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What's new in Food Engineering? High Pressure Processing

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Photos courtesy of 2000 Flow International Corporation



Most food is preserved using some sort of a thermal process like traditional canning. An alternative is high pressure processing (HPP) which uses ultra high pressure - 4000 to 9000 atm! - to destroy microorganisms and inactivate enzymes. Since this is a non-thermal process (temperature increases are minimal), product freshness, flavor, texture, and color retention are excellent. A number of commercial products are available: orange juice, salsa, cured ham, tenderized beef, oysters and clams.



Ultrahigh-pressure equipment does not cause heat damage, and yields foods that retain their fresh or just prepared characteristics.

Photos courtesy of 2000 Flow International Corporation

HPP processes are batch or continuous. In a typical batch process, products are held in a pressure vessel, and placed in a plastic bag and surrounded by a pressure transmitting medium (often water). Pressure is intensified with a hydraulically driven piston. Process pressures, hold times, and temperatures are controlled electronically.

HPP technology has been commercialized in Japan for more than 10 years; its popularity in North America is recent. Expect to see more HPP products in the future.