

"RF/L" equipment for continuous PASTEURISATION and STERILISATION processes

The appearance of previously unknown micro-organisms causing new sorts of contamination in the food, and the pressing demand of the market for natural yet micro-biologically safe products, has forced the industry to investigate and develop new processes for the inactivation of micro-organisms and enzymes, capable of achieving these two apparently contrasting requirements: safe food with natural taste.

The use of Radio Frequency fields (at 27.12 MHz) for the pasteurisation and sterilisation of liquids and other fluidised products, even with suspended particulate, represents today a real alternative to the conventional thermal processing methods normally applied in the industry. It provides the ability to achieve high productivity levels, high product quality standards, complete guarantees of inactivation of micro-organisms without noticeable modifications of the product taste and characteristics.



"RF/L 85 kW" equipment for the pasteurisation of fruit preparations for yogurt.



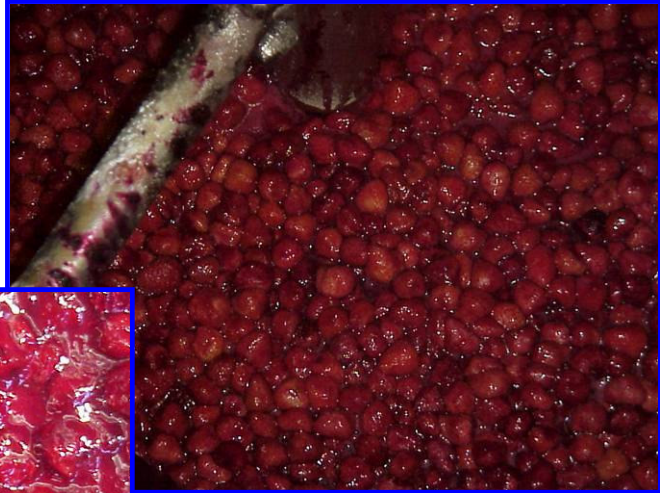
"RF/L 30 kW" equipment for the pasteurisation and sterilisation of viscous liquids.

The "RF/L" technology developed by STALAM makes it possible to carry out pasteurisation and sterilisation processes at heating rates from 1°C/sec up to 100°C/sec, depending on the characteristics of the product. Production lines with typical throughput of 2,000 l/h, incorporating the "RF/L" equipment, have been working for some years at leading European milk and fruit preparation producers.

As an example, the typical micro-biological profile of a fruit preparation for the dairy industry, before and after the pasteurisation process by means of a "RF/L" equipment, is reported here below.

Mesophylic aerobical load:
before >5000 u.f.c./g
after RF treatment <5 u.f.c./g

Sporogenic mesophylic bacteria load:
before >200 u.f.c./g
after RF treatment <5 u.f.c./g



Hyphomycetes:
before >1000 u.f.c./g
after RF treatment <5 u.f.c./g

Yeasts:
before >1000 u.f.c./g
after RF treatment <5 u.f.c./g

Main advantages of the "RF/L" technology

- . **uniform and very fast temperature rise within the product (also in the suspended particulate of any dimension)**
- . **micro-biological inactivation (safety) at lower temperatures and in much shorter time compared to conventional thermal processes**
- . **better preservation of the organoleptic, chemical and physical characteristics (structural integrity) of the product**
- . **reduced use of additives such as colours, flavours, thickeners, etc.**
- . **instantaneous heat input / process parameters control**
- . **high operational flexibility**
- . **easy cleaning (no crusting effect) and low maintenance costs**
- . **reduced factory floor space requirements**
- . **better working environment**
- . **CIP system can be used for washing**
- . **PIG system can be used for in-line change and recovery of the product**
- . **the plant sterility is maintained also in stand-by conditions**