changing laws of various solid-liquid mixing food materials, during Ohmic heating, were concluded, as well as corresponding electric conductivities of their liquid phases and solid phases. Electric conductivities of liquid phase and solid phase of materials and their different alterations, in the procedure of heating, are major causes for the development of non-uniform temperature field. While food material is heated in the apparatus, its temperature distribution is also influenced to some degree by tube walls of heating apparatus, heat diffusion of in-feed and partial over-heat near electrode plates. These experimental results can provide valuable information for deeper researches on Ohmic heating properties of liquid food with granule as well as developing practical Ohmic heating apparatus and high quality food with granule.

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