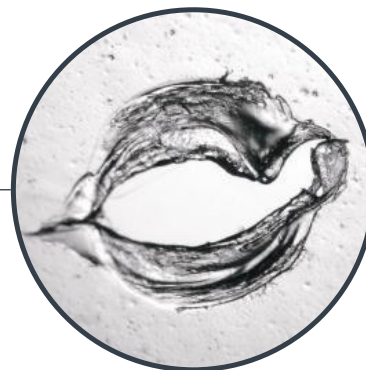




**GET MORE
OUT OF YOUR FRESH PRODUCE**

CONTROLLED ATMOSPHERE PACKAGING

What's the difference?



850 μm (0.033")
20x magnification

STANDARD HOT NEEDLE PACKAGING

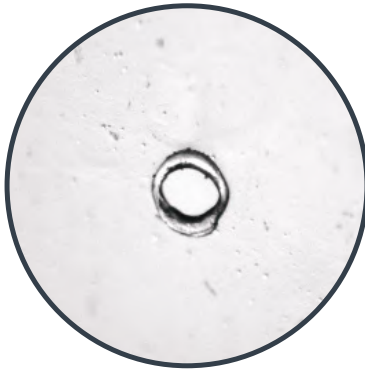
Inconsistent hole sizes produce variable gas transmission rates, resulting in rapid aging and moisture loss.

☯ **Moisture Loss = 43.7%**

These Thai Chili Peppers are from the same batch. They were picked the same day, packaged at the same time, and stored in the same cooler.

**Independent test results after:
19 days at 45° F (7° C)**

It's the BAG!



120 μm (0.005")
40x magnification

PPC CONTROLLED ATMOSPHERE PACKAGING

Calculated in-register laser micro-perforation slows aging and preserves eating quality.

💧 **Moisture Loss \leq 0.1%**

These Thai Chili Peppers are from the same batch. They were picked the same day, packaged at the same time, and stored in the same cooler.

**Independent test results after:
19 days at 45° F (7° C)**

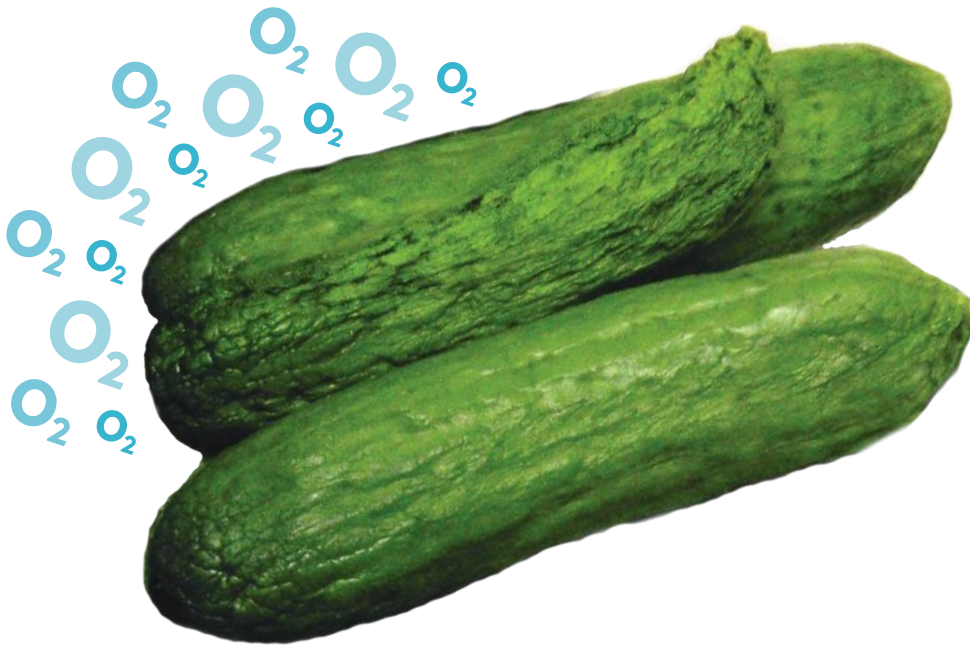


FRESH PRODUCE MARKET SEGMENT

CONTROLLED ATMOSPHERE PACKAGING (CAP)

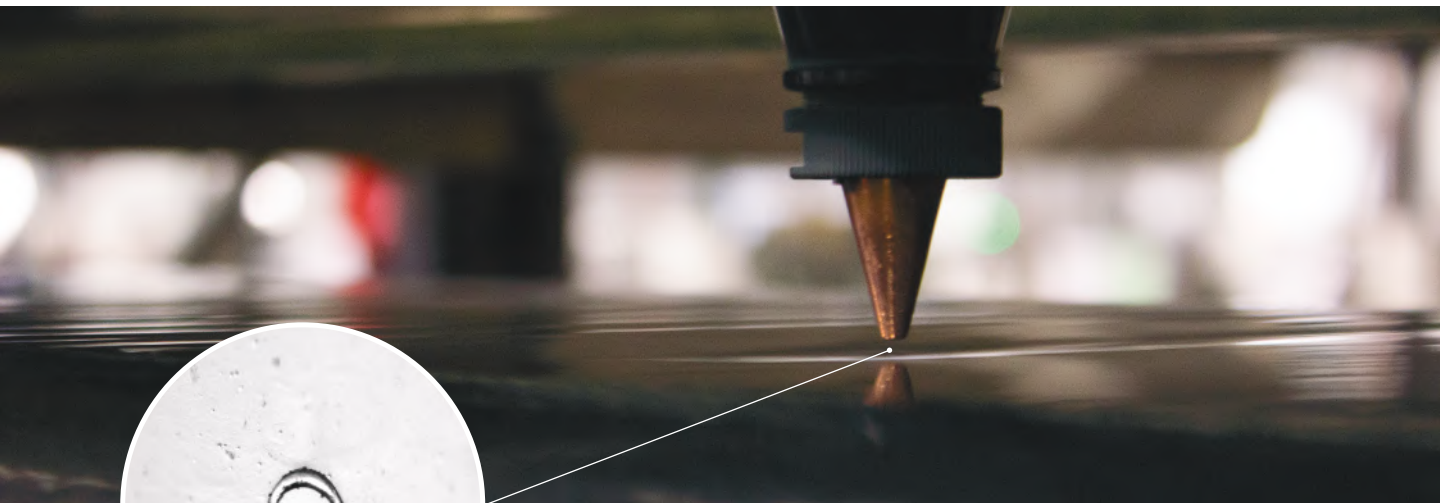
PROBLEM: TOO MUCH OXYGEN = RAPID AGING & MOISTURE LOSS

Standard packaging ventilation uses inconsistent hole sizes that allow too much oxygen causing produce moisture loss. Too much oxygen can enhance bacterial decay, rapid spoilage, encourages leaf sprouting, tissue discoloration, produce blemishes and also deteriorates the produce's natural sweetness.



SOLUTION: PPC CONTROLLED ATMOSPHERE PACKAGING

Using patented and proven laser technology, Controlled Atmosphere Packaging minimizes oxygen with a customized and produce specific calculation based on the produces unique respiratory needs. PPC Flexible packaging can effectively extend shelf life and minimize moisture loss while preserving quality and visual appeal.



120 μm (0.005")
40x magnification

PPC CONTROLLED ATMOSPHERE PACKAGING

Calculated in-register laser micro-perforation slows aging and preserves eating quality

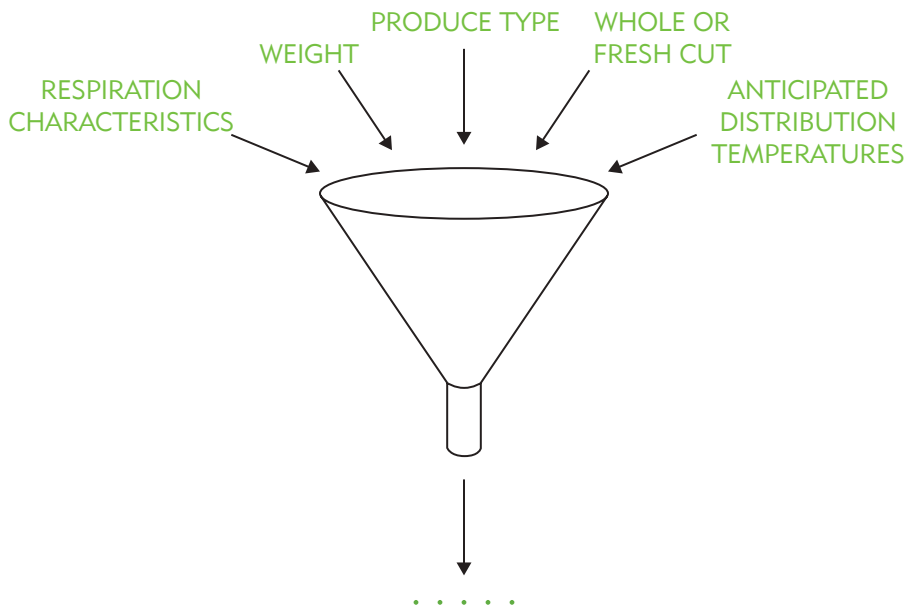


FRESH PRODUCE MARKET SEGMENT

CONTROLLED ATMOSPHERE PACKAGING (CAP)

FORMULA: THE RIGHT RESPIRATION

Every controlled atmosphere package is meticulously customized taking into consideration the respiration needs and unique characteristics of each fresh produce item. PPC's on-staff specialist uses a patented formula that has proven results.



Exact size and number of laser micro-perforations
to achieve the optimal respiration



6350 μm (0.25")
3x magnification



STANDARD HOT NEEDLE PACKAGING

0.25" vent holes produce excessive respiration, resulting in rapid aging and moisture loss.

● **Moisture Loss = 29.8%**



120 μm (0.005")
26x magnification



PPC CONTROLLED ATMOSPHERE PACKAGING

Calculated in-register laser micro-perforation slows aging and preserves eating quality

● **Moisture Loss <0.7%**



Independent test results after: 7 days at 51° F (11° C) + 7 days at 41° F (5° C)

FRESH PRODUCE MARKET SEGMENT

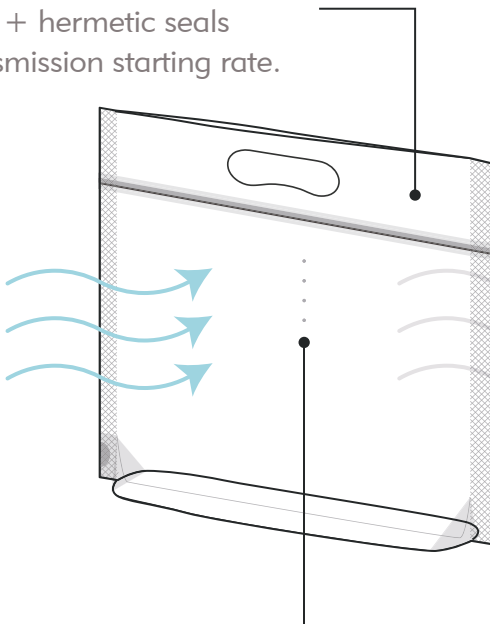
CONTROLLED ATMOSPHERE PACKAGING (CAP)

THE PERFECT PACKAGE

In addition to Controlled Atmosphere Packaging, PPC also offers many features that extend shelf life and enhance the visual appeal of your produce.

High barrier films + hermetic seals
= consistent transmission starting rate.

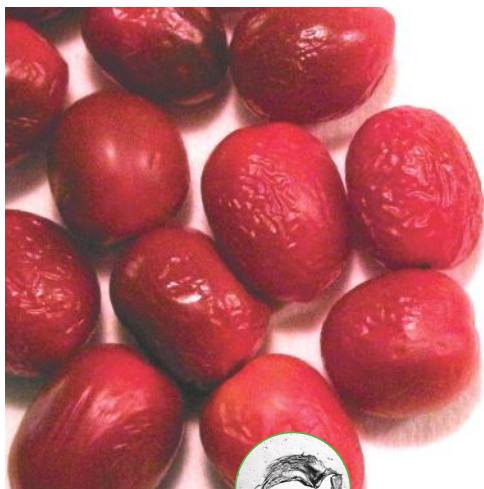
Calculated O_2
Oxygen (O_2) flow
is reduced to slow
respiration/aging
process.



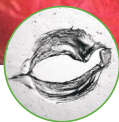
ANTICIPATED
DISTRIBUTION
TEMPERATURES

CO_2
Moisture is retained and
excess CO_2 is allowed to
escape.

Scientifically calculated laser micro-perforations
are consistently placed.



850 μm (0.033")
13x magnification



STANDARD HOT NEEDLE PACKAGING

Inconsistent hole sizes produce variable gas transmission rates, resulting in rapid aging and moisture loss.

● **Moisture Loss = 17%**



120 μm (0.005")
26x magnification



PPC CONTROLLED ATMOSPHERE PACKAGING

Calculated in-register laser micro-perforation slows aging and preserves eating quality.

● **Moisture Loss = 2.7%**



Independent test results after: 3 days at 55° F (12° C) + 29 days at 62-72° F (16-22° C)

FRESH PRODUCE MARKET SEGMENT

CONTROLLED ATMOSPHERE PACKAGING (CAP)

RETAIN MOISTURE, REDUCE WASTE

Controlled Atmosphere Packaging (CAP) creates the appropriate atmosphere that allows produce to retain moisture longer and delays ripening.

- Maintain saleable weight
- Maintain color, texture, and visual appeal
- Retain produce turgidity to help prevent penetration by microorganisms



Too much oxygen can convert natural sugars into starch, making some produce less sweet.

Taste benefits associated with PPC Controlled Atmosphere Packaging include:

- Preserves natural sweetness
- Extends shelf life while maintaining flavor
- No salt, sugar, or syrup needed
- Allows you to pick closer to peak ripeness
- Maintains quality and freshness without additives or preservatives

Better Quality & Longer Shelf Life = Retailer & Customer Loyalty = \$\$\$

MAKE MORE WITH LESS

Less product waste and better produce means you make more. With longer shelf life you can develop long lasting retailer and customer loyalty with produce that has visual appeal and tastes better.

GROWER BENEFITS

- Retain moisture
- Minimize spoilage
- Reduce shipping costs

RETAILER BENEFITS

- Extend shelf life
- Less labor & waste costs





STANDARD HOT NEEDLE PACKAGING

Netted bags produce excessive respiration resulting in rapid aging and moisture loss.

● **Moisture Loss = 13.7%**



PPC CONTROLLED ATMOSPHERE PACKAGING

Calculated in-register laser micro-perforation slows aging and preserves eating quality.

● **Moisture Loss < 1%**

120 μm (0.005")
26x magnification



Independent test results after: 5 days at 52° F (11° C) + 18 days at 73° F (23° C)

FRESH PRODUCE MARKET SEGMENT

CONTROLLED ATMOSPHERE PACKAGING (CAP)



6350 μm (0.25")
3x magnification

STANDARD HOT NEEDLE PACKAGING

0.25" vent holes produce excessive respiration, resulting in rapid aging and moisture loss.

● **Moisture Loss = 18.8%**



120 μm (0.005")
26x magnification

PPC CONTROLLED ATMOSPHERE PACKAGING

Calculated in-register laser micro-perforation slows aging and preserves eating quality.

● **Moisture Loss < 0.5%**

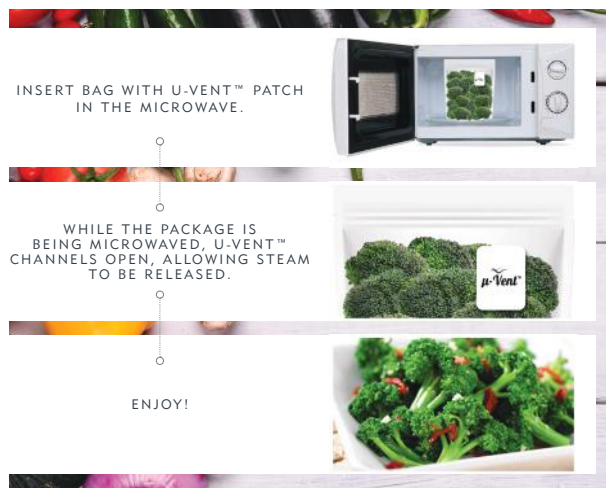
Independent test results after: 18 days at 50° F (10° C)



A BETTER WAY TO MICROWAVE

Innovative smart label is the efficient and cost effective way to microwave without piercing or cutting the bag before heating.

Materials that are used to produce μ-Vent™ labels readily accept printing inks and are available for pouches, rear weld bags, flat bags, and rollstock.



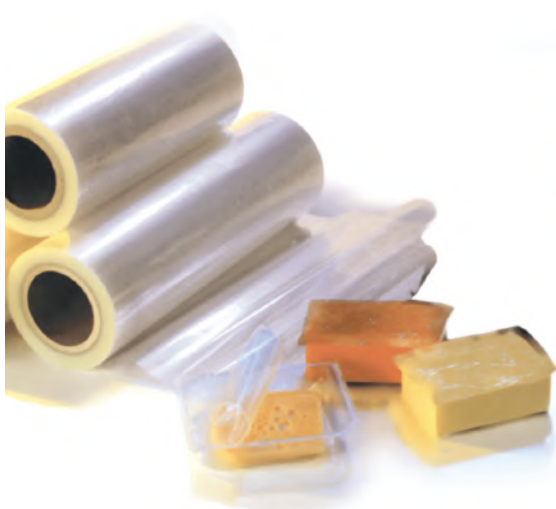
- Controls Water Loss
- Superior Anti-fog
- Extends Shelf life
- Compatible with Windham's Packaging patented M.A.P. laser micro-perforation
- Available in rollstock, rear weld, and side weld applications

FRESH PRODUCE MARKET SEGMENT

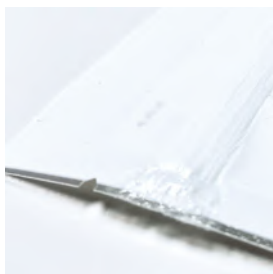
LIDDING FILM

LIDDING FILM

- Available in laminated structures to encapsulate ink between layers of film
- Compatible with Windham Packaging patented C.A.P. laser micro-perforation
- Extends shelf life
- Available with registered vent holes
- Available with custom print

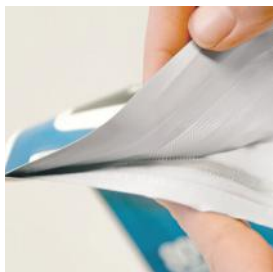


CLOSURES & PERFORATIONS



STANDARD PRESS-TO-SEAL ZIPPER

Reliable, cost effective, and most commonly used.



APLIX ZIPPER

Extremely user-friendly, great to seal through contamination, and sets your product apart from the competition.



POCKET ZIPPER

Pull-to-open tab, enclosed zipper, no contamination while packing, and clean look after opening.



SLIDER ZIPPER

Easy-to-use zipper, doesn't require bag to be sealed, child-resistant options available, standard slider, and is federally certified.



INNO-LOK ZIPPER

Commonly pre-applied to roll stock and only zipper option for Quad Seal bag style.



FRANGIBLE SEAL

An ideal fit for multi-compartment bags, frangible seals have a release agent to keep items separate until the right moment.



HIGH HEAT ZIPPER

This zipper is heat resistant to prevent melting inside the microwave.



PATENT LASER PERF

Retain moisture, reduce waste and labor costs, reduce aging, extend shelf life, maximize taste, and preserve natural sweetness.

10 ADVANTAGES OF FLEXIBLE PACKAGING

1. Increase impact.

Over **50%** of at-the-shelf **purchase decisions** are **based on packaging**.

3. Flexible packaging **extends the shelf life** of many products, especially food, and has a **positive sustainability profile**.



6. **Widely extendible** into diverse product categories

7. Provides **reclosure and dispensing** options.

9. Flexible packaging ultimately results in **less consumer waste** being sent to landfills.



2. Flexible packaging requires **less energy to manufacture and to transport**, and **generates smaller quantities of greenhouse gases** on its way to market.



4. Meet **increasing demand** for convenient, prepackaged, ready-to-eat produce.

5. Improve operating efficiency through **traceability**.



8. Offers **consumer conveniences**.

10. Flexible packaging takes up **less retail shelf space**, so brands can launch new products in multiple flavors instead of one or two.

PPC FLEXIBLE
PACKAGING

YOU AND PPC

PPC will deliver peace of mind by providing you with the highest value packaging experience through superior customer service and exceptional packaging.

- Industry expertise
- Stunning print
- Creative design
- Anti-fog films & coatings
- Domestic manufacturing for fast turnaround
- Guaranteed quality

MULTI-COMPARTMENT POUCHES

bundle separate produce items into value-added kits, ideal for large retail stores and membership outlets.



CRIMP SEAL GUSSETED BAGS

feature cost-effective coextruded film and a heavy-duty crimp seal bottom. All bags are heat sealable.



FORM, FILL, & SEAL ROLLS

can come laminated, printed, and even laser micro-perforated. Rolls are suitable for a wide variety of machinery.



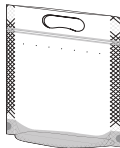
HD WELD FLAT BAGS

feature heavy-duty side seals for exceptional strength. Bags are available in laminated and coextruded films.



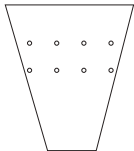
STANDUP POUCHES

feature a bottom gusset for upright presentation and optional interlocking zippers for a convenient resealable closure.



CONICAL SLEEVES

Conical Sleeves are ideal for live herbs and potted plants. Perforation options including matrix based drainage are available.



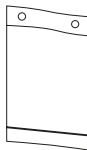
QUAD SEAL BAGS

provide a strong square shape for crisp upright presentation with a durable hermetic seal on each corner.



WICKETED BAGS

feature convenient wicket holes and tear-away perforations for easy manual or machine loading.

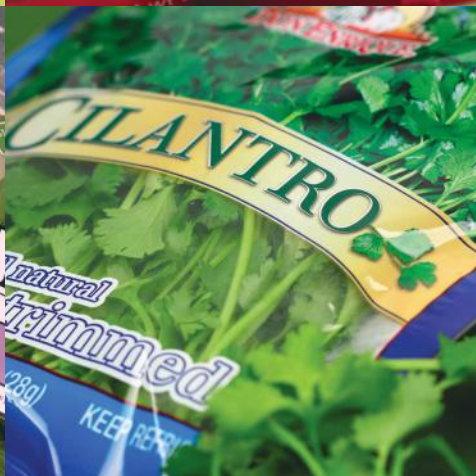


BACK WELD FLAT BAGS

have a single fin seal in the back, facilitating clean presentation and easy opening.



LET US EXCEED YOUR EXPECTATIONS!
CALL US TO SPEAK WITH A PRODUCE PACKAGING EXPERT.



BREATHE

We've got this in the bag

IN PARTNERSHIP WITH



PPC FLEXIBLE
PACKAGING™

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