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# Pasteurization of Liquid Foods Using Energy Efficient Induction Heating Technology without Water

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Induction heating technology as a promising technology for pasteurization of liquid foods needs to be developed and implemented in California to save water and energy. Californian food processing industry is one of the largest energy users and annually consumes 590 million therms of natural gas and 3,700 million kWh of electricity. Steam is the main energy source in pasteurization and evaporation. Now a main challenge of the food industry in California is to reduce energy and water use through technology innovation, particularly under the severe drought in California. Inductive heating is a dry and noncontact heating technology. In the inductive heating, alternating electric current is provided to an electric coil that induces an electrical current into metal food carriers. The induced electrical current is converted to heat that is then conducted through the food carriers to food materials. Induction heating is a fast, safe, energy efficient heating method without using water. Optimally, 95% of the electricity delivered to the coil is converted to heat. It is seen as an ideal technology for pasteurizing liquid foods and expected that application of induction heating for pasteurization of liquid foods could save up to 17% of energy compared to steam. Inductive heating has been applied in cookers and some industries such as melting, forging, surface treatment, sealing, annealing, and welding. However, its applications in food processing are limited due to the lack of research and product development for demonstrating its benefits. There is urgent need to investigate, develop and implement the technology for food processing industry in California.

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