



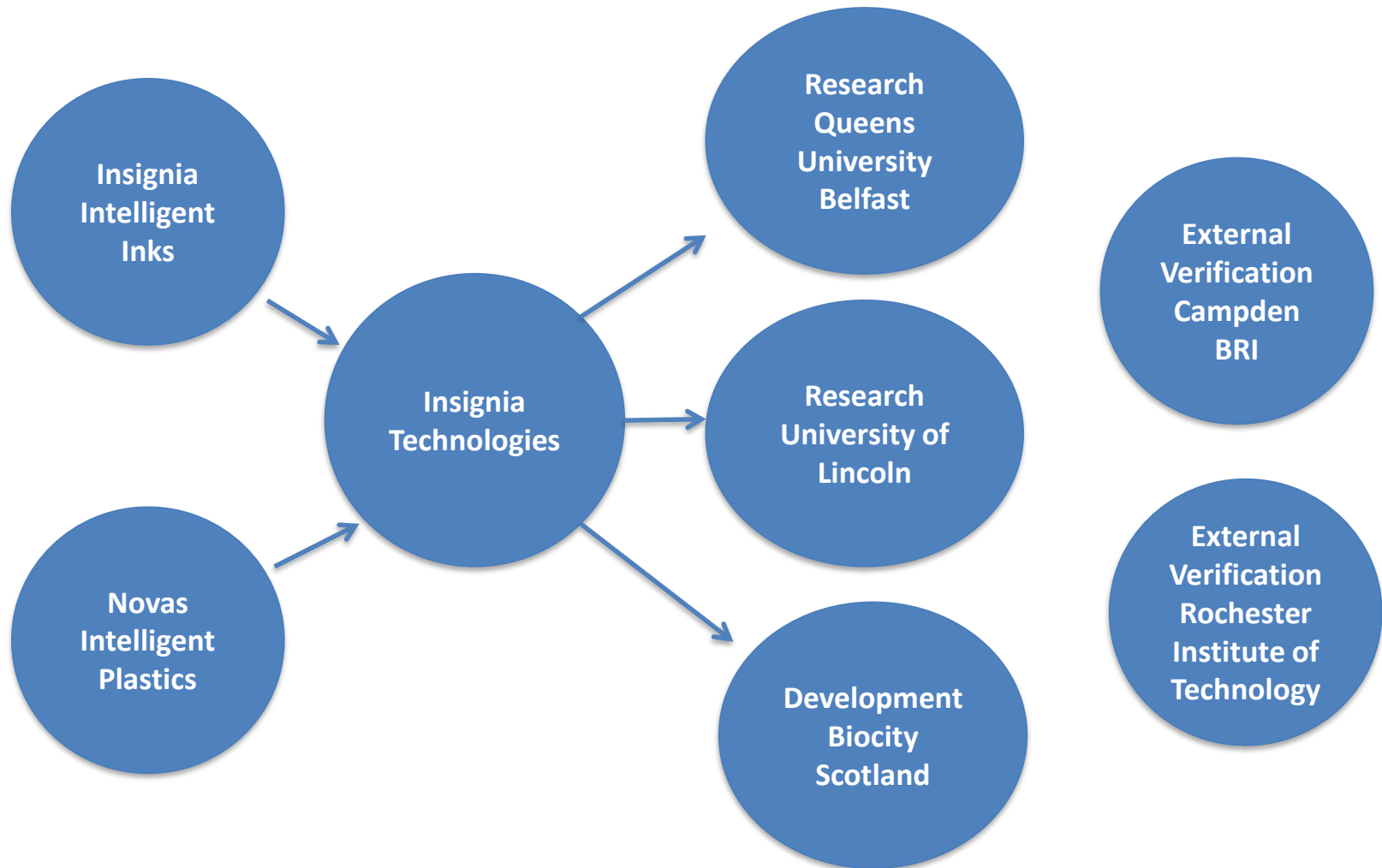
Insignia Technologies Ltd

'Be informed'





The Company





What We Do

- World leading, patented sensing technology utilising intelligent pigments
- The smart pigments change colour when exposed to a variety of gases
- The pigments are extruded into plastic films or dispersed into ink formulations that are then incorporated into intelligent labels
- Labels are calibrated to be time and temperature sensitive
 - range of cost effective time/temperature labels
- Commercial focus on North America, South America, UK and Europe



Insignia's Strategic Aim

Reduce Food Waste, Enhance Food Freshness & Improve Food Safety

- In the supply chain
- With retailers, food service and QSR
- With the consumer



Food Waste From a UK Perspective



The Telegraph

Home News World Sport Finance Comment Culture Travel Life Women Fashion
Politics Investigations Obits Education Earth Science Defence Health Scotland Royal
Earth News Environment Climate Change Wildlife Outdoors Picture Galleries Earth Vide

HOME > EARTH > ENVIRONMENT

Households are throwing away six meals a week as the nation bins 'staggering' amount of food and drink

Campaigners reveal we throw away 4.2 million tonnes of perfectly fine food and drink each year



Households are throwing away 320,000 tonnes of potatoes, 230,000 tonnes of soft drinks, and 47,000 tonnes of oranges a year. Photo: ALAMY

PackagingNews

Innovation • Production • Design • Equipment

January 2014



Innovative packs to aid the fight against waste

PN looks at the packaging likely to tackle food waste as the issue hits the headlines again. PAGES 1 AND 21



ANALYSIS
How the patent law can boost profits
Patent Box legislation has a benefit for business PAGE 12



CASE STUDY
Laundry brand gets smart new closure
The story behind new packs for Unilever's Persil PAGE 26



EQUIPMENT
X-ray equipment is under the spotlight

BBC Sign in News Sport Weather iPlayer TV
NEWS UK
Home World UK England N.Ireland Scotland Wales Business Politics Health Education S

7 November 2013 Last updated at 09:45



Food waste: 'Six meals a week' thrown away by Britons

COMMENTS (757)



Dr RICHARD SWANNELL
Waste and Resources Action Programme
EBC News BBC Breakfast

British families throw away an average of the equivalent of six meals per week in food waste, research has suggested.

Publicly-funded recycling group the Waste and Resources Action Programme (Wrap) said this would amount to £60 a month for a household.

Wrap said buying too much, serving large portions and confusion over food labelling were the main causes.

Its chief executive Dr Liz Goodwin called on stores, food manufacturers and government to tackle the situation.

Related Stories

- Food waste scheme extended
- Smart packaging firm draws investors
- 30,000 tonnes of Te food 'wasted'

MailOnline

Home News U.S. Sport TV&Showbiz Femall Health Science Money Video Co
News Home Arts Headlines Pictures Most read News Board

We bin almost enough food for a meal a day: Fifth of all bread and one in five potatoes thrown away as families discard edible produce worth £12.5bn

- Families waste on average £700 a year in edible food stuffs thrown in the bin
- Bread, salad and chicken are among the most common foods wasted



Consume Within Freshness Timer

Ideal for :-

- Sliced & cooked meats
- Salads
- Grated Cheeses
- Pitta Breads
- Part Baked Bread

Fully Automated Timers (*Opening the pack activates the timer*)

1 day, 2 day, 3 day, 5 day & 7 day timers



0 days

2 days

3 days

The timer is applied to the inside of the film and is activated by simply opening the pack and is set for a standard fridge storage temperature.

The rate of colour change is temperature sensitive – it accelerates outside of cool storage in the same way that food degrades more rapidly outside of a fridge.



After Opening - Freshness Timer for Salad



Just opened

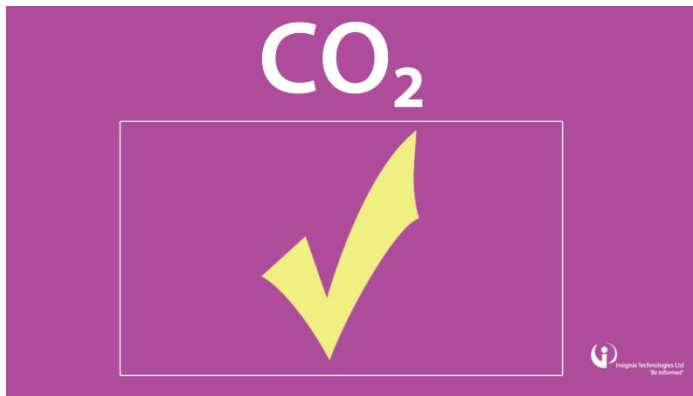
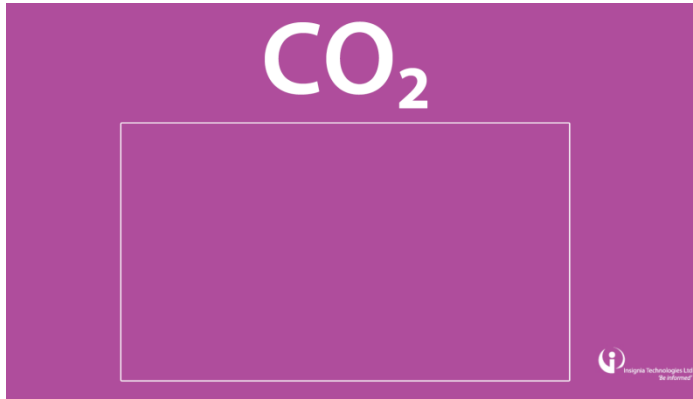


After 2 days



Supply Chain

CO₂ Monitoring for CA and MA Fruit Transportation





MAP

CO₂ ACTIVATED LABELS



CO₂ not present



CO₂ present

- Label is applied to the outside of pack
- Reads the CO₂ inside the pack
- Label turns yellow if product is sealed effectively
- Labels can be custom designed
- Identifies leaking packs before consumer purchase
- Improves food safety

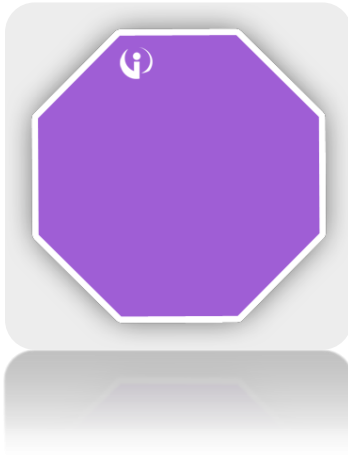


MAP

CO2 ACTIVATED LABELS

Seal integrity / Authenticity Label

Label changes colour when product is opened



After 20 seconds

After 30 seconds



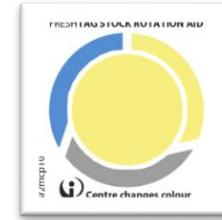
FRESH TAG

Time and Temperature Monitoring

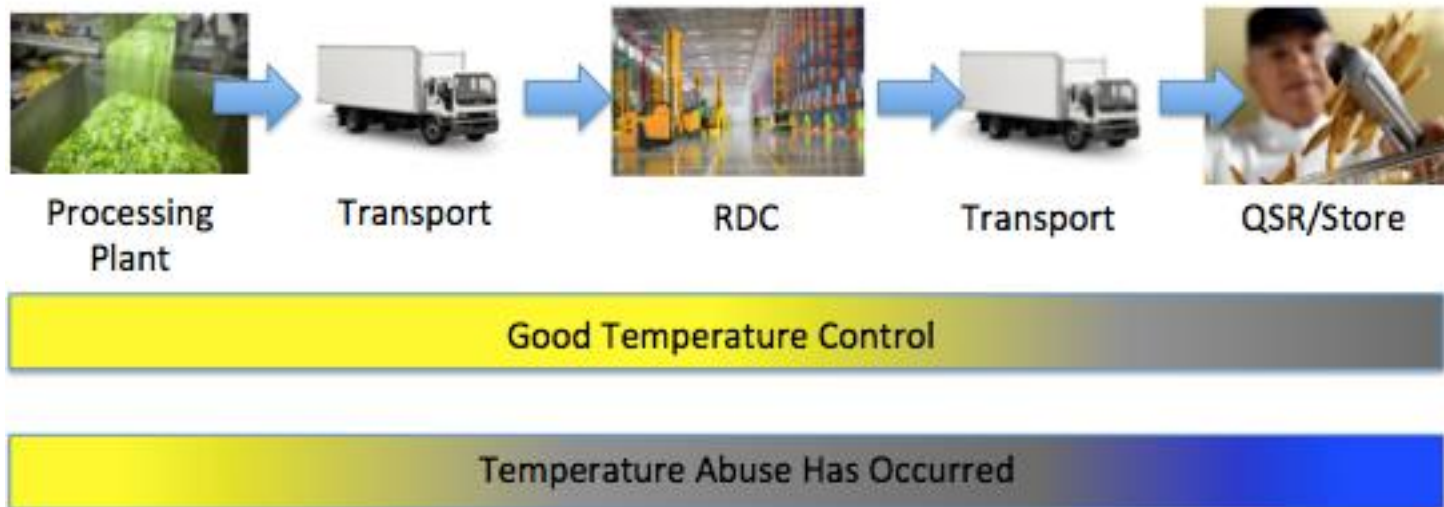
Total Shelf Life Monitoring Tag



What is a Total Shelf Life Monitoring Tag?



- An innovative new time and temperature monitoring system that links together the entire supply chain from point of production through to QSR/store



Benefits of Freshtag Total Shelf Life Monitoring Tag



- Easy to identify where the temperature abuse problem areas are within the supply chain
- Offers a more comprehensive view of temperatures in each chilled container (TempTale record one area only)
- Gives information in real time allowing for quick decisive action when required
- Allows for improved rotation of stock and can help to reduce wastage
- A solution that sits along side existing chill monitoring systems that will join together the entire chill chain process
- Use of colour is easy to understand and interpret, and resonates well with staff through the supply chain
- Can be used to help drive behavioural change and awareness through the entire supply chain process
- A cost effective tool for improving customer confidence



Key Benefits of Implementing the Freshtag System

- Monitor Temperature Abuse throughout the supply chain in order to:

Understand
current issues
within supply
chain

Enhance
freshness of
product

Improve food
safety &
customer
confidence

Reduce
amount of
wasted stock

Work to
improve
mentality
around
maintenance of
cold chain

Extend shelf
life of product



FRESH TAG

Time and Temperature Monitoring for every case in the truck

Range of labels currently utilized on:



ITEMS



CASES



PALLETS

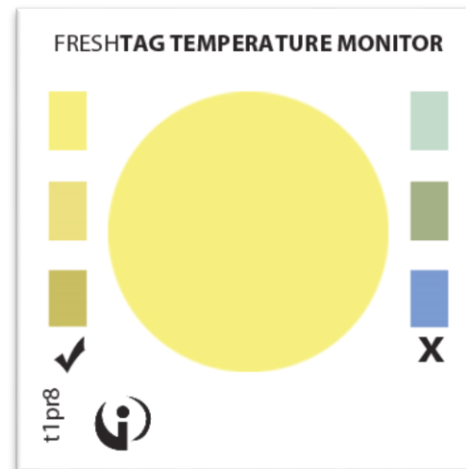
A number of successful pilots completed for shelf life monitoring and temperature monitoring of bagged salads and berries

FRESH TAG



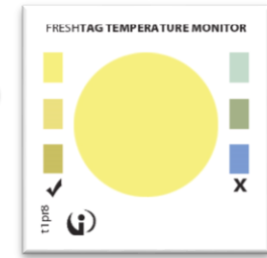
Time and Temperature Monitoring

TEMPERATURE MONITORING AID

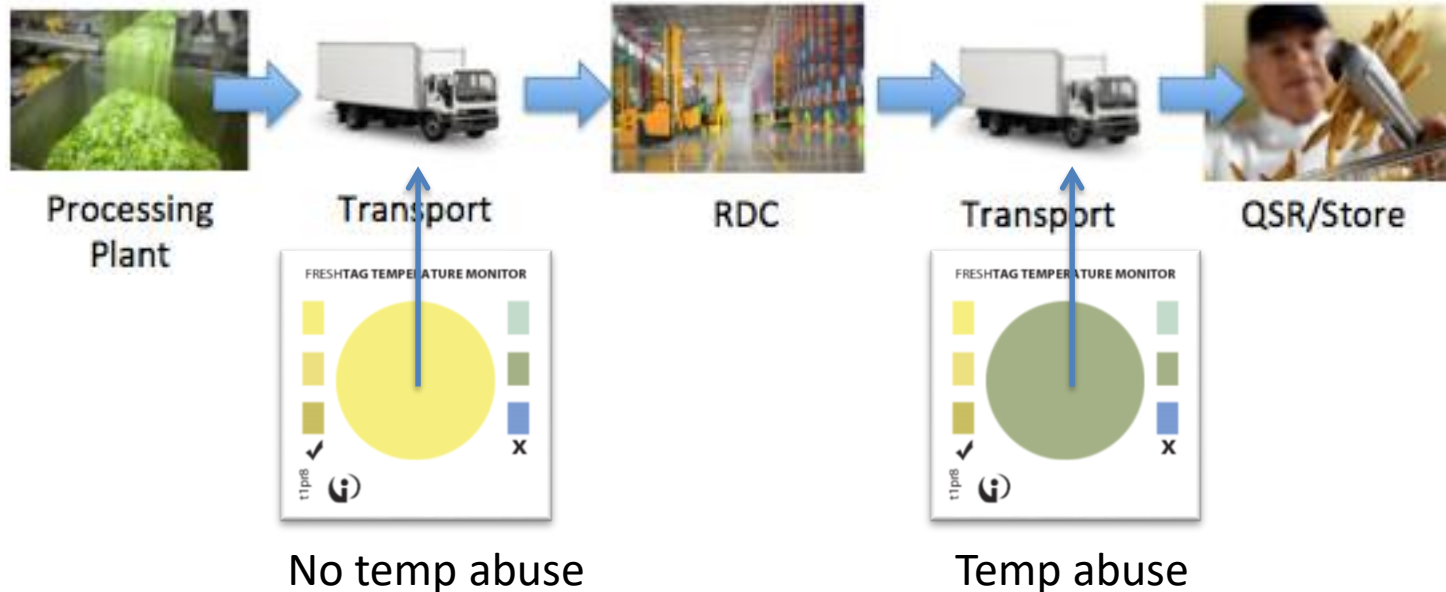




What is a Temperature Monitor Freshtag?



- An innovative new single journey temperature monitoring system that offers real time information on product, rather than air temperature breaches, for individual cases in a container



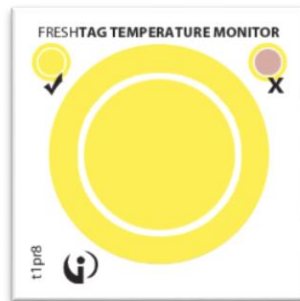
Benefits of Freshtag Temperature Monitoring



- Improves monitoring of temperature during delivery runs from:
 - Manufacturer to DC
 - DC to customer (store/restaurant)
- Adds additional layer of control in case of breakdown or unforeseen temperature failure
- Gives real time information allowing for quick decisive action when required
- Use of colour is easy to understand and interpret, and resonates well with staff through the supply chain
- Can be used to help drive behavioural change and awareness through the entire supply chain process

Temperature Labels for Frozen Products

- Label in final stages of testing for use on deliveries of frozen products



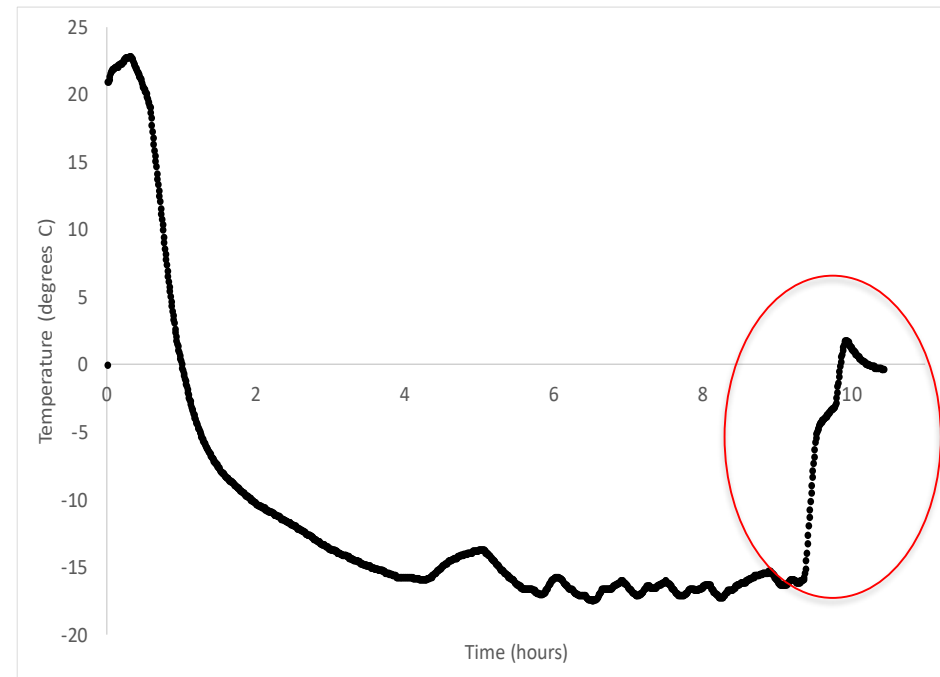
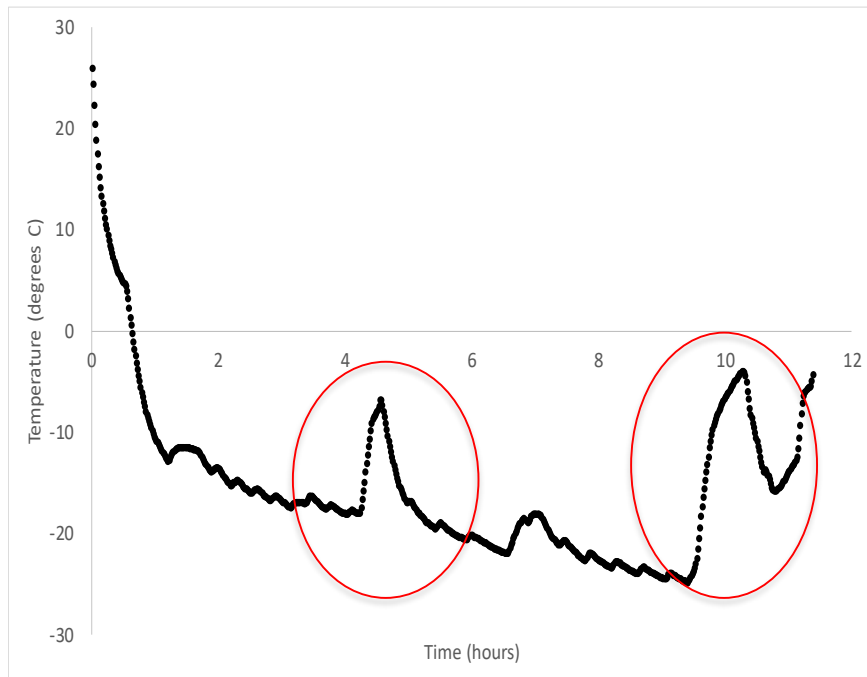
Label changes from yellow to brown if temperature abuse occurs

- Brief tests of this technology were carried out in Brazil on some of the frozen products being delivered to QSR's



Temperature Labels for Frozen Products

- Temperature logger data showed spikes in temperature do occur in the frozen compartments whilst the deliveries are taking place

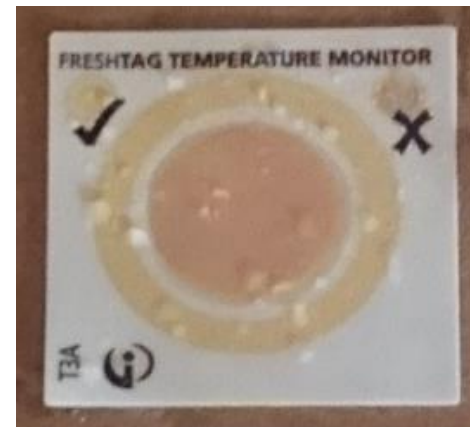


Temperature Labels for Frozen Products

- Label began to change colour to indicate that temperature abuse has occurred



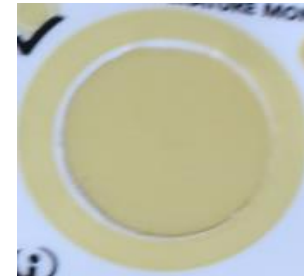
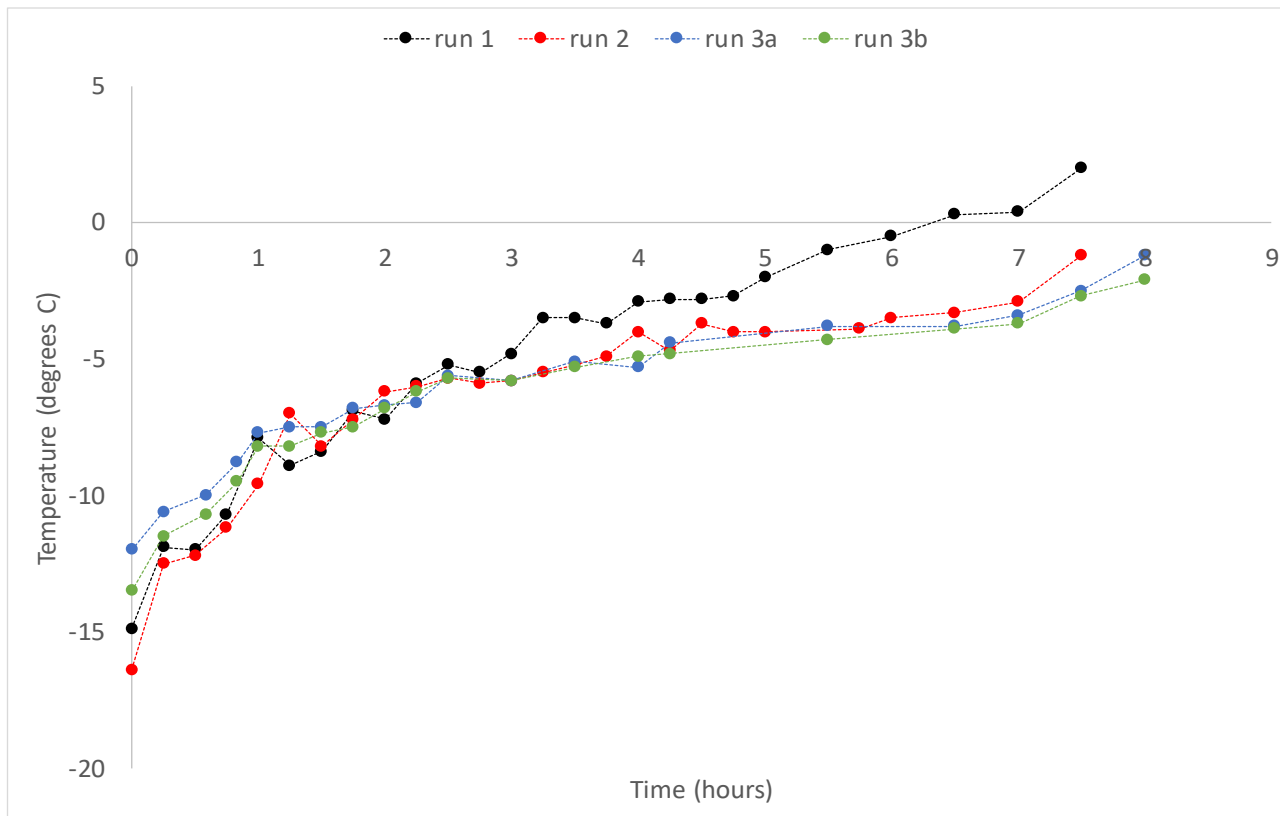
Label applied to product before loading onto truck



Label on unloading at restaurant

Temperature Labels for Frozen Products

- In-house testing with frozen burgers suggests it takes approx. 1 hour for product temperature to rise above -10°C .
 - within 1 hour the label is brown



Frozen



1 hour after
removing from
freezer

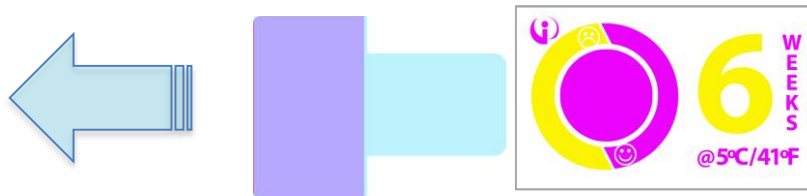
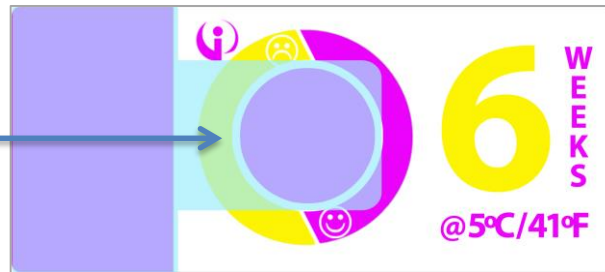


After Opening Timers

PULL & TIME

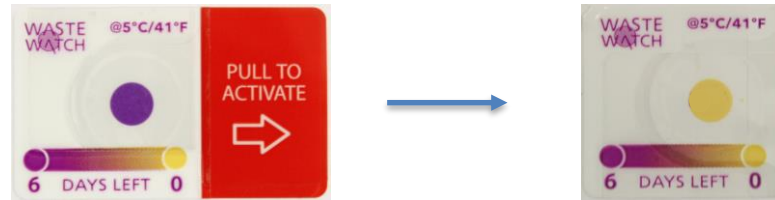
Timer is activated by removing a tab

Tab is illustrated
in light blue





After Opening Timers



- A range of timings available for both refrigerated and ambient temperatures
- Suitable for a variety of packaging types
- Highlights to consumer how long package has been opened



After Opening Timers



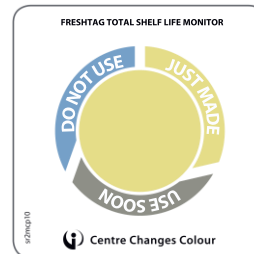
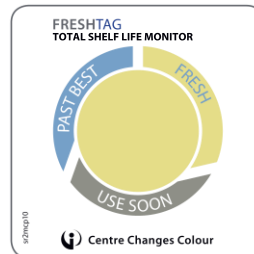
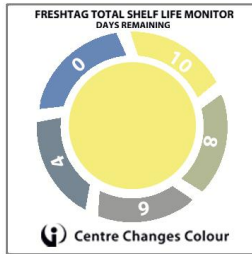
After opening timers for a wide range of food and beverage products

Centre dot changes colour when pack is opened

when pack is opened
centre dot changes colour



CUSTOMISED DESIGN





Summary

- Demand for food will increase 50% by 2050
- The reduction of food waste has become high profile and that momentum will continue
- Major supermarkets, quick service restaurants and contract caterers worldwide are now far more aware of their responsibility for reducing food waste
- Vitally important that technologies continue to be developed and implemented to assist in food waste reduction
- Insignia is well placed to meet that need