



AVURE

Revolutionizes Ready-Meals



No other HPP manufacturer can provide the range of services JBT-Avure can deliver

HPP



STRONGER TOGETHER



jbtfoodtech.com

JBT-High Pressure Processing Ready-Meals Application Brief

There has been an increased consumer demand for food that is minimally processed and additive free, and has an extended shelf life. Concurrently, demand has also increased for Ready-Meals that are convenient, flavorful, and healthy. JBT-AVURE High Pressure Processing (HPP) extends the shelf life of Ready-Meals to at least three times the shelf life of non-treated meals.

What is HPP?

HPP is cold pasteurization in pure water; it uses ultra-high pressure purified water to keep Ready-Meals free of pathogens and extend shelf life. HPP is used in several segments of the food industry to inactivate foodborne pathogens and spoilage organisms. For the Ready-Meals segment, HPP helps producers increase food safety and extend shelf life while providing consumers with nutritious, natural, flavorful meals without chemical preservatives.

Every Step of the Way

JBT-AVURE HPP helps producers implement HPP from recipe development and process validations to installation, regulatory affairs, and post-installation support.

JBT-AVURE HPP operates an in-house HPP foods applications center in Erlanger, Kentucky, USA to help partners perfect their products, formulas, and packaging. Additionally, we partner with several HPP-certified laboratories worldwide to



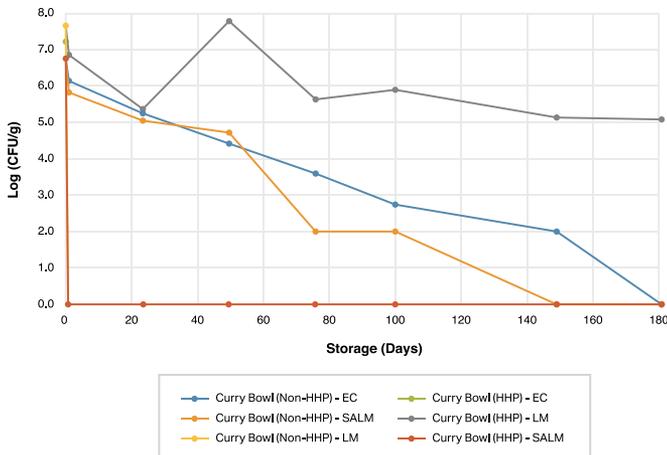
facilitate HPP product process optimization and regulatory requirements. JBT-AVURE HPP has an extensive library of process-and package-validated studies conducted for regulatory approval, which are available for our clients considering HPP technology.

Benefits of HPP for Ready-Meals

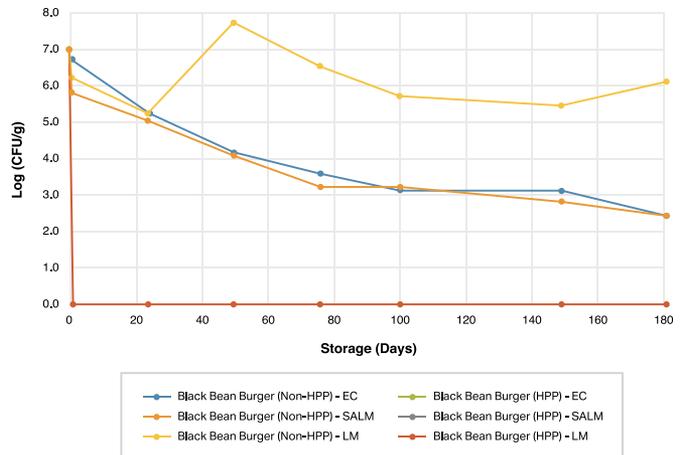
Ready-Meal producers can greatly benefit through the application of high pressure to ensure product safety and expand market opportunities. HPP is used extensively in the food industry to:

- Maintain flavor, texture, and nutrients
- Reduce sodium levels used as preservation in non-HPP processes
- Inactivate pathogens for food safety
- Increase distribution through extended shelf life, reduce returns and sensitivity to cool chain irregularities, and allow more efficient production scheduling
- Extend refrigerated shelf life

Inactivation of E.coli 0157: H7, Salmonella, and Listeria monocytogenes in Curry Bowl Ready Meal



Inactivation of E.coli 0157: H7, Salmonella, and L. monocytogenes in Black Bean Burger





JBT-AVURE High Pressure Processing for Ready-Meals

Extended Shelf Life for Increased Profitability

Many Ready-Meals that have a two-week shelf life using conventional processes or chemical preservatives can achieve up to at least a 90-day shelf life with HPP. Imagine the effect of more than tripling the shelf life of product in your current distribution channels. Longer product shelf life can allow you to reach new markets, release new products, and reduce returns. Let JBT-AVURE, with our HPP science, technology and application know-how, help you reach those possibilities.

Prevent Spoilage, Preserve Flavor

When Ready-Meals are subjected to hydrostatic water pressure, up to 600 Mpa/87,000 PSI, for just a few minutes, the levels of spoilage organisms are reduced significantly, and vegetative pathogens such as Salmonella, Listeria monocytogenes, and E. coli are inactivated. HPP-treated Ready-Meals retain their original sensory qualities, such as texture, color, and nutritional content, throughout their shelf life. Their quality extension reduces product spoilage and returns.

In addition to retaining the natural properties and nutrients in Ready-Meals, while reducing dependence on chemicals and other quality degrading processes, HPP can extend product shelf-life for a longer period than "traditional" preservation methods.

Trusted Science and Technology

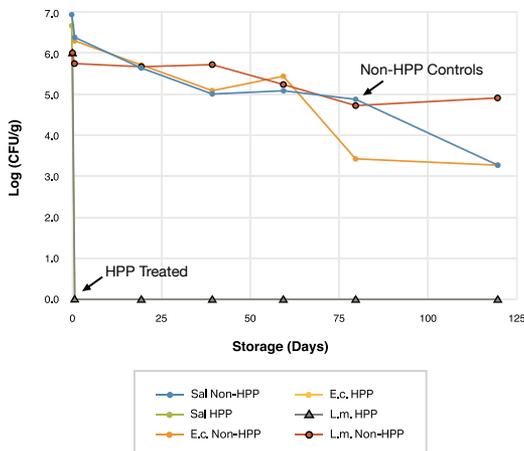
Conventional processing techniques such as heat, freezing and added chemicals have lost consumer appeal. HPP enables consumers to get the natural and safe Ready-Meals they desire in their local grocer's refrigerated section or even delivered right to their front door. HPP Ready-Meals taste like a fresh, home-cooked meal, without having to prepare it from scratch!

Research at the JBT-AVURE HPP Food and Science lab has shown that high pressure may have a positive impact on reducing the allergenicity of certain food components. Population segments, such as the elderly or people with food allergies, benefit from this process as it makes digesting and tolerating food much easier. For example, starches can be easier to digest after HPP treatment.

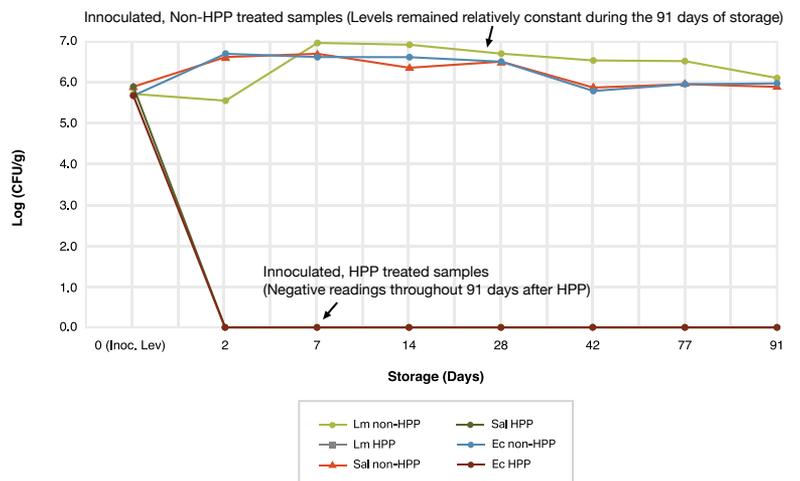
A Post-Package Process

With HPP, Ready-Meals are processed in the final consumer package, eliminating the potential for recontamination. Most existing plastic food packages are already suitable for HPP, including vacuum and gas-flushed. The load/unload process can be automated, integrating with conventional equipment and HACCP programs while allowing for rapid changeover between product types.

Pathogen validation study for hummus without preservatives



Pathogen challenge: chicken sausages



JBT-Avure High Pressure Processing for Ready-Meals



WE ARE YOUR SINGLE SOURCE FOR PROFITABLE PROCESSING SOLUTIONS

JBT is a leading provider of integrated food processing solutions. From single machines to complete processing lines, we enhance value and capture quality, nutrition and taste in food products. With a local presence on six continents, JBT can quickly provide our customers and partners in the food processing industry with the know-how, service, and support needed to succeed in today's competitive marketplace.

JBT LIQUID FOODS

FRESH PRODUCE TECHNOLOGIES | FRUIT AND VEGETABLE PROCESSING | SECONDARY PROCESSING | ASEPTIC SYSTEMS | FILLING AND CLOSING
IN-CONTAINER STERILIZATION | HPP HIGH-PRESSURE PROCESSING

OUR BRANDS



ALSO REPRESENTING



JBT PROTEIN PROCESSING

SECONDARY

BRINE PREPARATION | HOMOGENIZATION | INJECTION
INJECTION & RETURN MILLING | MACERATION | MASSAGING
TENDERIZATION | TVI MEAT SLICING | AUTOMATED TRAY LOADING

FURTHER

WEIGHING | PORTIONING/TRIMMING | COATING | FRYING & FILTRATION
PROOFING | COOKING | COOLING | CHILLING | FREEZING | REFRIGERATION
CLIPPING & PACKAGING SOLUTIONS | X-RAY TECHNOLOGY | HIGH-PRESSURE PROCESSING



ALSO REPRESENTING



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