Commercial Applications of High Pressure Processing
Wednesday 23rd November 2016
Teagasc, Ashtown.

Liam Murphy- HPP Tolling
HPP Tolling began in October 2012 with the goal been to Opening the first commercial HPP Tolling Station in Ireland. This was achieved in November 2014.
HPP Tolling is currently registered under Article 6 of 852/2004 and has been allocated an EU registration number MH1-14 and has been entered in the Department’s Register of businesses authorised to carry out High Pressure Processing of products of animal and non-animal origin. This number allows for HPP Tolling to trade within the EU.
HPP Tolling Ltd
Food Central, St Margaret’s, Dublin, Co. Dublin, Ireland

BRC Site Code: 8274820

has been audited by SAI Global and found to meet the requirements of

Global Standard for Storage and Distribution (Issue 2: September 2010)

Scope: The storage of chilled goods to include contracted services (Chilling, High Pressure Processing - HPP).

Product Categories: 01 - Chilled and Frozen Food

Exclusions: None.

Auditor Number: 123004

Initial Audit Date: 02-December-2015
Date of Audit: 02-December-2015
Re-audit Due Date: 02-December-2016

Issue Date: 22-December-2015
Expiry Date: 13-January-2017
What is a HPP Tolling Station?

- An independent processor.
- Available to all producers.
- No exclusivity arrangements.
- Centrally located.
- Each Station having the capacity to process up to 380Tonne/week.
- Centre of knowledge and learning in a partnership approach with many other organisations.
Partners/Advisors.
“HPP involves subjecting food to 300 to 600 MPa of pressure or 87,000psi”

- **Car Tyre has 30psi.**

- **The Mariana Trench** is 6.85 miles deep and the pressure at the bottom is 15,750psi.

- 600MPa is equivalent to been 60Km deep in water, the distance from Dublin Airport to Newbridge Co. Kildare.

- **Water laser cuts steel at 50,000psi.**
Pressure is applied uniformly by surrounding the packaged products in water which acts as the medium to **transfer** the pressure to the product, it’s the moisture in the product itself that treats the product, unlike heat pasteurisation where heat variants can occur throughout the product HPP is a completely uniform treatment.
Listeria monocytogenes. Before (left) and after (right) HPP
Figure 1. Effect of high-pressure treatment on survival of *C. jejuni* in cold-smoked salmon.
How the System works.
Hiperbaric 420

Guacamole
Advantages of HPP

- Increased product shelf life – even for food that is sensitive to heat.
- Reduces product returns/food waste due to date code expiry.
- Low-temperature preservation method: no loss in product quality compared to heat pasteurisation.
- Eliminating the cost of expensive recalls.
- Brand protection.
- Eliminates harmful bacteria such as salmonella, Listeria and e coli allowing the production of safer food.
- Allows companies to expand into export markets.
- Enhanced food safety due to inactivation of spoilage organisms and relevant food borne pathogens.
- Processing in final consumer packaging is possible (no recontamination)
- Additive-free preservation of food by using only pressure.
- Salt level in food can be reduced substantially.
- Cost reduction in product formulations.
- Increased production efficiency due to larger more cost effective production runs.
- Production of “natural/clean label”, safe value-added food with a superior quality.
- Homogenous effect of HPP: Results are independent of product size and geometry.
- Further benefits like large yield increase compared to traditional processes (e.g. extraction of lobster meat from the shell, meat tenderising)
- Waste-free and environmentally friendly, sustainable technology – only water and electricity are needed.
Suitable Products for HPP.

- Meat products
- Avocado Products
- Ready To Eat Meals
- Seafood products
- Juices
- Fruit products
HIRO BY ROISIN
Perfect Fit Meals Texas

Shelf-life went from 5 to 30 days with HPP

Layered Selections: Simply Stir & Serve!

Black Eyed Pea Salad with Couscous & Corn
Grilled White Chicken Pasta Alfredo
Southern Style Three Bean Salad

Cheesy Mac & Cheese
Mediterranean Style Pasta Salad
Spaghetti with Meatballs
Made by Cow will now make and sell 'cold-pressed raw milk' as an alternative to the conventional heat pasteurised kind, after it was given approval by the NSW Food Authority.
Fresh Cheese.

El Pastoret (Spain)
Billy Bear

Made with 100% CHEDDAR CHEESE

New

No artificial colours, flavours or preservatives

Made in Ireland

Source of Calcium

peel here
KICK START YOUR DAY WITH A NOURISHING BREAKFAST IN A BOTTLE

- MADE WITH REAL FRUIT
- PACKED WITH OATS AND QUINOA
- SOURCE OF FIBRE AND PROTEIN
- ONE OF YOUR FIVE A DAY
- LOW FAT
Once Upon a Farm

10 Recipes to Grow With

Our Promise: Healthy Ever After
Cucina Fresca™ Pasta Sauce

Product's shelf life is 120 days from date of manufacture. 100% natural - NO additives and NO preservatives!

Enjoying the great flavours of traditional Italian pasta sauce is as simple as opening a bowl of Cucina Fresca Tomato & Basil, Garlic Robusto, or Garden Marinara Pasta Sauce.
FRESH GUACAMOLE

Ready To Eat
100% Fresh
Hass Avocados & All Natural Ingredients
No Additives or Preservatives

Mr. Avocado®

HPP Tolling

Ceagasc
Food Innovation Gateways
Hormel’s Natural Choice.

The first use of HPP for nationally available prepackaged lunchmeat, Hormel’s Natural Choice line was introduced in 2005.
While some retailers didn’t know quite what to make of his ‘chilled soup in a bottle’ when he first started pitching the concept last year, around 75% “just got it immediately”, says Tio Gazpacho founder Austin Allan. “And then they would say: How come no one has done this before?”

While the price tag - $8.99 for a 12oz bottle with a 60-day shelf-life (thanks to high pressure processing) - is high, it’s consistent with what people are paying for a bottle of premium cold-pressed juice, says Allan, who is now exploring whether the shelf-life could be raised to 90 days or more.
The Little Pharma.
HAPPY COCO.

100% RAW YOUNG COCONUT WATER: THE STUFF THAT MAKES YOU HAPPY!

BIO - ORGANIC - FAIR TRADE
Cold pressure treated
Roikosteqlität

KEEP ME COLD BETWEEN 0-6°C

250 ml

Produced in Gt Lanka.
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Happy Coco!
STRAIGHT FROM THE NUTS.

RAW
Coconuat watcr
TURNS PINK BY NATURE

ORGANIC KingS COCONUT WATER

Ceagasc
Agriculture and Food Development Authority

Food Innovation Gateways
Cornucopia Juices
Skinny Malinkys.
4 SOME HEALTH
Delpierre (France)

Seafood Excellence Global Awards Winners

Seafood Product Line
Delpierre Filets preserved by high pressure pasteurization, Delpierre
HPP FISH: DESALTED RTE COD

- Sanitisation and shelf life increase.
- More than 1 month shelf-life in HPP desalted, RTE cod
- Know how for prevention of texture changes
Gold Band Oysters
Preshucked, Easy Open, Better Flavour, Better Shelf Life - Fresh
In 2001, the US FDA evaluated some strategies for microbial inactivation and stated: “Ground beef can be pasteurized by HPP to eliminate E. coli O157:H7, Listeria spp., Salmonella spp., or Staphylococcus spp.”

HPP raw meat has intact the quality parameters throughout their shelf-life. According to M. Martin, 2011, HPP burgers maintain the quality parameters up to 42 days meanwhile control (no HPP) burger quality start to decrease on day 7.
Rare HPP’ed Burger.
Clean label HPP’ed raw marinated chicken breasts in oven ready packaging, no mess no waste and 100% safe with 4-6 weeks shelflife.
HPP Global Production 2014
+ 700,000,00 Kg

- Meat products: 26%
- Vegetable products: 28%
- Seafood and fish: 15%
- Juices and beverages: 14%
- Other products: 17%
Number of commercial machines in operation.
Q&A