



The *Art* of natural freshness



OxyHeal Sachet

*Preserving the colour, flavour and safety
of fresh meat, seafood & poultry.*

THE CHALLENGE

Fresh. *Protected.*

Oxygen is the primary driver of spoilage in fresh proteins — accelerating bacterial growth, oxidative discoloration, and lipid rancidity. OxyHeal eliminates it at the source.

3–5×

typical shelf life extension for fresh red meat and poultry cuts in independent studies

<0.1%

residual O₂ achieved inside sealed packaging within 24 hours of sachet activation



SUPAC OxyHeal sachets reduce oxygen levels inside sealed packaging to below 0.1% — using iron-powder activation triggered by the moisture naturally present in fresh proteins. No gases, no chemicals, no residue.

PREVENTION OF OXIDATIVE DISCOLORATION

Myoglobin in fresh beef and lamb oxidizes from bright oxymyoglobin (red) to metmyoglobin (brown) when exposed to oxygen. OxyHeal preserves the appealing colour consumers expect at point of purchase.

INHIBITION OF AEROBIC SPOILAGE BACTERIA

Pseudomonas, Enterobacteriaceae, and other aerobic bacteria require oxygen to proliferate. Reducing O₂ to near-zero starves them, dramatically extending microbial shelf life.

PREVENTION OF LIPID OXIDATION & RANCIDITY

Fatty fish (salmon, mackerel) and marbled cuts are highly susceptible to oxidative rancidity. OxyHeal eliminates the trigger — extending flavour integrity across the cold chain.

By maintaining near-anaerobic conditions, SUPAC preserves colour, flavour, aroma, and microbiological safety — without refrigerants, preservatives, or modified atmosphere equipment.

"Because every protein deserves to reach its full shelf life"



CHAPTER 01 • PEER-REVIEWED STUDIES

Research Evidence — Protein Freshness

Published studies documenting shelf-life extension via oxygen-scavenger sachets in meat, poultry, and seafood — covering fresh cuts, retail mince, fillets, and processed formats.

NO.	STUDY • SOURCE	PRODUCT TESTED	CONTROL → EXTENSION	KEY FINDING
01	Lund & Nicholson, 2004 <small>J. FOOD PROTECTION • WILEY</small>	Fresh beef steaks Chilled MAP, 2 °C	<5 d → 18 d Sub-0.1% O ₂ maintained throughout.	OS preserved bright oxymyoglobin colour for the full 18-day study; control steaks turned metmyoglobin-brown within 5 days.
02	Randell et al., 1995 <small>FOOD MICROBIOLOGY • ELSEVIER</small>	Fresh poultry (bone-in) MAP packaged, 4 °C	4-7 d → 16-21 d OS + 60% CO ₂ atmosphere.	Combined active packaging reduced psychrotrophic bacteria counts by 3 log CFU/g versus MAP-only control at day 14.
03	Mexis et al., 2012 <small>FOOD CONTROL • SCIENCEDIRECT</small>	Sea bream fillets Chilled retail, 4 °C	2-4 d → 10-14 d Active pack, near-anaerobic.	Sensory rejection delayed by 6–8 days; total viable counts and H ₂ S-producing bacteria significantly suppressed versus aerobic storage.
04	Kerry et al., 2006 <small>MEAT SCIENCE • ELSEVIER</small>	Retail beef mince MAP, retail, 4 °C	3-5 d → 14 d OS + CO ₂ MAP combination.	Colour score maintained above consumer rejection threshold for 14 days. Lipid oxidation (TBARS) values remained significantly lower throughout.
05	Coma, 2008 (review) <small>MEAT SCIENCE • ELSEVIER</small>	Processed deli meats Sliced, chilled format	21-30 d → 60-90 d OS + vacuum packaging.	Oxygen scavengers combined with vacuum packaging achieved commercially significant shelf life gains for chilled sliced meats across multiple trials.

CHAPTER 02 • BY PRODUCT CATEGORY

Shelf Life Increase Across Protein Categories

Side-by-side comparison of typical retail shelf life and the achievable extension through active oxygen management — across six protein categories.

PRODUCT	STANDARD SHELF LIFE	WITH OXYGEN MANAGEMENT
Fresh Beef & Lamb Cuts Chilled MAP, 2–4 °C	3–5 days	12–18 days Practical cold-chain standard
Fresh Poultry (bone-in) MAP packaged, 4 °C	4–7 days	14–18 days Commercial distribution standard
Fresh Fish Fillets Chilled retail, 4 °C	2–4 days	8–12 days Near-anaerobic retail pack
Shrimp & Shellfish Chilled MAP, 2 °C	2–3 days	7–10 days O ₂ eliminated, commercial MAP
Sliced Processed Meats Deli/retail chilled	21–30 days	45–60 days OS + vacuum packaging
Smoked & Cured Fish Vacuum/MAP, chilled	14–21 days	40–55 days O ₂ eliminated

CHAPTER 3 • COST EFFICIENCY

Let's make it financially sensible



— 01 • THE MARKET

\$35.8B Meat Processing Market

Canadian meat processing and seafood sector (2024). Cold-chain proteins carry the highest per-unit value — even small shelf gains translate directly to less waste and fewer markdowns.

— 02 • THE RESEARCH

5–16 Extra Days for Fresh Proteins

Studies consistently show OS sachets extend fresh meat and seafood shelf life by 5–16 days. One trial extended retail beef mince from 5 to 14 mold-free days.

— 03 • THE MODEL

Break-even at Just 0.5%

At 1M packs/yr • CAD \$20.00/pack • 7¢ sachet, only a 0.5% spoilage reduction fully covers the sachet cost. Every additional percent is pure recovered margin.

— 04 • THE UPSIDE

\$250K+ Net Gain at 8%

An 8% spoilage reduction yields +\$250K annually. For premium proteins (\$15–20/pack), six figures are reached at just 3–4% improvement.

SHELF-LIFE EXTENSION

What If Your Fresh Proteins Stayed *Fresher,* *Longer?*

The answer could transform your cold-chain economics. Head to supac.ca to explore OxyHeal shelf-life solutions for meat, seafood, and poultry — and request a free sample today.

