

Center for Advanced Processing and Packaging Studies (CAPPS)

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Continuous Microwave Sterilization of Fluid Foodstuffs

Research at the Center for Advanced Processing and Packaging Studies (CAPPS) has developed technology that allows fluids to be continuously and very rapidly heated, in a tube, by a focused microwave source. To eliminate microorganisms, the food must be exposed to a certain target temperature for a defined period of time; slow heating will degrade the quality of food during heat-up. This is a particular problem with highly viscous fluids that tend to have poor heat transfer rates from a heated wall. By conducting heat with microwaves, heating rates can be substantially increased with dramatic improvement in quality, without the need for scraped surface heat exchangers and large surface area heat exchangers. Continuous microwave processing may be further extensible to food systems with particulates.



Equipment for pasteurization will benefit from continuous microwave sterilization technology.

Aseptic processing of fluid foods has been practiced by industry for a fairly long time, but the quality of foods produced conventionally, by indirect heat transfer through the walls of a tube, has been limited by the rate at which the food can be heated to pasteurization/ sterilization temperatures.

Economic Impact: Continuous microwave processing makes possible a number of viscous food products to be prepared with a significant improvement in quality. It should result in substantial economies in the food processing industry.

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