

Opti-Bake

Egg Replacer

Our Avonol WPC ingredients tailored for partial egg replacement in bakery applications.

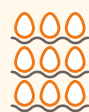
Category Insight



Cakes and muffins are an indulgence and consumers have strong expectations of the texture and sensory profile they expect from these products.



Manufacturers of cakes/muffins need to be able to produce consistent bakes and ensure they remain soft and spongy to deliver on consumer expectations, even with an extended shelf life.



Many cakes and muffins would traditionally include eggs as they are considered an essential ingredient to deliver the right texture and structure of the final bake.

Eggs can be a difficult ingredient to handle in industrial situations and require a lot of storage.



In addition to being difficult to handle, egg supply has been challenged in recent years due to volatile pricing and lack of availability caused by bird flu and other incidences globally.



Avonol WPC 235 can provide partial egg replacement in cakes and muffins while maintaining the quality of the bake and delivering on the textural and sensorial needs.

Glanbia Ireland Goodness Grows Here

Glanbia Ireland is an ingredient solutions partner to some of the world's leading companies and brands. At the forefront of ingredient technology, we offer a range of solutions to match the ever-changing demands of the food and nutrition industry and its consumers. With quality dairy and grains sourced from 5,000 Irish family farms, combined with advanced market research and insights, our unique platform offers fully traceable and sustainably produced natural solutions to help our customers stay ahead of the curve.

What the consumer says

- Taste and pleasure are the key drivers to purchase with 48% of consumers claiming to purchase cakes, pastries and sweet baked goods because 'it is tasty' and 34% citing 'to indulge or treat myself' as their reason for purchase.
- Clean label factors are also highly relevant in this category with the use of real ingredients (19%) and natural ingredients (16%) important to many consumers.
- Ethical concerns are also starting to shape the category with a rise in the need for ethical claims relating to animal/fish/bird welfare, driving a requirement to support cage-free eggs.

Source: Innova Market Insights – Sweet Biscuits and Sweet Baked Goods 2020

Manufacturer Challenges

While eggs have been traditionally seen as an essential ingredient in cakes they also provide manufacturers with challenges.

- Eggs and liquid egg can be difficult to handle in the industrial manufacturing process.
- Eggs and liquid eggs can require a lot of storage space and refrigeration.
- Egg prices can be unstable and supply risks can cause price fluctuations, making cost control difficult.

Due to the challenges eggs create for manufacturers there is a growing interest in partial egg replacement in the industrial baking industry. Replacing eggs with alternative ingredients can also create challenges for manufacturers.

- **Texture** – The texture of baked goods drives consumer’s perception of freshness. Fluffiness and springiness are key indicators of texture alongside air incorporation.
- **Sensory** – Taste is the most important factor for consumers when purchasing baked goods. In addition, the appearance and level of browning is of importance.
- **Processing** – High protein powders are typically cohesive in nature. When combining dry and wet ingredients, Avonol WPC 235 dry mixture should be added slowly to wet ingredients to avoid any clumping.

Texture

To show how partial egg replacement with Avonol WPC 235 can overcome textural challenges Glanbia Ireland tested 3 muffin samples. Control Muffins made using egg, SMP Muffins made with 50% SMP and 50% egg and Avonol Muffins made with 50% Avonol WPC 235 and 50% egg.


The muffins made with Avonol WPC 235 delivered results equal to or better than the control muffins indicating that a partial replacement of egg with Avonol WPC 235 will provide manufacturers the desired textural outcome in the final bake.

The products were evaluated for fluffiness, height, level of air pockets and moisture content to determine textural quality of the bake.

	Control Muffin 100% Egg	SMP Muffin *50% SMP, 50% Egg	Avonol WPC 235 Muffin *50% Avonol, 50% Egg
 Fluffiness	★★★★	★★	★★★★
 Moisture	★★	★★★★	★★★★
 Air pockets	★★	★	★★★★

*Replacement on a protein basis



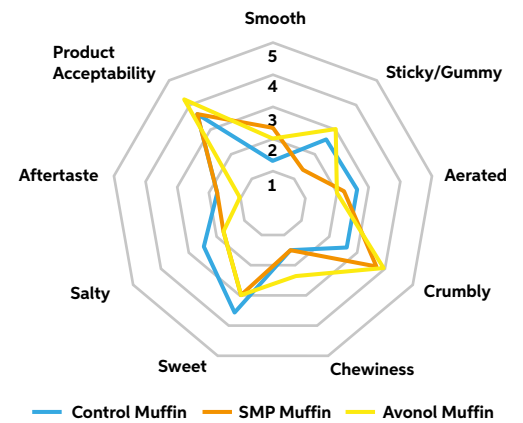
 Height	★★	★★	★★★★
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Sensory Performance

An in-house panel of expert tasters was used to evaluate the sensorial quality of the the 3 muffin samples. In addition, a colour assessment was also carried out using a Chroma meter. The sensory panel rated the Avonol WPC 235 Muffin similar to the Control Muffin. A lower after taste, higher saltiness and slightly less sweetness was noted versus the control. As the percentage of egg replacement was on a protein basis the recipe could easily be adjust to optimise the sweetness and saltiness.

In-house sensory panel blind tasting



Colour Evaluation

Control Muffin
100% Egg



SMP Muffin
50% SMP, 50% Egg



Avonol WPC 235 Muffin
50% Avonol, 50% Egg

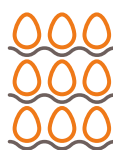


Colour

Additional Benefits



Cooking time - The cooking time for the control muffin was 25 minutes while the cooking time for the muffin with Avonol 235 was 15 minutes. This could lead to a manufacturing benefit.



Less storage space needed. 1 bag of Avonol WPC 235 equates to 1,363 eggs.



Ambient transport with no need for cooling.

Summary

Control Muffin
100% Egg



SMP Muffin
50% SMP, 50% Egg



Avonol WPC 235 Muffin
50% Avonol, 50% Egg



Colour	Good colour	Darker colour	Good colour
Flavour	Good flavour	Good flavour	Good flavour
Texture	Light & fluffy	Slightly more dense	Light & fluffy

Avonol WPC 235 can deliver on key textural and sensorial benefits expected in cakes and muffins when used as a partial replacement for eggs (50%). This provides manufacturers with the option to be less dependent on eggs in the baking process. The partial replacement of eggs with Avonol WPC 235 may also deliver on cost benefits for manufacturers through reduced cooking time, less storage and ambient transport.

Our Unique Dairy System



Grass fed cows

Outdoor grazing on nutritious grass for most of the year



Cleanest air in Europe

Urban outdoor air pollution index



Island location

On the edge of the Atlantic Ocean with plentiful rain



Product quality

Multiple checkpoints from farm to factory



Food authenticity

Produced honestly by safe family farms



Clean label

Non-GMO, hormone-free, Kosher & Halal



Cow & milk traceability

From grassland to customer



Trusted partner

Supporting leading global brands

Our R&D Function



The innovation hub

Our Innovation Hub houses world class facilities enabling us to bring our concepts to life.



Leading the way in process and technology

Functionalising and developing ingredients whilst always maintaining nutritional integrity.



Our external ecosystem

Our extensive network of external partners ensures we are agile.



Developed by our experts

Our team of experts passionately researching the worlds of dairy and plant.



Providing superior nutrition

At Glanbia Ireland the foundations of nutrition are built on dairy and plant. Our ethos: "Good for You, Good for the Planet".

Get in Touch

To find out more about how Glanbia Ireland can support you in developing your solutions, please contact us directly.

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www.glanbiairelandingredients.com

in [LinkedIn.com/company/glanbia-ingredients-ireland](https://www.linkedin.com/company/glanbia-ingredients-ireland)



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