

A blueprint for effective sugar replacement

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Food and drink manufacturers are scrambling to meet sugar and calorie reduction targets in a move designed to stem soaring obesity levels as the threat of tougher regulation and higher taxation hangs over their heads.

Sugar reformulation has risen up the agenda since the Scientific Advisory Committee on Nutrition (SACN) recommended in its report of July 2015 that free sugars should account for no more than 5% of people's daily energy intake.

Last year, large parts of the UK food industry failed to meet a first year interim target of removing 5% of the sugar contained in food most commonly eaten by children by March 2018. This was set as part of Public Health England's 2017 challenge for manufacturers to cut sugar in nine food categories by 20% by 2020. On 5 April 2018, beverage producers were faced with the introduction of the Soft Drinks Industry Levy on high sugar products.

But simply decreasing or removing sugar is rarely the answer to the obesity challenge. Sugar is a multifunctional ingredient, which can affect structural as well as sensory properties. It can impact qualities such as texture, mouthfeel and shelf-life. While sugar reformulation is now a high priority for much of the industry, it is far from straightforward.

Sugar replacers are one of the tools product developers can use to reduce sugar, but which is the best choice? Their functional properties also need to be considered. On



top of this, there can be great variation in regulatory and labelling requirements between different markets.

The sweeteners used to replace added sugars can vary in terms of functionality, source (natural vs synthetic) and calorific value (nutritive or non-nutritive). There are four main categories, with some interplay between them: bulk sweeteners, intense sweeteners, alternative bulking ingredients; and natural alternatives. Each offers certain benefits but come with restrictions or downsides.

It is also necessary to understand the full role of the sweetener in the product, as flavour, texture and shelf life attributes of the product will be affected. This is where the specialist expertise and a 'blueprinting' technique developed by Leatherhead can help.

Our blueprinting technique helps clients to address these various reformulation challenges and arrive at cost effective solutions. It takes into consideration the objectives of a project and involves the deployment of techniques such as consumer testing, sensory science, microscopy and rheology. These are combined with chemical information, shelf-life studies and regulatory insights – including restrictions from an application and dosage perspective – to

create a complete blueprint which acts as a baseline for product innovation.

However, it is important to select the most appropriate sugar replacer ingredient early in the process for maximum efficiency and cost-effectiveness. To achieve this, sensory data, food science and regulatory knowledge need to be brought together in a meaningful way.

For sugar reduction, a blueprint acts as a repository of information about the functional and sensory role of sugar in a given product. This enables more objective analysis of sugar replacers to meet reformulation objectives: it eradicates guesswork, ensuring nothing is left to chance.

As manufacturers look to reduce sugar content across a wider spectrum of products, requirements are becoming more complex and blueprinting is poised to play a fundamental role in unravelling this complexity and creating frameworks for efficient reformulation.

In conclusion, product reformulation with sugar replacers needs to be tackled on a case-by-case basis. Understanding the nature of different sugar replacers, and their associated regulatory requirements, can help ensure the process runs more smoothly.

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