



PROTECTING THE GOOD:



**USING HIGH PRESSURE
PROCESSING (HPP) TO DELIVER
& MARKET HEALTHY FOODS**

This whitepaper explores how HPP supports the development of fresh, safe, clean-label products and enables brands to meet and market according to the latest FDA directives on healthy food labeling.

Executive Summary

High Pressure Processing (HPP) is a non-thermal food preservation method that uses cold water and high pressure to inactivate pathogens and spoilage organisms while maintaining the nutritional and sensory qualities of food. With growing demand for minimally processed, clean-label, and healthy food and beverage products, HPP offers a compelling solution for both consumers and brands. This whitepaper explores how HPP can enable the development of higher quality products, allowing brands to market according to the latest FDA directives on healthy food labeling.

Introduction: The Shift Toward Health-Focused Consumption

Consumers are more health-conscious than ever before, seeking products that are not only fresh and safe, but also made without additives or preservatives. In response to this growing demand, the U.S. Food & Drug Administration (FDA) has updated its "Healthy" Nutrient Content Claim directive to better align food labeling and product formulation with modern nutritional science. Food manufacturers are under increasing pressure to formulate clean, healthy product offerings while preserving taste, texture, and shelf-life.

Understanding High Pressure Processing (HPP)

HPP is a cold pasteurization technique where packaged food products are immersed in cold water and subjected to extreme pressure - up to 87,000 psi (or 6,000 bar) - for a set hold time, depending on the product. This process effectively inactivates harmful bacteria and spoilage organisms without the need for heat, which can degrade sensitive nutrients and change the flavor, and/or texture of the product.

FDA Rule: Food Labeling: Nutrient Content Claims, Definition of Term 'Healthy'

FDA's Updated "Healthy" Claim Definition

The "healthy" nutrient content claim for use in food labeling was originally developed in the early 1990s. Nutrition science and dietary recommendations have changed over the years, so FDA has updated the "healthy" claim for foods. Healthy diets are made up of a variety of food groups and nutrients and the "healthy" claim can help consumers identify those foods that are the foundation of healthy dietary patterns.

Limits on: Saturated fat Sodium Added Sugars

Required to contain: A minimum amount of recommended food groups and sub-groups (vegetables, fruits, dairy, protein foods, whole grains) which contain an array of nutrients.

Examples of foods that qualify under the updated "Healthy" claim:

- Fresh whole fruits and vegetables
- Frozen, chopped, dried, or canned fruits and vegetables*
- Salmon
- Trail mix with nuts and dried fruit*
- Plain low-fat or fat-free yogurt
- Eggs
- Water
- 100% olive oil

* Nutritional content of these items may vary based on added ingredients and must meet a minimum food group amount and required limits for saturated fat, sodium, and added sugars to qualify to bear the "healthy" claim under the updated definition.

Source: <https://www.fda.gov>

Key Advantages of HPP for Healthy Food Products

- Inactivation of foodborne pathogens like Listeria, Salmonella, and E. coli
- Preservation of vitamins, enzymes, and antioxidants
- Preservation of fresh taste, color, and texture
- Extension of shelf-life without added chemicals or preservatives

Alignment with FDA's New "Healthy" Nutrient Content Claim Directive

The FDA has recently implemented new rules for how "healthy" claims can be made on product packaging. These changes focus on the deduction of unhealthy ingredient, the inclusion of certain food groups, and cleaner-labels. HPP enables brands to meet the criteria more easily.

FDA Requirement

High Pressure Processing

REDUCTION OF UNHEALTHY INGREDIENTS



HPP REDUCES THE NEED FOR PRESERVATIVES:

Since HPP inactivates spoilage organisms, products do not need added chemicals or preservatives that might disqualify them from "healthy" claims.

INCLUSION OF CERTAIN FOOD GROUPS



HPP ENABLES NUTRITIONAL RETENTION:

HPP retains more nutrients than thermal preservation methods, ensuring the product maintains its full nutritional health value.

CLEANER LABELS



HPP SUPPORTS WHOLE-FOOD INGREDIENTS:

HPP works well with cold-pressed juices, ready-to-eat and ready-to-cook proteins, dips, spreads, and wet salads, helping brands use whole ingredients that align with the FDA's food group requirements.

FDA Alignment:

How HPP Helps:

Key Applications:

FDA Alignment:	How HPP Helps:	Key Applications:
Limits on Sodium	HPP extends shelf life without needing high salt for preservation, allowing formulators to reduce sodium content.	Deli meats, soups, sauces, dips, seafood, ready meals
No or Low Added Sugars	Since HPP doesn't require sugar for microbial control or flavor masking, products can eliminate or reduce added sugars.	Juices, smoothies, dairy drinks, fruit preps, yogurts
Low Saturated Fat	Enables clean-label preservation of low-fat products without needing fat-based stabilizers or preservatives.	Dairy, plant-based spreads, lean proteins, dressings
Retention of Key Nutrients	HPP is non-thermal, so it preserves vitamins, antioxidants, and minerals that degrade with heat processing.	Cold-pressed juices, baby food, guacamole, fruit purees
Minimally Processed	HPP qualifies as a minimal processing method, supporting clean label claims and aligning with FDA's preference for fresh-like foods.	All HPP-compatible, fresh, refrigerated foods
No Chemical Preservatives	HPP inactivates pathogens without synthetic additives like sorbates, benzoates, nitrates, or artificial preservatives.	Beverages, sauces, dips, deli meats, seafood, plant-based
Supports Freshness & Quality	Maintains natural color, texture, and flavor, reducing need for additives like colorants, flavor enhancers, or stabilizers.	Salsas, hummus, guacamole, dairy, juices
Microbial Food Safety	Achieves high levels of food safety without compromising clean formulations, helping products stay compliant and safe.	Ready-to-eat meals, proteins, fresh-cut fruits, seafood
Extended Shelf Life	Allows for longer shelf life while staying within "healthy" formulation limits; no need for shelf-stable preservatives.	Perishable refrigerated foods across categories
No Need for Acidification	Unlike other preservation methods, HPP doesn't require lowering pH with acids—avoiding excess sodium or flavor imbalance.	Soups, sauces, dressings, plant-based dips

Marketing Advantages from HPP

Food and beverage companies using HPP can capitalize on a variety of marketing claims. These claims can help products stand out on crowded shelves, and help health-conscious consumers quickly select the products that resonate with their preferences.



Healthy Claims Supported by HPP*

MINIMAL INGREDIENTS

- No preservatives
- No sodium added
- No nitrates

WHOLE FOODS

- 100% juice
- 100% natural
- Minimally processed

CLEAN LABEL

- Nothing artificial
- No additives
- Organic

**The FDA's definition of "healthy" depends on nutrient content (like low fat, low sodium, etc.), so HPP alone doesn't grant a "healthy" claim unless the product qualifies nutritionally.*

Conclusion

High Pressure Processing is a transformative technology that enables food and beverage brands to meet the growing demand for healthy, clean-label products. By preserving nutritional integrity and eliminating the need for artificial preservatives, HPP allows companies to align with FDA health labeling directives while offering products that appeal to the modern consumer.

About the Author

Universal Pure, experts in High Pressure Processing (HPP) technology and food safety innovation, provide strategic partnership to food and beverage brands looking to adopt HPP to stay competitive and focused on the safety and quality of their products.

Sources

<https://certified-laboratories.com/blog/process-validation-for-high-pressure-processing-hpp/>

<https://fda.gov/food/hfp-constituent-updates/fda-finalizes-updated-healthy-nutrient-content-claim>

<https://infoemplea2.com/en/news/official-notice-to-walmart-target-and-costco-a-new-fda-law-will-forever-change-the-way-you-sell-food-starting-in-2025/>

<https://www.food-safety.com/articles/6159-high-pressure-processing-keeping-foods-fresh-healthy-and-safer>

<https://www.hiperbaric.com/en/top-10-hpp-benefits/>

<https://nielseniq.com/global/en/insights/education/2024/fresh-food-trends-2025/>

<https://ohioline.osu.edu/factsheet/fst-fabe-1001>

<https://www.whitehouse.gov/wp-content/uploads/2022/09/White-House-National-Strategy-on-Hunger-Nutrition-and-Health-FINAL.pdf>