



(HTST Process)

(High-Temperature, Short-Time Process)

HTST 가
.” HTST

HTST (High-Temperature, Short-Time) 161 ℱ 15 (thermal process) 가 (heating), (holding), (cooling) 가

UHT (Ultra High-Temperature) 280 ℱ 가 가 . “ (heatup time)

HTST 가 . ” 가 (hot spot) (cold spot) hot spot cold spot spot 가 .

1. Kenneth R. Swartzel

: ()919-515-2951, North Carolina , Director of Center for Advanced Processing and Packaging Studies (CAPPS) 가 (Ohmic heating) Carnation's Flash 18 system 가 “ HTST , 10 가 18psi

(heatup time) 가 Cylindrical reactor reactor

(aseptic processing) . Reactor 6 inch,

(scraped-surface heat exchanger) 1.5 inch . reactor

(tubular heat exchanger) “ 가

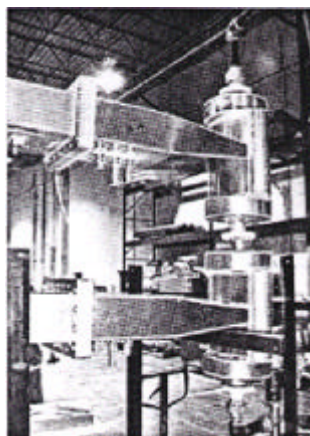
(helical heat exchanger) 가 (heatup time) ” Simunovic

가

(dimpled tubular heat exchanger) 가

가

(steam injection) (steam infusion)



2. Josip Simunovic

: ()919-513-3190, CAPPS North Carolina

Tunc Koray < 1.> IMS 2 Palazoglu Pablo Coronel flow-through reactor가 60-kw cylindrical cylindrical microwave reactor . microwave heater. North Carolina reactor IMS CAPPS (Industrial Microwave Systems Inc.) 가 cylindrical reactor , (salsa) 가 가 가 CAPPS (multiphase continuous thermal process monitoring and evaluation) reactor (single reactor) (stew) () 가 가 (NCSU) Brian Farkas , 가 가 Tyre Lanier (seafoods) 2 reactor(consecutive cylindrical reactor . reactor) 가

가
 가 Fo
 , 270 290 F
 , 290 F
 가 HTST
 “ (dielectric
 properties) 가
 가
 Simunovic . 2000 4 5-kw 가 가 (:가
 continuous microwave heating reactor 가) 가
 , 2001 6 가
 IFT annual meeting . 2001
 IMS CAPPS 2 가
 reactor가 60-kw cortinuous
 microwave heater가 가 , 가
 (1). 가
 , 가 - - (heat-hold-cool) 가
 (thermal multiphase 가
 process) . IMS 가
 cylindrical microwave reactor
 가
 (helical heat
 exchanger) (corrugated 가
 -tube heat exchanger) 가
 가 magnetic (Ohmic heating) . Land O'Lakes
 cooling . 1990
 (cryogenic 1995
 cooling), Peltier (electronic cooling) . 가 가 power
 supply . solid-state power
 supply 가 (frequency)
 radiofrequency 가

3. Sudhir K. Sastry

: ()614-292-3508, Ohio 가
 Agricultural and Biological Engineering 가
 , CAPPS HTST 가
 . Land O'Lakes

5-kw 가 Ohio 1995 1996 workshop
 Sastry , 54-kw .

(2

).



HTST (plate heat exchanger), (steam injection), (steam infusion) . “

가 가

” Sastry

가 가 electrothermal processing

2001 IFT meeting .

< 2.> Ohio Brian Heskitt

가 가

가 가

가

. Sastry

USDA() National Research

Initiative

5-kw 가 , 가

90

가

(high-acid foods) HTST (aseptic HTST process)

(adiabatic)

(decompression cool)

FDA

가

1

2

가

(aspetic process)

1997 Tetra Pak FDA()

CAPPS National

Center for Food Safety and Technology

“

가

가

4. Rakesh K Singh

: ()706-542-0994, Georgia

HTST

1989-1991 가
 가 : ()757-220-3693, Pressure pack HTST
 . Pressure Pack
 .” Singh Virginia Polytechnic Institute Virginia
 가 Fox Joseph Marcy
 (radio frequency) HTST , hot-filling ,
 scale in-container sterilization 3가
 915 2,450 MHZ RF
 () HTST
 가 (pumping) ,
 scale RF (pressurized vessel)
 HTST (container)
 가
 HTST (overpressure cooler)
 . Flash 18
 process 30 . Flash 18
 가 18psi . Fox
 가 가
 가 가
 18psi , 255 F
 가
 (dimpled) . 284 F 15
 (channel) “
 가 .” Fox 가 가
 . Scraped-surface heat exchanger 가
 가 “ 가 가
 5. Bob Fox 가
 .”

(batch process)
 690 Mpa
 90 가 가 (adiabatic heating)
 119
 6. Rich Meyer
 : ()253-539-0266, Washington
 Farms . 2001 IFT meeting
 HTST thermal-assisted high-pressure sterilization
 , “
 가 (pulse)
 ,
 pulsed electrical fields,
 irradiation, pulsed light, high pressure, oscillating
 magnetic field . (high
 pressure)
 ,
 가 , 60 가
 (pulse)가
 가
 가
 (: 2001 IFT Annual Meeting
 Abstract Book paper .)
 Meyer HTST
 Clostridium botulinum $1/10^{12}$
 121 6
 . (690 Mpa) < : Food Technology, Vol55(6), 65, 2001>