

Validating Sustainable Films for MAP



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Executive Summary

A leading European cheese packaging company needed to validate new recyclable mono layer films without risking product loss or compromising shelf life on their mission to change their environmental impact positively.

Gasporox provided the GPX1500 Film Food instrument to support six months of non destructive oxygen measurements across 18 cheese batches. The system enabled continuous tracking of oxygen levels within the same packages over time, helping the customer understand barrier performance of the new materials.

The project resulted in clear insights into material behaviour, confirmed comparable barrier properties to existing films, and identified unusual oxygen behavior in specific cheeses. These findings guided the customer's transition to more sustainable packaging.

This case illustrates how food producers can evaluate packaging changes efficiently while preserving product samples and reducing waste.

Customer Profile

Industry: Packaged cheese (Modified Atmosphere Packaging)

Size: Third largest cheese packer in the Netherlands, operating 3 packaging sites.

Operations: Maturing, slicing, and packing of more than 1,500 package designs, and large export volumes.

“These trials have provided valuable insights into the performance of different packaging materials and will guide Vergeer Holland in selecting the best recyclable packaging solutions for our products.” - Vergeer Holland

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The Challenge

The customer aimed to reduce environmental impact by shifting from multilayer films to mono layer recyclable materials. This transition was driven by retailer pressure, sustainability goals, and the need to minimize packaging material.

They needed to understand how the new materials would affect shelf life across different cheese types, including products with rind that can puncture packaging. Manual or destructive oxygen testing would waste valuable products and prevent long term tracking of the same package.

The company required a method to:



Oxygen Ingress Comparison

Compare oxygen ingress between reference and new recyclable films



Repeated Measurements

Perform repeated measurements on the same packages over 120 days



Non-Destructive Testing

Detect packaging integrity issues without damaging samples



Decision Support

Support the decision making process for selecting new materials

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The Solution

Gasporox provided the GPX1500 Film Food instrument for a six month test campaign performed jointly with additional 3rd party.

Implementation setup:

- Testing of single layer and other recyclable materials in parallel with existing packaging films
- Analysis of 18 batches of different cheese types
- Non destructive monitoring of oxygen levels in the same packages every second week
- Evaluation of both cheese filled and empty packages to understand absorption vs. barrier behaviour
- Tracking changes in residual oxygen to assess film permeability over time

The non destructive method enabled repetitive measurements without sacrificing packaging or product, ensuring reliable long term data collection.

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The Results

Quantifiable findings from the trial:

- Cheese containing products absorbed oxygen, reaching approximately 0 percent oxygen after 120 days.
- Empty packages showed gradual oxygen increase from 0.2 percent to an average of 17 percent at 120 days.
- Recyclable films demonstrated oxygen behavior similar to the reference materials, indicating comparable barrier performance.
- The team identified packages with abnormal oxygen increases linked to specific cheese types, enabling deeper investigation.
- The GPX1500's non destructive method saved all packages, reduced waste, and allowed complete timeline analysis.

Operational outcomes:

- Clear data to support decision making on recyclable film adoption
- Improved understanding of packaging performance over shelf life
- Instrument now used in the customer's laboratory for quality verification and testing future materials

“The Gasporex GPX1500 Film Food device played a vital role in providing reliable measurements and insights into the performance of the new monolayer films.”

- Customer

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Key Takeaways

- Non destructive headspace analysis allows repeated measurements over time without destroying samples.
- Objective oxygen trend data supports fast, confident evaluations of new film materials.
- Comparable barrier performance of recyclable materials accelerates sustainability transitions.
- The GPX1500 Film Food instrument integrates easily into R&D and quality labs for ongoing testing needs.

Planning packaging material changes or evaluating new recyclable films? Contact Gasporox to explore how non destructive oxygen measurement can support your shelf life testing and material validation efforts.