

# Newsletter

June 2012



## Starch functionality - what is best for your product?

When can 'clean-label' native starches or physically modified alternatives be used instead of chemically modified starches? Research at Campden BRI over many years has contributed to the enhanced understanding of how different starches function in finished products, allowing us to advise on the best native starches to use for a particular application.

### Two techniques

Differential Scanning Calorimetry (DSC) and Rapid Visco Analysis (RVA) are central to determining starch properties. DSC determines changes in starch structure resulting from processing, while RVA determines the pasting properties during heating and cooling. Both are important means of measuring the effects of processing on the overall performance of a starch.

This was employed in research into the freeze-thaw stability of microwaveable sauces made with native, physically modified and chemical modified starches. Although the chemically modified starch performed best, it was found that, if frozen conditions were controlled with little temperature fluctuation, the physically modified maize starch and the native waxy rice starch gave acceptable stability in high-fat and high-sugar sauces. However, all starches were unstable in a high-acid tomato sauce.

This is just one example of our extensive experience of starch as an ingredient. If you use starch as a functional ingredient in your products, then we can help!

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## Research...

### Latest reports

The latest research reports issued from our member-funded Research Programme demonstrate the wide range of practical scientific investigation we undertake on behalf of members:

*The wellness lifestyle concept and the opportunities it presents for new product development (RD325)* investigated what motivated people to take action on health and diet-related messages when purchasing food products.

*Rapid, non-destructive imaging of food composition (RD324)* reports on the methods and analysis software developed to enable an NIR hyperspectral imaging system to be readily applicable to a wide range of food product types. The method is useful for measuring samples with non-uniform structure and composition.

*Primary production of selected food allergens of plant origin: information to inform risk assessments for the food industry (RD323)* provides background information on the primary (agricultural) production of selected allergenic foods of plant origin - peanuts, soybeans, nuts, celery, mustard, sesame seeds and lupin.

*The impact of different portion sizes on respondents' scoring behaviour in central location test conditions (RD322)* investigated whether there was an optimum portion size to get the most out of consumer tasting trials. It was found to depend on the number and type of samples being tasted and the order in which different samples were analysed.

Members can receive a free electronic copy of any of these, by sending an email to [auto@campden.co.uk](mailto:auto@campden.co.uk) with the subject line: send RDxxx (where xxx is the number of the report).



## New Cereal Science and Technology Course

Cereal-based ingredients are found in a wide range of food products. Understanding the origin and functionality of these ingredients is key to managing the cost and quality of products. A newly-developed course, being run on **10-12 July**, will provide an excellent introduction to cereal science and technology for the food industry. While there will be a major focus on wheat flour for baked goods applications, other cereal ingredients will be considered during the course.

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## What do your internal audits show?

Do your internal audits prove that your systems are working? Internal auditing programmes should provide the backbone to many of the verification activities on site, but all too often this is lacking. This can lead to costly failures, inefficiencies and non-compliances. The deficiencies often result from:

- Weak scheduling of audits
- Poor auditor training
- Unclear non-conformances
- Badly prepared checklists
- Poor planning of and preparation for audits
- Lack of audit follow-up

These can all be effectively and efficiently resolved by training the audit team in the right way to manage and perform audits from start to finish. We can tailor a very cost-effective 2-day training course for a group of your staff. Practical case studies and reference to your own documents and procedures highlight and reinforce learning points and help to ensure future compliance.

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## Salt - the most multifunctional and controversial ingredient?

New approaches to salt reduction and techniques for salt replacement are needed to help manufacturers continue to reduce salt levels in their products. To address this we are holding a seminar on 11 October. The seminar will update delegates on how the industry is progressing towards meeting the salt reduction targets and the Department of Health's Responsibility Deal. It will also focus on taste perception, and the influence that salt has on consumer food choices, and investigate new developments into retaining flavour profile with lower salt levels and alternative salt replacements.

The UK food industry is under continuing pressure from the government, health officials and retailers to reduce salt levels in processed food products. This is a major challenge for the food industry, as consumers expect "reduced salt" products to possess the same quality, flavour and appearance as the original version.

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## New research - replacing those hard fats



The unique functionality of individual ingredients in products is very well demonstrated by fats. The replacement of hard fats with polyunsaturated oils, driven by health concerns, has seen significant success in some food products. However, there are some sectors where this has been less effective, including bakery products, fillings and toppings, and reformed meats.

Whilst the industry recognises the need to reduce the level of hard fats, there are currently no commercially developed routes to achieve this for many products. Hard fats in cakes are being replaced by vegetable oils, but the consequence is that cake quality can be compromised in terms of cake volume, softness, tenderness, appearance and shelf life. This project is investigating ways to stabilise oils and provide the correct rheology and melt characteristics to substitute for hard fats in food products.

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## Training course dates

### July 2012

- 2-6 Auditor/Lead Auditor training course (ISO 22000:2005)
- 2-6 Food safety - advanced (level 4)
- 3 Water reduction and re-use in processing
- 3-4 Rapid microbiological methods workshop
- 5 Food information regulation workshop
- 5 HACCP - foundation
- 10-11 Intermediate seafood quality assessment
- 10-12 Cereal science and technology
- 11-12 HACCP - intermediate (workshop)
- 12 Quality systems design
- 12 End processing - an introduction
- 16-20 HACCP - advanced
- 18-19 Internal auditing - principles and practices
- 25 Beer appreciation
- 25-27 FSMS Auditor Conversion course (ISO 22000: 2005)

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## Do shape and size matter?

Particle shape and size can have a significant impact on many aspects of food, influencing processability and ingredient functionality as well as product taste, appearance and stability. Let us help you understand, and then control, your product and ingredients.

### New particle size analyser

We have a new particle size analyser that can measure the size distribution of particles from two microns up to three centimetres. Mervin Poole explains:

*"Knowledge of how the shape and size of ingredients affect products could enable manufacturers to significantly improve processing efficiency and effectiveness, and product quality. Because of the unique way in which the instrument operates we can analyse the overall shape of particles, not just their apparent shape in one particular orientation, allowing statistically reliable data to be obtained. We can also analyse wet as well as dry products."*

*Amongst the products we have already looked at are salt, sugar and coffee granules, confectionery decorations, and composite instant drink powders - in which three different ingredients are mixed together. The ability to characterise particle shape and size so precisely, in ways not previously available, opens up opportunities not just for monitoring and controlling the quality of the ingredients themselves, but also to investigate which particular factors are significant. Importantly, post-testing analysis of the data can be carried out."*

This latest acquisition complements our long-standing expertise in image analysis and related techniques, including liquid particle size analysis in our Brewing Division.

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## New textbooks available

We distribute a wide range of food science and technology textbooks published by renowned publishers such as Woodhead Publishing and Wiley Publishing. For a full list of the many titles available, see our website at <http://www.campden.co.uk/publ/books.asp>.

*Recent releases include:*

- Hygienic design of food factories
- Extrusion problems solved
- Alcoholic beverages: Sensory evaluation and consumer research
- Emerging food packaging technologies
- Natural food additives, ingredients and flavourings
- Food processing handbook 2nd edn - 2 vol set
- Organic production and food quality
- Handbook of sustainability for the food sciences
- Sensory and consumer research in food product design
- Progress in food preservation
- Cereals and pulses: nutraceutical properties and health benefits
- Food and industrial bioproducts and bioprocessing
- Phytonutrients
- The seafood industry: species, products, processing, and safety

**Publications section:** +44 (0)1386 842054 [Pubs@campden.co.uk](mailto:Pubs@campden.co.uk)

## Reuse water - save money

Water is an essential resource in primary production and food manufacturing. There are limited supplies of both surface and ground water; and the demand for use in agriculture, by industry and for domestic use, is leading to even greater control on supply. Re-using water is becoming a major desirable option.

*Guidelines on the reuse of potable water for food processing operations (Guideline 70)* provides help on the assessment of microbiological, chemical and physical hazards that can enter potable water following its first use in a food processing operation. The outcome of this risk assessment will determine the degree of reconditioning necessary for its use in a second food processing operation. Information is also given on applicable reconditioning treatments. In particular, this guidance will help food manufacturers provide evidence and documentation to support the safe reuse of water to their customers and the Competent Authority as required.

Price: £70 members; £95 non-members

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## Welcome... to new members

Campden BRI is delighted to welcome the following new members who joined recently:

**Abu Dhabi In-Flight Catering Company** - airline catering company

**Airconmech Ltd** - specialist in design and build for dairy, meat processing and infant nutrition industries

**Cambrook Foods** - producer of caramelised nuts

**Continuous Retorts Ltd** - a sterilisation and pasteurisation process innovation company

**D to 3D** - packaging consultancy

**Easytesters Ltd** - supply and rectification of processing plant in the liquid food and beverage industries

**LighterLife** - a weight loss management company

**Northwick Estate** - an anaerobic digester facility providing electricity from food waste

**Reflex Nutrition Ltd** - a sports nutrition company

**Temptings Ltd** - manufacturer of Indian chutney and pickles

**Wilkin & Sons Ltd** - manufacturer of jams, preserves and chutneys

**Zeelandia H J Doeleman BV** - development, production, distribution of baking ingredients

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Please notify the Membership Department of any name or address changes with respect to our mailing list.

