

HIGH PRESSURE PROCESSING (HPP) is a **non-thermal lethality** process able to keep fresh attributes of juices, smoothies and other fruit & vegetable beverages.

Freshly prepared beverages are placed into a high pressure vessel in **their final flexible package** (bottle, pouch or canister with normal head space), and subjected to a high level of hydrostatic pressure (isostatic pressure transmitted by water). **Shape and integrity remains unchanged because pressure is identical on every part of the product.**

HPP is an “all-natural”, clean, environmentally friendly technology which does not void the organic products manufacturing. HPP machines only require electricity and water, which is recycled.

Premium, natural and/or organic beverages maintain higher sensory, functional and nutritional values while improving shelf-life and food safety.

This process is suitable for many different kinds of packaging such as bottles, bags, pouches...

JUICES, SMOOTHIES >

HPP is the best option for preserving fresh flavor of raw fruit & vegetable juices. This non-thermal process keeps the original flavor, taste and color, allowing the creation of the highest quality premium range. The real taste of freshly squeezed juice is maintained.



< CLEANSSES

New *detox* beverages have been successfully launched in the last 5 years under the category of “cleanses”. The juice cleanse consists on cutting food intake while upping the supply of nutrients and vitamins through raw juice; giving to the body enough time and nutrients to carry out a deep detoxification. HPP allows manufacturer to obtain raw and natural products with extended shelf-life.



COCONUT WATER >

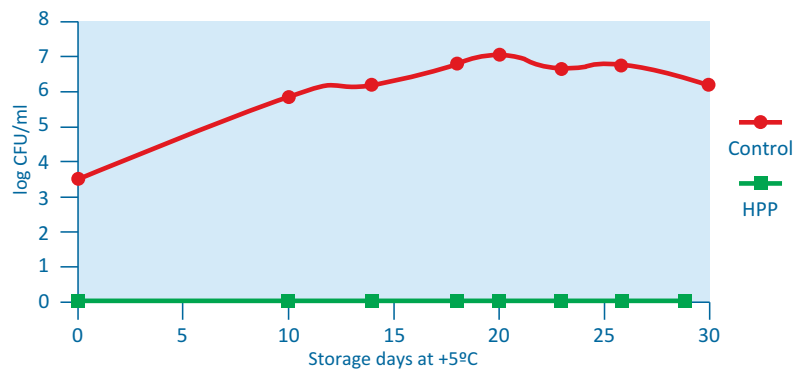
Coconut water contains electrolyte salts such as magnesium, potassium, calcium, sodium and phosphorus in nature's perfect balance to rehydrate the body. This is the reason why coconut water is considered the best isotonic natural beverage. Coconut water processed by HPP keeps all the nutrients and flavor of raw product. High pressure process is the only option to develop and “all-natural” coconut water, with an extended shelf-life and preservatives-free.



ELIMINATION OF MICROORGANISMS & SHELF-LIFE INCREASE

High pressure between 400 MPa (4000 bar, 58000 psi) and 600 MPa (6000 bar, 87000 psi) from 1 to 10 minutes reduced several log cycles of spoiling microorganisms (yeasts, molds, lactic acid bacteria, psychrotrophic bacteria) and pathogens (*E. coli*, *Listeria spp*, *Salmonella*, *Cryptosporidium*...) in fruit and vegetable beverage. HPP can assure 5 log-reduction of pathogens in beverages depending on process parameters. Shelf-life is multiplied by 3 up to 10 times comparing with the same product without HPP, at the same storage temperature. Both, microbial and sensorial quality, are maintained up to the end of shelf life. HPP beverages stay fresh much longer.

Total microflora of orange juice control or pressure processed during 1 min at 500 MPa / 72,500 psi



FUNCTIONAL BEVERAGES

HPP as a non-thermal and delicate post-packaging lethality intervention allows development of healthier food: rich in vitamins, anti-oxidants and thermosensitive antimutagenic components, bringing a higher level of functionality to new products. Juice products, where nutritional value are seriously compromised by heat treatment, can now be high pressure processed such as pomegranate, apple, blueberry, carrot, broccoli, beetroot, algae and other fruit and vegetable juices.



HPP ADVANTAGES

- No heat so no impact on sensory, nutritional and functional properties: ➤ Premium/new products development
- Post bottling cold pasteurization avoiding recontamination: ➤ Secure products
- Effective in eliminating spoilage and pathogenic microorganisms: ➤ Protect the brand
- Increases shelf-life while maintaining products freshness: ➤ Expand markets