

NEWSLETTER



INGREDIENTS
Your Long Term Partner

MEAT INGREDIENTS

Q2 2021

Across the globe, plant-based meat alternatives are increasingly appearing on menus and retail shelves while gaining traction on social media for their healthier and sustainable appeal.

As demand soars, the competition is heating up, and the pressure is now on for manufacturers to create better tasting products, with stronger visual appeal and healthier ingredients. Half of flexitarian consumers (those cutting back on meat consumption) agree meat alternatives need taste improvements, according to Outside Voice, and over 20% say texture needs to be improved.

Ingredient selection is the key to addressing these challenges. In this edition of our newsletter we will be focusing on manufacturing methods to improve the taste, texture and appearance of plant-based meat products.

The meat alternatives space is still in the early stages of development (think of a Nokia keypad phone from a decade ago to the smart phones of today). Like mobile phones, meat and dairy alternatives are an entirely new category of food products which are now becoming mainstream and are set to revolutionize the industry with the innovative boundaries they will push over the next decade. The brands which enter this sector today will be the marker leaders of tomorrow.

Please contact us to discuss plant-based solutions for your brand.



The New Age of Meat Alternatives – Achieving the Right Marbling



One of the greatest challenges to achieve the perfect plant-based meat analogue is replicating the muscle like fibers which deliver the firm bite consumers expect from meat.

According to Melissa Machen of Cargill, “Marbling is the intramuscular fat between fibers in a muscle. Marbling offers consumers a more juicy and flavorful eating experience. Beef, for example, is graded based upon the

amount of marbling. Vegetable oils like coconut oil and palm oil may be used to impart the “marbled state” in plant-based steak alternatives or plant-based burger alternatives.”

However, vegetable oils are liquid at room temperature, which makes it very challenging to achieve a marbled appearance in the product. To resolve this problem, oil can be blended with other ingredients like gums and starches at cold temperature resulting in a solid material that can be reduced in size to resemble small pieces of fat particles. The fat particles can then be incorporated into a plant-based steak or burger at cold temperature to assume a marbled appearance. (There are also methods to achieve this using entirely clean label ingredients for plant-based meat applications. Please contact FSL to discuss.)

According to Vineet Jindal, PhD, Customer Innovation Manager at AAK, “Companies need to create a plant-based fat system that appears like conventional steak marbling, and they also need to incorporate and bind the fat system in plant-based “muscles”, so it appears like marbling in steak.”

“In addition, the marbling also needs to release the aroma of that particular meat during and after cooking,” he said. “The integrity and appearance of the product also needs to be maintained during and after cooking.”

To achieve this marbling effect, AAK have developed AkoPlanet PBM 28-001 – a fat flakes solution specifically designed to create marbling in plant-based meat applications and which stays solid at room temperature but melts at higher temperatures to release the juicy flavor of a burger.

This fat solution from AAK also reduces the total saturated fat of a plant-based burger when compared to other types of vegetable oils such as coconut oil.

Plant-based Burger Patty

Made with AkoPlanet™ PBM 28-001 for a juicy plant-based burger with 32% less saturated fat than when made with Coconut Oil.



Ingredients: Water, Textured Pea Protein, AkoPlanet™ PBM 28-001 (Shea Oil, Coconut Oil) (11.70%), Pea Protein Isolate, Textured Fava Bean Protein, Natural Flavour, Methylcellulose, Concentrates (Beetroot, Carrot, Spirulina, Paprika), Garlic Powder, Salt, Black Pepper.

Nutritional values

Typical values per 100g

Energy	861kJ/207kCal
Fat	13.0g
of which Saturates	7.1g
Carbohydrates	6.4g
of which Sugars	0.8g
Protein	15.4g
Salt	0.3g

Allergens: Samples are prepared in application laboratories where allergens may be present. Note this formulation contains protein from peas and fava beans, members of the legume family.

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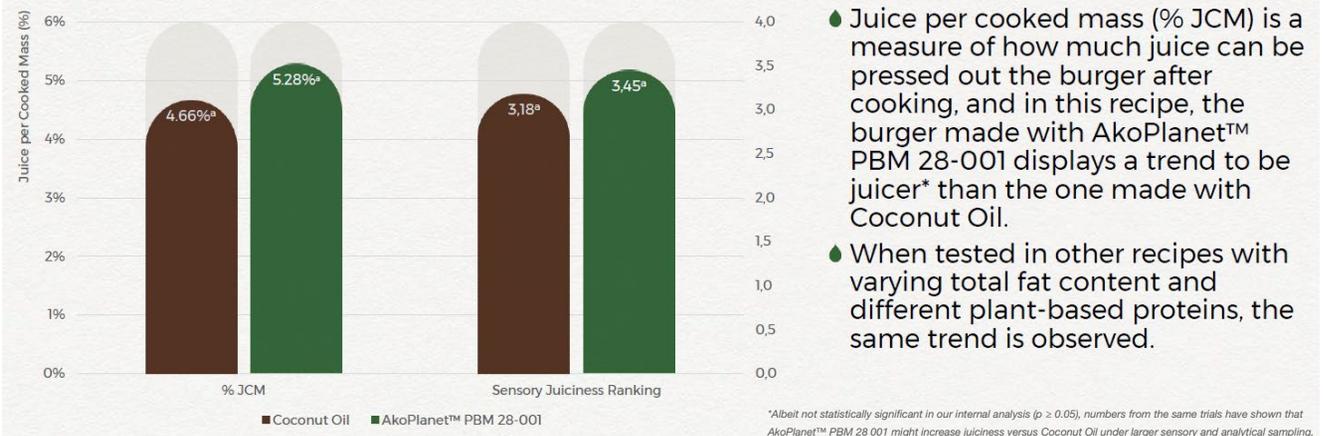
Plant-based Burger Patty

By switching to AkoPlanet™ PBM 28-001 it's possible to make a healthier burger with less saturated fat, in this recipe moving from Nutri-Score C to B.



Plant-based Burger Patty

Besides being significantly lower in saturated fat, burgers made with AkoPlanet™ PBM 28-001 tend to be juicier than those made with Coconut Oil.



Plant-based Burger Patty

Texture profile analysis of raw patties made with AkoPlanet™ PBM 28-001 shows statistical differences in hardness, springiness and resilience*, aiding process efficiency.

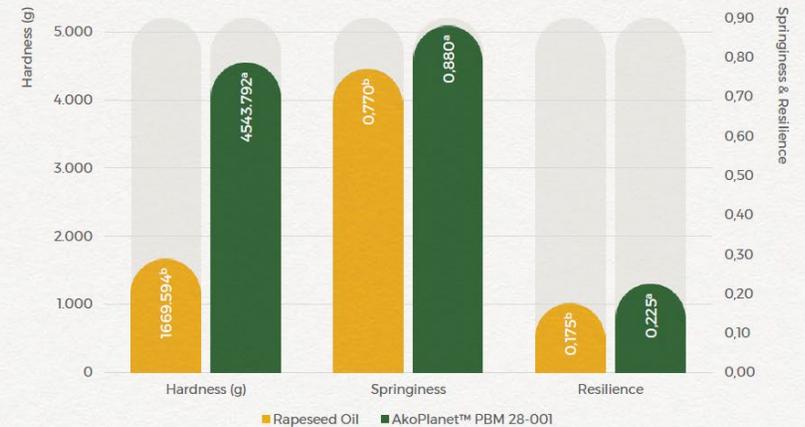


Left: Rapeseed Oil.



Right: AkoPlanet™ PBM 28-001

*p < 0.05



Plant-based Burger Patty

Made with plant-based consumers in mind: the coconut oil in AkoPlanet™ PBM 28-001 is from our traceable primate-friendly supply chain.

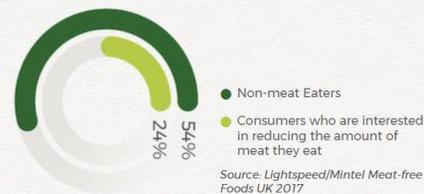


09/08/2021
● District where use of macaques for harvesting occurs.
■ Province or State where the practice has been recorded.



We've worked with Proforest and key suppliers to develop a primate-friendly supply chain where monkeys are not used to harvest the coconuts.

Reasons for Meat Reduction and Avoidance: Concern over animal welfare:



Source: Lightspeed/Mintel Meat-free Foods UK 2017

AkoPlanet™

Sources:

- <https://www.foodbusinessnews.net/articles/18480-meat-alternatives-30-getting-the-marbling-right>
- Materials and Images Courtesy of AAK

FSL & DDW - Perfecting the Color of Plant-Based Meat Products

FSL's long-term partnership with DDW brings over 150 years of coloring expertise to the Middle East. Using the bounty of what nature has to offer, DDW offers a complete range of natural and caramel colors for the food and beverage industry. DDW's products, people, and capabilities are solely focused on creating natural colors and caramel colors.

Color preference for plant-based meat products

There are many considerations when choosing a natural color for a plant-based meat product. The top considerations are flavor, base color, thermal processing and the stage and rate of color addition.

The first step in selecting a color is determining which type of meat you are trying to mimic, since different types of meats have their own unique colors. Once you've decided on the type of meat, determine if you want a raw-to-cooked look, pre-cooked look, or a flavor like chipotle or curry.



Image credits to: DDW

THERMAL PROCESSING – HOME COOKING

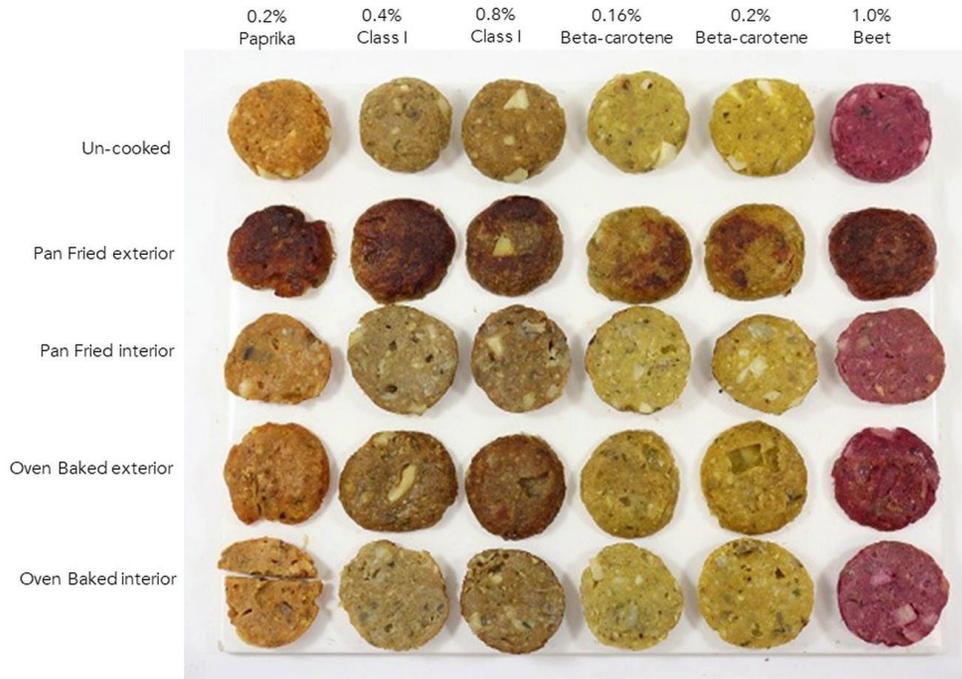


Image credits to: DDW



For a raw to cooked look we suggest our Vegared or Russet Red blends. These color blends start off with a pink-red tone in their raw form but fade to a caramelized brown upon cooking. For pre-cooked meat alternatives, class I caramels, burnt sugars, and our Naturbrown® ingredients are great options because they are very heat stable and provide rich brown colors.

For meat alternatives with flavors and seasonings, blends of paprikas and caramels can be added to showcase certain flavors, such as spicy, smoked, or barbeque.

The second aspect to consider is base protein color. For burgers, sausages, or darker fish options, you can easily overcome darker base colors using natural

colors like beet, caramel, and paprika. For lighter options like white fish, chicken, or turkey alternatives, stick with light base proteins whenever possible.

There are other creative ways to overcome base colors in different applications, such as using a coating, seasoning rub, or marinade that utilizes natural colors, masks dark base colors, and still shows the consumer the intended flavor.

The third factor to consider is thermal processing. Plant-based meat products are supplied to the consumer either pre-cooked or ‘raw’ for the consumer to cook at home. Be sure to choose the right color or blend of colors for your specific application. The main color choices for the cook at home applications are red beet, paprika, caramels and carotenes. While more heat stable blends are better for ready-to-eat applications like deli slices that are cooked during the manufacturing process.

BASE COLOR MATTERS: FISH & SEAFOOD ALTERNATIVES



Image credits to: DDW

The final consideration is the stage and rate of color addition. Be sure to add color at the optimal stage for your product – Are you going for a raw or cooked appearance? Marbled or uniform appearance? Adding the color at the right stage for your product can help you achieve your target appearance.

FSL & DDW solutions for plant-based meat products

FSL & DDW offer natural color solutions for any type of plant-based meat product you are working with – including raw burgers and sausages, or pre-cooked mince. We have collected the most popular natural color solutions for meat alternatives into a natural color sample kit and filled it with everything needed to get started with beautiful colors for a wide range of plant-based meat options.

Please contact us to request a meat alternatives color sample kit.

Please contact FSL if you are interested in any of the above products or topics:

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