PYRO® CONTROLE
CHAUVIN ARNOUX GROUP

Efficient control of your **pasteurization** and **sterilization** processes

> HEAT TREATMENTS IN THE AGRI-FOOD INDUSTRY

Pasteurization and sterilization are the main processes for food preservation based on specific heat treatment.

▶ PASTEURIZATION

The pasteurization process involves heating foodstuffs for a predefined duration to a temperature usually between 70 and 85 °C and then cooling them rapidly. If this temperature is exceeded, the chemical integrity of certain ingredients may be affected, making them unsuitable for sale as "fresh" produce. Should this occur, the foodstuffs will be sterilized rather than pasteurized. Once pasteurization has destroyed the pathogenic bacteria, the pasteurized foodstuffs must be refrigerated at 3 to 4 °C in order to prevent the multiplication of any bacteria not destroyed. Foodstuffs pasteurized in this way include beer, fruit juice, milk, cider, jam, etc.

▶ STERILIZATION

Sterilization was invented by Nicolas Appert at the end of the 18th century (appertization). The theoretical explanation was subsequently provided by Louis Pasteur in the 19th century. Appertization is a technique used in food canning to eliminate all the germs from foodstuffs. The foodstuffs are placed in air-tight recipients which are then heated to a high temperature, usually between 110 and 120 °C, for the time needed to destroy all the micro-organisms. A wide range of foodstuffs can be preserved in this way, including vegetables, meat, poultry, seafood and dairy products.

> THE KEY IS THE RIGHT TEMPERATURE

Pyro-Contrôle proposes a global solution for finding the right temperature, which is the key for controlling these food preservation processes.

• **The temperature sensor to be inserted into the heart of the product.**

• **The temperature sensor for process control.**

• **The digital temperature recorder for traceability of the pasteurization or sterilization process. Possibility of programming the Pasteurization Value (PV) or Sterilization Value (SV) formula chosen with the recorder's math function. Possibility of stopping pasteurization or sterilization when the PV or SV defined is reached.**

Pyro-Contrôle also proposes several families of temperature sensors for autoclaves.

AGRI-FOOD
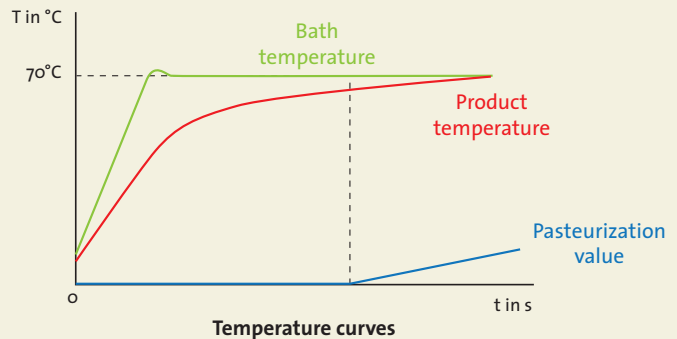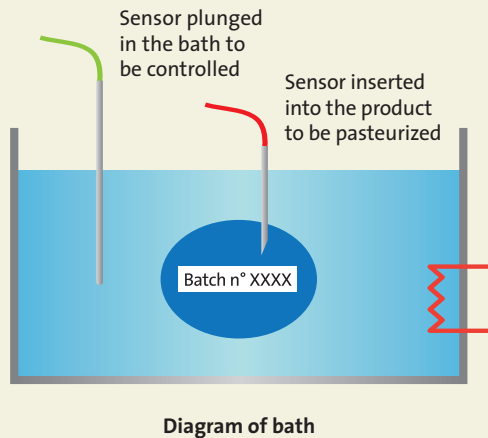
Temperature measurement

Recording

Traceability

> DIAGRAM OF A PASTEURIZATION PROCESS

After pasteurization, each batch of foodstuffs will receive a label containing various information:

▶ Type of foodstuff ▶ Batch no. for traceability ▶ Use-by date, etc.

Sensor plunged in the bath to be controlled

Sensor inserted into the product to be pasteurized

Batch n° XXXX

Diagram of bath

T in °C

70°C

Bath temperature

Product temperature

Pasteurization value

o

t in s

Temperature curves

> THE OFFER FROM PYRO-CONTRÔLE

The digital temperature recorder to ensure traceability of foodstuff batches

Pyrotracer Video CA 650 with high-definition TFT screen.

▶ Universal inputs: thermocouples, Pt 100Ω, mV, V and mA.
▶ Secure operation: isolated channels and file encryption.
▶ Ethernet link and PC processing software.

4 low-cost models:

• 3 analogue channels	Code: LR00104-000
• 3 analogue channels + 6 relays	Code: LR00105-000
• 6 analogue channels	Code: LR00106-000
• 6 analogue channels + 6 relays	Code: LR00107-000

Other models with up to 18 measurement channels are also available.

The temperature sensor for insertion into the foodstuff

K thermocouple.

▶ Food-grade stainless-steel sheath, diameter 2 mm, length 100 mm.   Code: L919773-000
▶ Output via FEP cable, length 2 m.

The temperature sensor for plunging in the bath to be controlled

Pt 100Ω probe, Class A, 3-wire mounting.

▶ 316L stainless steel sheath, diameter 6 mm, length 200 mm.   Code: L302214-508
▶ Output via FEP cable, length 2 m.

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906 211 208 - Ed 1 - 03/2010 - Non-contractual document - Please confirm specifications before ordering.