
New Microwave pasteurization of ready meals

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The pasteurization by microwaves is a fast process which prolongs the shelf life of food while minimizing the damage of quality compared to the conventional sources of heat which transfer the energy of the outside towards the interior. The microwave treatment heats the product directly by absorption of electromagnetic energy by the food components. The transmission of energy is faster and therefore preserves the quality of the food.

Sairem has developed a patented process to allow microwave heating of the product while maintaining the sealing properties of the system, without rupturing the plastic film. Also, as this process is waterless, we can process cardboard trays, fiber trays... (more environmentally friendly). This process is also 100% electric and is therefore in line with the current trend to electrify processes.

The development of this technology is carried out in partnership with the CTCPA of Avignon, which has the first pilot equipment installed in their technology hall. (<https://www.youtube.com/watch?v=oKEdKY8kef4>). It is an innovative technology that is no longer at the laboratory stage, this pilot allows us to make tests with an important scale. Several tests and discussions are in progress with potential customers to set up an industrial production line.

First research studies have shown that it was possible to pasteurize different recipes with pasteurization values of about 1500 - 2000 min while preserving the integrity of the packaging. 3 demonstration recipes have been realized:

- Mashed potato grandmother style
- Potato sauce with sunny vegetables
- Salmon, green beans and sweet potato puree

For all the recipes we have a shelf life of more than 25 days (microbiotic analysis following the standards of the sector and study conducted by the CTCPA)

The processing times are short which allows to keep the organoleptic and nutritional properties of the product, this has been demonstrated by the realization of sensory panel by Innovaliance (consumer test on 100 people with rating of their preference on different attribute)

This research work is still in progress to find ways of optimization and also to demonstrate the energetic efficiency of the system (measurement of consumption during the realization)