

Optimised beer pasteurisation

can reduce costs, energy use and water waste

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Our recent research shows that effective pasteurisation for selected organisms in beer can be achieved at significantly lower PU values than those currently recommended. Optimising pasteurisation for different beer styles and microorganisms is likely to result in reduced costs, lower energy use and decreased water waste for breweries. It also has the potential to improve quality, as over-processing of beverages may result in damage to aroma and flavour compounds.

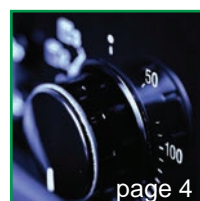
The viable cell concentration in ale and stout beers was reduced to achieve 'commercial sterility' at significantly lower PU values than those recommended by the EBC (European Brewery Convention) Manual of Good Practice. We achieved an 8.7 log reduction in the vegetative cell numbers of the selected organisms at just 1.59 PU (pasteurisation units). The EBC recommends between 15-25 PU for light and 20-35 PU for dark beers.

Further studies are required to demonstrate the optimal level of pasteurisation for spore-forming bacteria and yeast ascospores. The research has been published in the Journal of the Institute of Brewing. ■

Get in touch to find out how we can help you optimise your beer production process.



Newsletter



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New publication

TACCP/VACCP Guideline

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Guideline 72 (TACCP/VACCP: threat and vulnerability assessments - food fraud and food defence) has been updated to reflect changes in food fraud and food defence, with considerations including updates to standards, retailer requirements and reference documents.

A key defence in the security of food, which mitigates against unacceptable risks, is the systematic evaluation of deliberately perpetrated exploitation of the supply chain. It needs to be carried out by an experienced and trusted team.

This has been called both 'threat assessment and critical control point (TACCP)' and 'vulnerability assessment and critical control point (VACCP)'. The evaluations reflect established procedures for risk management and it is likely that organisations will increasingly incorporate it into a framework for crisis and/or business continuity management.

The Guideline focuses on providing practical guidance on conducting a threat or vulnerability assessment study, and the key elements to consider. ■

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For other sites, see
www.campdenbri.co.uk/campdenbri/contact.php

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New members

We are delighted to welcome the following new members:

Aryzta Bakeries Dunstable - baker of bread buns

Delibreads Europe SLU - manufacture and distribution of wheat tortillas and specialty breads

Evolution Foods - mixing, milling and packing dry foods

Hillbrush - hygienic equipment cleaning company

Lovegrass Ltd - gluten free food

Luton Borough Council - local authority

NutriCalc Ltd - nutrition calculation software consultants

Okazaki Manufacturing Co Ltd - manufacturers of temperature measurement sensors

Selwyns Penclawdd Seafood - processor of fresh laverbread and cockles

Sherwin Williams Company The Valspar (France) Corporation
SAS - manufacturer of packaging coatings

Solus Scientific - manufacturer of food safety kits

Soupreme Foods Ltd - food manufacturer

The Coca Cola Company - corporate head offices

Wasabi Co Ltd - head office - sushi and bento

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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.



IFTSA competition winner

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We are delighted to sponsor the competition to help attract young talent and raise awareness of the food industry as a career option. The Institute of Food Technologists Student Association thesis video competition, encourages students to creatively develop their scientific communication skills.

Anna Waller, a PhD student at the University of Illinois won the 2018 competition for her video on sensor technologies for global food fortification. Her prize included a ten day visit to the UK. She spent time at our headquarters, met with research institutes, industry nutrition experts and attended Food Matters Live. ■

Find out more at ift.org/community/students/competitions/graduate-research-video.aspx

New manager for microbiology of thermal processing

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We have appointed Rob Limburn to lead our work on the effects of heat and disinfectants on micro-organisms and their inactivation. This includes microbiological validation of cooking processes designed to inactivate key pathogens or spoilage organisms. Rob has worked in Campden BRI's microbiology heat resistance and decontamination group since 2012 and brings almost 20 years of microbiology experience to his new role. ■

Get in touch to find out more about our microbiological thermal process services.

*Season's greetings
and all the very best
for the new year*

Experts on video

Search 'talking heads' at campdenbri.co.uk

BRC Issue 8: Hygiene requirements

In this video, Jordi Claraco Anguera, food safety advisor, discusses how to meet the new hygiene requirements in Issue 8 of the BRC Global Standard for Food Safety. He covers the requirements for walkways (section 4.4.6), cleaning in place (clause 4.11.7) and environmental monitoring (section 4.11.8). He also talks about the new requirement for food business operators to understand the significance of results.

BRC Global Standard for Food Safety Issue 8 was released in August 2018 and the first audits will be conducted against the new standard from 1 February 2019. ■

Success factors in food safety culture

In this video, Bertrand Emond, head of membership and training, talks about the key success factors in food safety culture. These include:

- robust training needs analysis
- clear competency and capability frameworks
- effective root cause analysis
- strong leadership
- fit for purpose equipment, factories and clothing. ■

Get in touch to find out more about food culture excellence.



BRC Issue 8 - on pack instruction validation

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The new BRC Issue 8 clause 5.2.5 relates to ensuring safe cooking (heating) instruction validation. Instruction validation is the use of a methodology, procedure or protocol to help ensure that the cooking or heating instructions for a food product are developed and tested to achieve a 'safely' heated product, of acceptable quality, for consumers to eat.

Why is heating foods important?

Food is heated primarily to kill pathogenic bacteria (so that it is safe to eat) and to make it more palatable. One of the more temperature tolerant pathogenic organisms able to grow at low temperatures is *Listeria monocytogenes*. The destruction of this bacterium requires a sufficient thermal process - meaning a combination of time and temperature - to kill it. The higher the temperature the bacteria are subjected to, the greater the killing effect. Similarly, the longer the time at a temperature the greater the killing effect.

Why should equipment be calibrated?

Any devices used to measure temperature of a thermal process need to be calibrated on a regular basis against a UKAS certified reference thermometer. It's also crucial to calibrate all appliances used for instruction development (e.g. ovens, microwaves, grills and hobs) as it is important that the cooking environment (temperature or heat output) of the heating appliance is known and representative of consumers' appliances, and that it is operated consistently.

Which samples should be tested?

Instruction validation should be performed to ensure the instructions will allow the delivery of the required minimum thermal process using 'worst case' samples. Worst case samples are those defined as taking longest to



heat. If trials are performed using 'average' or 'mean' samples then the worst-case samples would be unlikely to achieve the minimum safe thermal process. So, samples chosen for testing should be selected to have:

- coldest start temperatures likely to be found in consumers fridges or freezers
- thickest samples likely to be found in the samples supplied to consumers
- heaviest samples likely to be found in the samples supplied to consumers

Every different product within a range should be tested as even slight variations may alter the cooking time required. For example, it is not acceptable to develop instructions for a soup and use these instructions for different soups without full testing. Likewise, any changes to a product, such as recipe or packaging, would necessitate further instruction validation testing.

Several (worst case) replicates need to be performed in each appliance to help ensure the attainment of reproducible results. We suggest a minimum of five are performed in each appliance. For example, if oven cooking is given as an instruction, a minimum of five 'successful' replicate tests should be performed in each oven type (gas, electric and fan-assisted) i.e. a minimum of fifteen trials. The term 'successful' refers to samples shown to receive the required minimum thermal process.

It is crucial that the cold spot (slowest heating location) is identified and the temperature at this location measured. Cold spots can be notoriously difficult to locate, especially with microwave heated foods (cold spots can be anywhere within the product - even at the surface) so thorough and careful temperature probing is necessary.

How should validation trials be recorded?

All information related to instruction validation trials should be recorded and retained for at least the life of the product. This provides evidence that trials were performed for due diligence reasons, but it can also build a reference database of products and suitable instructions (and a starting point for future instruction validation trials). ■

Get in touch to find out more on instruction validation. There is a supporting guideline available to download on the BRC Participate website - www.brcparticipate.com.



New nutritional labelling requirements in Israel

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The Israeli government is revising its current nutritional labelling legislation and requiring front of pack labelling for most prepackaged food products. The new regulations are due to come into force on 1 January 2020. The aim of the new regulations is to improve nutrition education and to encourage Israelis to change their lifestyles and eat better.

Under the new requirements, products deemed to be high in sodium, sugar and saturated fats will be marked with red symbols on the front of the packaging in addition to the nutritional labelling. Any product considered not to be prepacked (e.g. fruits, vegetables and meats) are excluded, as well as foods sold in packages smaller than 25cm². Foods that fit in with recommendations of the Ministry of Health, such as having no added sugar, would be given a green mark.

The new labelling requirements will be introduced in two stages; the first stage is a transition period lasting 12 months from 1 January 2020. During this stage, products containing more than 500mg of sodium, 13.5g of sugar or 5.0g of saturated fats per 100g of solid product would be labelled. During the second stage, those thresholds will decrease to 400mg of sodium, 10g of sugar, and 4.0g of saturated fats per 100g of solid product. Even lower limits will apply to liquid food. ■

If you are unsure of the regulations around labelling requirements, our Global Regulatory Team is ready to help. We cover all major international markets and have extensive experience of undertaking label checks.

Member zone

to access privileged member information and services

2019 member funded research projects

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Each year our members decide how we should invest over £2 million of your membership fees on research that can help your company succeed. Thirty-five member research projects are currently live. This year you have selected the following projects to complement them:

- Effective control of viruses in the food manufacturing industry
- Cleaning and disinfection of food factories: a revised practical guide
- New technologies for food and drink manufacturing
- Understanding the safe shelf life of foods using advanced microbial profiling
- The impact of sensory substantiation claims on consumers' purchase decisions
- Calorie reduction and fibre enhancement
- Pre-processing to improve natural nutrition and functionality of ingredients
- Potential of plant proteins for ingredient and product development
- Technical challenges associated with reducing or replacing single use plastic packaging within the food and drink industry
- Practical control of *Listeria* during food production
- Blockchain and emerging approaches supporting food safety management systems. ■



R&D reports

Below is the list of R&D reports that have been published throughout 2018 as part of member funded research projects.

New releases

Review of novel natural preservative systems for use in drinks, sauces and other high a_w foods

www.campdenbri.co.uk/research/natural-preservative-systems.php

RD442 reviews some of the most common antimicrobial components derived from animals, plants and microbial sources. It covers the mechanisms of action, recommended concentrations and applications of preservatives in food and drink.

'Clean label' from a sugar perspective: insights from consumers and industry

www.campdenbri.co.uk/research/sugar-reduction.php

We conducted a survey on 'clean label' receiving complete responses from consumers (252) and the food and drink industry (100). Results published in RD443 show that:

- both consumers and industry members primarily associated 'clean label' with the absence of artificial ingredients and/or chemicals, E numbers and GMO
- only 20% of the industry members surveyed declared having a definition or policy for 'clean label'

R&D reports published in 2018

Search 'RDs 2018' at campdenbri.co.uk

- **R&D 441** Extension of product shelf life through superchilling
- **R&D 440** Modelling for quality optimisation in heat processed foods
- **R&D 439** Investigation of the effect of waxy maize starch on the quality and shelf-life of gluten-free cakes
- **R&D 438** Investigation of factors affecting viscosity measurements of batter systems
- **R&D 437** A combined consumer application of Triadic-PSP and CATA to assess consumers' health associations of food products based on packaging cues
- **R&D 436** Understanding how consumers utilise packaging cues to determine the key message in the context of health for a retail sourced beef lasagne
- **R&D 435** Development of an accelerated shelf life method for cooked meat products
- **R&D 434** Ancient grains - role of compositional variation on functional and nutritional properties
- **R&D 433** Novel sweetening ingredients - considerations for use



- **R&D 432** Manipulation of the protein content to improve satiation in bread
- **R&D 431** An acute study investigating the impact of resistant starch on perceived rated satiety
- **R&D 430** An evaluation of traditional and novel sensory and consumer methods suitable for product characterisation: consumer methods
- **R&D 429** Observational interviews to understand the readability of information on cans and openability of ready meal trays. ■

Blog round up

Search 'blogs' at campdenbri.co.uk

Sausage NPD

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Sausages are a staple in many households. Unusual fillings like wild boar and chorizo are now regularly available alongside more traditional pork or beef sausages and meat-free recipes.

In this blog, Liz Mulvey, product innovation lead, talks about sausage new product development. She discusses competitive markets, technical considerations, the importance of pilot products and maximising the chances of a successful launch. ■

Get in touch to find out more, or to discuss how we can help with your sausage manufacturing requirements.

Setting a shelf life for ambient food

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Providing an indication of minimum durability is a legal requirement for most ambient food and drink products. How to set a 'best before' shelf life date for ambient goods is a commercial decision. Parameters that contribute to this decision are the quality, the safety, logistics and customer requirements.

Reka Haraszi, principal scientist, explains in this blog why shelf life testing for ambient goods needs to be performed on a case-by-case basis by assessing the factors that limit product life and the intended storage duration. ■

Get in touch to find out more about how to set a shelf life.



Training and events

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

Food and drink labelling course - benefits of attending

www.campdenbri.co.uk/training/food-drink-labelling

Our training can help you to interpret food and drink labelling legislation, understand how to implement current food and drink labelling legislation and recognise non-compliant labels.

Food labelling legislation has changed substantially over the last few years, most recently and fundamentally with the introduction of the EU Food Information to Consumers Regulation. Food business operators need to be fully aware of these changes and of other laws that relate to food labelling to produce legally compliant labels.

Our food and drink labelling course comprehensively covers and interprets the EU Food Information to Consumers Regulation and the EU Nutrition and Health Claims Regulation. National rules on food sold loose and on UK enforcement arrangements are also detailed. ■

Get in touch to find out more about our regulatory training courses.

Our on site pilot plants and laboratories allow for practical training

www.campdenbri.co.uk/training.php



Skills and knowledge

Training

January 2019 courses

- 15-16 Internal auditing - principles and practices
- 23-24 HACCP - intermediate (level 3)
- 23-24 Understanding microbiology
- 28-1 Feb HACCP - advanced (level 4)

Seminars

Controlling *Listeria* in food production

30 January 2019

Listeria continues to dominate the headlines with recent outbreaks associated with frozen sweetcorn and processed meat. This seminar will help you to prevent *Listeria* contamination and deal with any outbreaks. ■