



# Scaling Smart Freshness Monitoring with SAFER and Useeble Smart Labels

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## The problem

Traditional freshness monitoring tools, such as static date labels (e.g., “best before” dates), often result in food spoilage before it can be utilized effectively, discarding food prematurely.

## The solution

SAFER and Useeble Smart Labels offer an integrated approach to monitor food freshness. Thanks to the use of advanced thermochromic and humidity-sensitive materials, freshness could be tracked with high precision by employing dynamic, colour-based indicators embedded into packaging. These indicators react to environmental conditions like temperature and humidity by changing colour in real-time: green is freshness, yellow caution, and red spoilage.

## Benefits



**Enhanced Transparency** to optimize stock rotation & inventory management.



**Reduction in Food Waste** through accurate monitoring to identify spoilage risks early.



**Extended Shelf Life**, by providing clear insights into environmental conditions affecting freshness.



**Sustainability impact thanks to minimised food waste**, reducing the carbon footprint associated with wasted production, transportation, and disposal.



**Improved Consumer Trust** through reduced confusion around date labels.

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## PRACTICAL RECOMMENDATIONS

- **Logistics and Transportation:** ensuring that perishable goods arrive at their destination in optimal conditions. The dynamic indicators allow for real-time adjustments.
- **Retail Management:** freshness indicators allow better management of stock rotation and shelf placement.
- **Consumer Usage:** consumers can easily determine if a product is safe to consume, reducing disposal.



### About SISTERS and this Practice Abstract

This practice abstract was elaborated in the framework of the SISTERS project, based on the EIP AGRI practice abstract format. © 2024

**Project dates:** from November 2021 to April 2026.

**Goal:** to systemically reduce food loss and waste in the main stages of the food value chain in Europe through innovations targeted to each stage of the chain.