

## Microbiological shelf life testing

- new approaches

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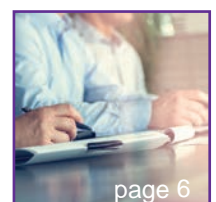
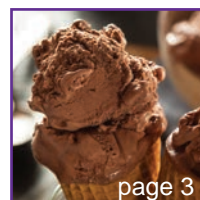
A member funded research project that started this year is reviewing the methods and procedures used to establish microbiological shelf life. Setting an accurate shelf life is key to a product's success. The shelf life should be sufficient to allow the product to be economically viable and minimise waste whilst remaining safe and maintaining key sensory, chemical and microbiological characteristics. It is therefore vital that the correct procedure is used when assessing shelf life.

A working group has been set up, which includes producers, retailers and regulatory authorities. The aim of the group is to ascertain what current shelf life protocols and key temperatures are used in the food chain. Practical studies will also be carried out using these protocols. The resulting information will be used to update Guideline 46 on the evaluation of product shelf life for chilled foods. ■

To find out more about our member funded research visit [www.campdenbri.co.uk/research/microbiological-shelf-life-testing.php](http://www.campdenbri.co.uk/research/microbiological-shelf-life-testing.php)



# Newsletter





## Meet our experts

### Experts at events

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#### Cereals and Grains 18

(AACC International Annual meeting), 21-23 October, London

We will be attending Cereals and Grains 18. **Gary Tucker**, head of baking and cereal processing, will chair a session on 'linking consumer perceptions with analytical data to address consumer needs'.

**Clothilde Baker**, cereal and ingredients characterisation specialist, will talk on the development of a method to assess wheat varieties for

potential end use. Clothilde will also present a poster on the role of compositional variation of ancient grains on their functional and nutritional properties as total and partial wheat flour replacer. **Tiia Morsky**, ingredients research team leader, will talk on the anti-fungal properties of faba bean (*Vicia faba*) flour and water extract in wheat bread. **Kate Makinson**, from our cereal testing laboratory will also be on our exhibition stand. Visit us at booth 308. ■

### Experts on video

A series of expert talking heads on a wide variety of topics

[www.campdenbri.co.uk/talking-heads.php](http://www.campdenbri.co.uk/talking-heads.php)

## Contact us

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For other sites, see  
[www.campdenbri.co.uk/campdenbri/contact.php](http://www.campdenbri.co.uk/campdenbri/contact.php)

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[www.campdenbri.co.uk](http://www.campdenbri.co.uk)

## New members

We are delighted to welcome the following new members:

Dale Farm Ltd - manufacturer of dairy products

Nottingham Trent University - university

Rubro Drinks SA (Pty) Ltd - soft drinks

SharkNinja - manufacturers of culinary equipment and cleaning equipment

Tata Steel Europe - manufacturer of packaging steel

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Please notify the Membership Department of any changes to your company's name or address to allow us to keep our records up to date.

## One of your member benefits is easy access to experts

For short enquiries you can call our experts free of charge. Longer enquiries can be covered by your Member Service Account (MSA)



## News

Save the date

### Campden BRI Day 2019

[www.campdenbri.co.uk/campdenbri-day.php](http://www.campdenbri.co.uk/campdenbri-day.php)

Campden BRI Day 2019 will be on [Wednesday 12 June](#). Attendance is free, and the day will allow you to explore how science and technology is being used to tackle industry needs. Registration will open early in the new year.

### New member interest group manager

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We are pleased to welcome Emma Burton as our new MIGs manager. Emma, who originally trained as a chemist, has had a number of roles in marketing, most recently at Oxford Brookes University - marketing to international students. MIG attendees had the opportunity to get to know Emma during the Autumn MIG round. ■

MIG dates for 2019 are available, see page 6 or [www.campdenbri.co.uk/research/paneldates.php](http://www.campdenbri.co.uk/research/paneldates.php).

### BRC Issue 8 environmental monitoring requirement video

[www.campdenbri.co.uk/talking-heads/brc-8-environmental-monitoring.php](http://www.campdenbri.co.uk/talking-heads/brc-8-environmental-monitoring.php)

A risk based environmental monitoring programme should be in place for all production areas covering pathogens and spoilage microorganisms. In this video Phil Voysey, microbiology group manager, discusses how to meet the new BRC Global Standard for Food Safety (issue 8) environmental monitoring requirement.

The BRC Global Standard for Food Safety issue 8 was released in August 2018 and the first audits against issue 8 will start in February 2019. ■

To learn more about the BRC Global Stand for Food Safety issue 8 search 'BRC' at [www.campdenbri.co.uk](http://www.campdenbri.co.uk)

## Research

### Calorie reduction of ice cream

[www.campdenbri.co.uk/research/ingredient-selection.php](http://www.campdenbri.co.uk/research/ingredient-selection.php)  
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A premium chocolate ice cream was reformulated to reduce calorie content by 30% to allow an on-pack calorie reduction claim. Sugar content was reduced by 20%, to below the Public Health England target. The work was carried out as part of a member funded research project into ingredient selection to meet compositional and nutritional targets.

Sugar reduction was achieved by replacing sugar with erythritol and steviol glycosides to mitigate changes in sweetness and mouthfeel. Whole milk was replaced with reconstituted skimmed milk. The reformulated product was similar in appearance to the reference, with a firmer, denser texture. Both the reference and reformulated recipes had a rich dark chocolate flavour. However, the sweetness profile of the reformulated ice cream was different and it gave a slight aftertaste associated with the sweeteners used. ■

Get in touch to find out more about product development.



In this related video Emma Hanby explains how the project will help manufacturers address the current industrial issues:

[www.campdenbri.co.uk/talking-heads/ingredient-selection.php](http://www.campdenbri.co.uk/talking-heads/ingredient-selection.php)



## Modelling in the food industry

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More companies in the food and drink industry are turning to mathematical modelling to develop and optimise their processes. We have, therefore, invested in a finite element modelling (FEM) tool capable of modelling the behaviour of food, drinks, packaging and factory environments in real life situations.

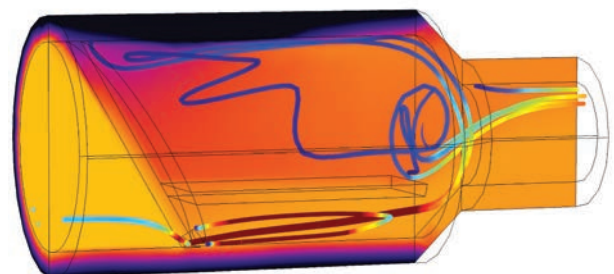
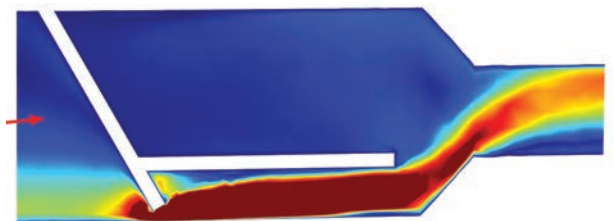
The technology allows multiple situations to be modelled quickly and cheaply to problem solve, optimise food and drink processes or to assess the effect of changes. The 3D physical modelling capability is very flexible and is suitable for a variety of situations such as gas/liquid flow, heat transfer, mass transfer and solid mechanics.

The modelling technology could be used to model:

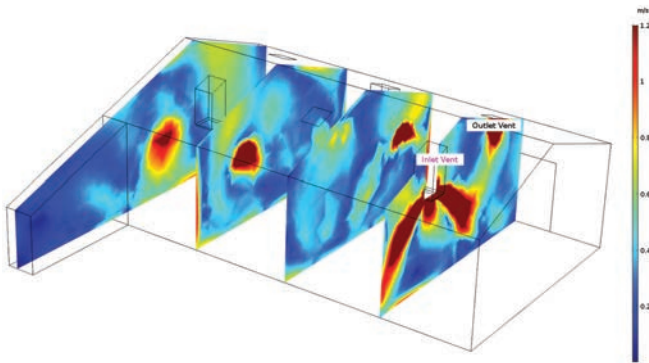
- Food structure and complex microstructures
- Heat transfer of cooking products
- Fluid dynamics and diffusion
- Loading stress in packaging
- Flows through process equipment and factories to aid hygienic design

For example, we have modelled:

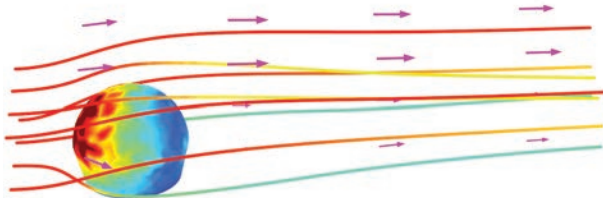
- air velocity, air flow and heat flow profiles in ovens



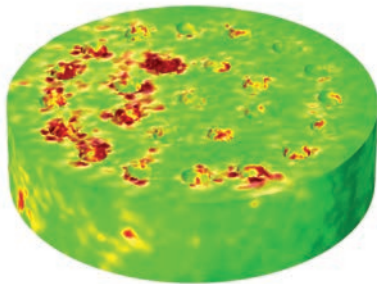
- air flow in a factory



- a baked object drying in air



- biscuit stress



The software adds to existing technical and scientific expertise and equipment that make us a partner of choice for industry.

This modelling technology will also aid a member funded research project - design and modelling of the impact of food structure on food texture. The project aims to develop an improved capability to design products with the required texture by modelling the effects of differences in structure and understand how process conditions can be used to create the required structure for a range of product types. The project will demonstrate these capabilities through case studies, evaluate the effect of reformulation on texture and establish expertise. ■

Get in touch to find out more about modelling food and drinks.

See also [www.campdenbri.co.uk/research/structure-impact-food-texture.php](http://www.campdenbri.co.uk/research/structure-impact-food-texture.php)



## Thermal processing

### five common process validation mistakes

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Thermal processing is at the centre of food preservation. It's essential to ensure that many foods are microbiologically safe, but over processing can reduce nutrients and affect sensory attributes. Five common process validation mistakes that we see are:

**Training:** Validation results might not provide the necessary evidence when required if the individuals responsible are not properly trained in the factory's operating procedures and applicable industry standards.

**Starting the validation work too early:** Any changes made to the product or process may invalidate validation work if processes are validated before equipment is fully installed or before product specifications are set.

**Failing to set up 'worst-case' conditions:** Most mistakes result when the worst-case conditions are not adequately identified or when the validation studies a single condition, such as temperature, rather than a combination of factors.

#### Not using enough or unsuitable measurement equipment:

The equipment used for validation must be suitable, so that readings are meaningful and repeatable. All equipment must be accurate and calibrated against a traceable standard, ensuring that readings between instruments can be compared.

**Not enough replication:** All trials should have a suitable number of samples, and each set of experiments should be repeated, ideally in triplicate, to ensure that results are reliable and repeatable. ■

If you require help or would like to discuss process validation, please get in touch.

## Member zone

to access privileged member information and services

## Vote for member funded research projects

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Your membership fees fund our research programme. Each year we put forward a range of projects for you to vote on. Electronic voting forms, along with descriptions of the research proposals, have been sent out to all voting contacts. If you are a voting representative for your company, please vote. If you aren't and would like to find out who is, please get in touch. ■



## MIGs LinkedIn Group

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We have created a member only MIGs LinkedIn group to help you to keep up to date with the MIGs. The group allows members to network and discuss MIG content between meetings and can be used to suggest ideas for future MIGs. To join the group contact Emma Burton. ■

## Now available - 2019 MIG dates

The dates for the 2019 Member Interest Groups are now available. All meetings will be held at our Chipping Campden site unless otherwise indicated. To find out how to join a member interest group visit [www.campdenbri.co.uk/research/panel\\_enquiry.php](http://www.campdenbri.co.uk/research/panel_enquiry.php)

Member Interest Group	Winter '19	Spring '19	Autumn '19
Agri-Food	14 February	8 May	25 September
Cereals, Milling and Baking	7 February	9 May	8 October
Fermented and Alcoholic Drinks	23 January*	14 May*	17 September*
Food and Drink Science	15 January	30 April	10 September
Food Service	24 January*	16 May*	19 September
Meat and Poultry	29 January	22 May	24 September
Microbiology	16 January	1 May	11 September
Nutrition and Health	12 February	29 May	2 October
Packaging	6 February	15 May	3 October
Processing, Operations and Preservation	31 January	23 May	26 September
Quality and Food Safety Management	17 January	2 May	12 September
Sensory and Consumer	5 February	21 May	1 October

\* to be held offsite - venue to be confirmed

[www.campdenbri.co.uk/memberzone.php](http://www.campdenbri.co.uk/memberzone.php)



## South American new product development workshop

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Michael Adams, bakery science manager, and Sarah Chapman, product development lead, gave a new product development workshop to a group of leading Colombian food processors in September. The event was held jointly with the Netherlands CBI (Centre for the Promotion of Imports).

Participants learnt about market trends, processing technology and product reformulation. They received hands-on training to develop new food and drinks using local Amazonian and Andean ingredients.

The training follows on from a joint workshop in Peru last year organised by the two companies. Several participants went on to launch new food products on the national and international market because of the workshop. ■

To find out more about our tailored training visit [www.campdenbri.co.uk/training/contract.php](http://www.campdenbri.co.uk/training/contract.php)



## Food safety plans video

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In this whiteboard presentation, Andrew Collins, food safety management systems manager, talks about food safety plans. He gives an overview of the history of food safety management and food standards, the legal frameworks for food safety and the importance of looking at food safety holistically. ■

Search 'food safety plans' at [campdenbri.co.uk](http://campdenbri.co.uk)

## UKAS accredited

### Understanding presumptive positives in PCR testing

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Specific DNA based PCR methods enable STEC *E coli* to be identified against a background of other closely related non-pathogenic *E coli* and other non-target microorganisms. PCR is a rapid method used to determine the absence or presence of STEC *E coli* and is done using a sample taken from an overnight enrichment broth. However, care should be taken with interpreting the results, as a presumptive positive PCR result doesn't necessarily mean the microorganism is present and as sometimes fragments of DNA from other strains or species present in the broth can combine and provide false presumptive positive results. Therefore, it's extremely important to treat any presumptive positive PCR results with caution, until they have been confirmed. To confirm presumptive PCR results, you must also isolate the organism by growing it on a plate and doing PCR using an isolated colony from that plate.

Campden BRI have a UKAS accredited next day PCR based method for the detection of the European Big 6 STEC in sprouted seeds and the USA Top 7 STEC detection in red meats, with a containment level 3 laboratory to quickly carry out the important confirmation work. ■

Get in touch find out more about food microbiology testing methods



# Training and events

A full list of scheduled courses is available on our website [www.campdenbri.co.uk/training.php](http://www.campdenbri.co.uk/training.php) or request a brochure from [training@campdenbri.co.uk](mailto:training@campdenbri.co.uk) +44(0)1386 842104

## Seminars

### Challenges of shelf life testing: sustainable packaging 8 November

[www.campdenbri.co.uk/shelf-life-seminar.php](http://www.campdenbri.co.uk/shelf-life-seminar.php)

Shelf life is a key consideration when a new product is developed, or packaging is modified. This seminar will focus on the challenges of shelf life and shelf life assessment when using sustainable packaging.

### Sugar reduction in confectionery, sweet sauces and desserts 13 November

[www.campdenbri.co.uk/sugar-reduction-seminar.php](http://www.campdenbri.co.uk/sugar-reduction-seminar.php)

The childhood obesity strategy encourages companies to reduce, by at least 20% by 2020, the sugar levels in a range of products that contribute to children's sugar intake. This seminar will explore how companies can meet the targets.

### BRC issue 8 briefings 16 November

[www.campdenbri.co.uk/brc-v8-seminar.php](http://www.campdenbri.co.uk/brc-v8-seminar.php)

Provides an opportunity to hear about changes to BRC Global Standard for Food Safety issue 8 and what your business will have to do to comply.

### Dairy microbiology: issues and solutions

22 November

[www.campdenbri.co.uk/dairy-microbiology-seminar.php](http://www.campdenbri.co.uk/dairy-microbiology-seminar.php)

Hugh Pennington, leader of the public enquiry into Errington cheese, will discuss the findings of the enquiry at a seminar which covers the control and removal of undesirable microorganisms as well as the intentional introduction of bacteria during manufacture and fermentation of milk and milk-related products.



Skills and knowledge

## Training

### November 2018 courses

- 5-9 FSSC 22000 auditor/lead auditor course
- 6-7 An introduction to food law
- 6 HACCP - refresher
- 6 Sensory evaluation - an introduction
- 7 Raw material risk assessment
- 7-8 HACCP - intermediate (level 3)
- 12-16 HACCP - advanced (level 4)
- 13-15 Biscuit science and technology
- 13 Food additives, flavourings and enzymes: food improvement agents package
- 14-15 Food and drink labelling
- 15 Threat assessment critical control point (TACCP) - foundation level
- 19-23 Food safety - advanced (level 4)
- 20-21 Internal auditing - principles and practices
- 20-23 Safe production of heat preserved foods - the essentials (including principles of canning)
- 28 Meat technology
- 28-29 New product development
- 29 Food authenticity testing and the detection of adulterants - Insights into analytical methods

[www.campdenbri.co.uk/training.php](http://www.campdenbri.co.uk/training.php)