



APPLES & PEARS

THE CHALLENGES OF TRANSPORTING APPLES AND PEARS

Apples and pears are increasingly being exported to foreign markets as worldwide demand for the fruit continues to expand. Most varieties of apples and pears offer a relatively long shelf life, making the fruit fairly easy to ship on short voyages. Unfortunately, for long-range transport risk of loss increases significantly because both apples and pears are extremely sensitive to ethylene and are susceptible to decay—even more so as the fruit softens—during transit.



Wanting to take advantage of the global opportunity, shippers sometimes employ controlled atmosphere (CA) reefers for sensitive varieties to help maintain quality during transport. Use of CA containers delivers mixed results, because CA can provide some level of ripening control but it does little to combat the growth and spread of mold. This limitation has led shippers from the leading apple- and pear-producing regions of the world to turn to Purfresh® Transport—the industry’s only solution that offers ripening and decay prevention without the use of harmful chemicals.

THE VALUE OF PURFRESH TRANSPORT

Consistently outperforming alternatives in side-by-side comparisons, Purfresh Transport promotes higher-quality arrivals by maintaining freshness and extending the shelf life of conventional and organic produce during ocean transport. Engineered as an active cargo protection system, Purfresh Transport delivers where traditional atmosphere management systems and antimicrobials fall short by actively monitoring and managing the environment inside the reefer container throughout the voyage. Offering the unparalleled combination of superior ripening control with 100% residue-free decay prevention and enhanced food safety, Purfresh Transport is an ideal solution for shipping decay-prone or ethylene-sensitive produce. With Purfresh, the value adds up quickly:

- Prolonging shelf life increases value for the consignee as well as the retailer.
- Minimizing waste increases returns and reduces claims processing costs.
- Maintaining freshness over longer distances enables the use of ocean transport to reach and develop new markets.

HIGHLIGHTS

- Maintains post-harvest freshness, taste, firmness, and smell
- Extends shelf life
- Controls blue and gray mold
 - Kills surface and airborne microorganisms
 - Stops nesting
 - Shuts down sporulation
 - Leaves no residue
- Oxidizes airborne and surface bacteria and viruses
- Outperforms CA containers
- Maintains firmness by consuming and regulating ethylene
- USDA and FDA approved
- USDA certified for organic produce
- Supports directives to reduce chemical residues
- Enhances food safety
- Available on-trip load monitoring

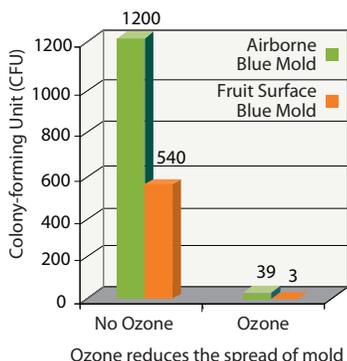
The Value Adds Up



- Reduced Waste
- Increased Shelf Life
- Avoided Claims Processing
- Reduced Grade Degradation
- Reduced Repack
- Increased Marketability

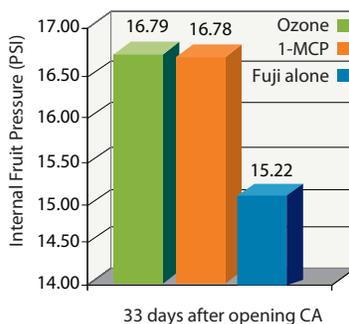
INCREASED VALUE \$\$

SPORE LOAD REDUCED BY 97% TO 99%



Source: USDA

FRUIT PRESSURE MAINTAINED BY CONTROLLING ETHYLENE



Source: Production Apple Customer



With Purfresh, penicillium is not infecting neighboring apples

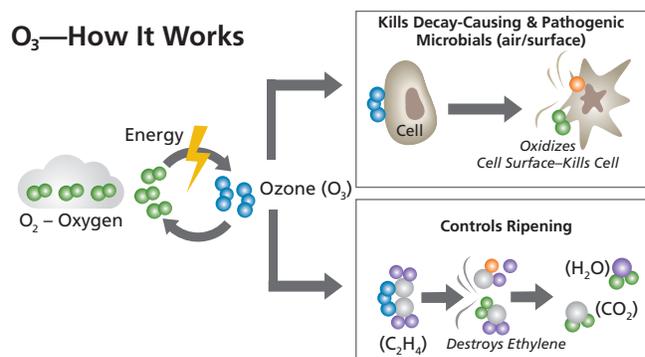


HOW DOES IT WORK?

Purfresh Transport—scientifically engineered as an active cargo protection system—is the only solution proven effective to control ripening, reduce decay, and enhance food safety without the use of chemicals. Its patent-pending technology uses an active form of oxygen—commonly referred to as ozone—to kill molds, yeasts, bacteria, and viruses in the air and on surfaces, as well as to consume and regulate ethylene levels. Certified organic and approved by the USDA and FDA, ozone acts as a powerful, residue-free disinfectant that immediately reverts back to oxygen, leaving the product’s taste, texture, and smell characteristics in their natural state.

To maximize efficacy, the Purfresh technology easily integrates with the container’s refrigeration unit to precisely control and evenly distribute the ozone molecules throughout the cargo. In addition, the system actively monitors and adjusts the ozone levels throughout the voyage based on changes in the condition of the cargo or the atmosphere. Proven and cost-effective, Purfresh Transport delivers what no other solution can—a chemical-free approach to extending shelf life, minimizing waste, and maintaining the quality of fresh produce during long-range ocean transport.

O₃—How It Works



COMPARE THE VALUE FOR APPLES & PEARS

	FUNGICIDES	PURFRESH TRANSPORT
MOLD CONTROL	Blue and gray mold; resistant mold strains could build up	All types of mold; mold is oxidized and cannot become resistant to ozone
ETHYLENE CONTROL	No	Converts ethylene to water and carbon dioxide (process is outside the fruit)
RESIDUE ON FRUIT	Yes	No
TASTE	No impact	Natural flavors maintained
DOSAGE / APPLICATION	Typically a drench application	Ozone is applied continuously, thus controlling mold and ethylene constantly
REGULATORY COMPLIANCE	Discharge must be hauled away	No EPA record keeping required

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