

Enhance Natural Colour while Maintaining Volume and Texture

Case Study

Summary

Achieving vibrant, natural colours in baked goods has never been easier. By simply changing the traditional baking powder with **ZEUS™ G90**, bakers can elevate the vibrancy and stability of natural colours while preserving the volume and texture of the final product. As market trends increasingly demand bright, eye-catching colours for seasonal collections and novelty items, **ZEUS™ G90** provides an efficient, high-quality solution. Unlike conventional methods that can compromise product quality and add complexity, **ZEUS™ G90** enables bakers to create visually stunning, naturally coloured goods with ease.

Background

In recent years, the increasing consumer demand and new legislations for food transparency has inspired manufacturers to embrace natural ingredients in food product development. Shoppers are now actively choosing products with clear, easy-to-understand ingredient lists, driving the popularity of natural, plant-based colours across the industry.

Although the new generation of plant-based colours provides a natural and more appealing option for consumers, limitations in their functionality can create significant challenges for bakery manufacturers during the development process, increasing complexity and cost.

Challenge

Natural colours are particularly sensitive to pH, meaning if the end product is not at the right pH after baking, the colour can dramatically change or become unstable. For example, anthocyanin is a commonly used natural pigment found in plants, often added to foods for red, pink and purple colouring. However, anthocyanins can be a challenging ingredient to use effectively as many baked goods have a neutral or high product pH; which can alter the chemical structure of the anthocyanin, resulting in the pigment turning grey or green instead of the vibrant colour desired.

To combat this, low-pH compounds, such as citric acid are often added to baked goods to reduce the pH of the product and enhance the colour. However, added acids can interact with the baking powder and cause premature gas release, which results in reduced volume, a dense crumb structure and a final product that appears underbaked. These undesirable effects can dramatically increase waste during production, harming profitability and increasing a manufacturer's environmental impact.

What **ZEUS™ G90** Can Do For You

- Enhance natural colours, providing a superior-quality end product.
- Create vibrant and memorable bakes to entice customers and drive increased sales.
- Provide a phosphate-free alternative to traditional baking powders.

Our colour enhancing **ZEUS™ G90** technology is also available for applications such as cakes, pancakes, waffles and many more. To find out more about our revolutionary new **ZEUS™** range of baking powders, contact our experts.

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Solution

Kudos Blends' revolutionary **ZEUS™ G90** baking powder has been developed to deliver exceptional natural colour performance without the need for additional acids in the recipe. By controlling the pH of the final product with **ZEUS™ G90** instead of additional acids, the texture volume and appearance of the final product are optimised. This results in consistent bakes that deliver the higher quality natural colours and textures that consumers expect.

In this case study, we assessed the impact of the varying baking powders with or without additional acid on the visual characteristics of a cupcake.

Three leavening systems were used in this project, a standard baking powder (E450, E500), a standard baking powder plus citric acid (at 0.3%) and **ZEUS™ G90**. Two anthocyanin-based colours were used to highlight the impact on natural colour performance; a pink and a purple.

Colour analysis and visual inspection show that the colour vibrancy, volume and crumb structure are optimised when **ZEUS™ G90** is used. The standard baking powder delivered adequate volume and crumb structure but caused a loss in colour vibrancy.

This was particularly noticeable with the purple cupcake, in which the colour became more blue/grey. The addition of citric acid improved the colour when standard baking powder was used.

However, citric acid caused significant issues with both the crumb structure and volume, resulting in a dense product that appeared underbaked.

With **ZEUS™ G90**, we were able to reduce the pH further whilst optimising both colour and texture for a superior product.



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Additional benefits of ZEUS™ G90

Not only does ZEUS™ G90 enhance natural colour performance, but the lower pH means that the Maillard reaction, which causes browning in baked goods during the baking process, occurs at a slower rate. This enhances the colour even further, which is particularly noticeable on the exterior crumb of a cake.



In addition to natural colour, there is a significant health benefit to reducing browning. One of the byproducts of the Maillard reaction is acrylamide, a known carcinogen that is present in carbohydrate-rich foods such as baked goods. By inhibiting the Maillard reaction, acrylamide levels can be reduced, which leads to a healthier final product.

The pH-reducing effect of ZEUS™ G90 also enhances the preservative effectiveness of cakes and other baked goods such as pancakes, waffles and scones. This leads to improved shelf life, reducing waste and producing profitable products.

If you'd like to learn more about how ZEUS™ G90 can help you enhance natural colours in your bakes, get in touch with our experts today.

Get in Touch

Our expertise has been developed through years of bakery industry experience combined with in-depth scientific knowledge of leavening agent chemistry.

Our team of highly skilled chemists and bakers are always on hand to support our customers in finding the right solution for their bakery projects.

Contact us at: info@kudosblends.com or +44 (0)1299 271 333