

foodtech insider

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 foodtech insider

— INTRO

All about staying ahead of the food curve

Foodtech Insider is a periodical publication dedicated to showcasing the latest trends, advancements, and breakthroughs in the dynamic food technology sector. As a platform tailored for industry professionals, investors, and enthusiasts, the publication provides valuable insights into the ever-evolving landscape of the Food & Beverage industry, both locally in India and on a global scale.

Foodtech Insider takes readers on a journey through the realm of food technology, serving as a go-to online destination for all things foodtech. The publication features innovations and transformative breakthroughs that are shaping the future of the F&B industry. Whether you are a seasoned industry expert, an investor seeking valuable insights, or simply passionate about the evolution of food, Foodtech Insider is designed to keep you informed and inspired with the latest industry trends.





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Dairy Analogues : Transforming Dairy with Non-Dairy Ingredients

Analogue dairy products have become increasingly popular in recent years, driven by the growing demand for plant-based and vegan alternatives. These products are designed to mimic the taste, texture, and functionality of traditional dairy products but are made from non-dairy sources such as coconut, soy, almonds, and oat. In this article, we will explore the definition and regulations surrounding analogue dairy products, as well as the market trends and growth in this sector.

An analogue in the dairy context refers to a product where constituents not derived from milk take the place, in part or in whole, of any milk constituent(s) and the final product resembles, organoleptically and/or functionally, milk or milk product or composite milk product as defined in the regulations.

This definition encompasses a wide range of products that mimic the characteristics of dairy products but are made from non-dairy sources.

Classification of Analogues

Analogue products can be broadly classified into two categories:

1. Composite Milk Products: These are products where dairy is an essential part in terms of quantity, but they also contain non-dairy ingredients. Examples include Yoghurt with fruits, ice cream with fruits, and flavoured fermented milks.

2. Non-Composite Milk Products: These are products where dairy is not an essential part in terms of quantity and are made entirely from non-dairy sources. Examples include plant-based cheese, plant-based milk, and plant-based yogurt.

Use of Dairy Terms

The use of dairy terms in the nomenclature of analogue products is strictly regulated. Dairy terms, such as "milk," "cream," "cheese," and "yogurt," are reserved for products that are made from milk and milk products.

Analogues cannot use these terms, and instead, must use descriptive terms that accurately reflect their composition. Analogues must be labeled with a declaration stating that they are not dairy products.

This declaration is intended to ensure that consumers are aware of the difference between dairy and non-dairy products and to prevent confusion.

Market Trends and Growth

The market for analogues is growing rapidly, driven by increasing consumer demand for plant-based and vegan products. The global dairy analogues market is expected to grow from \$22 billion in 2022 to \$31 billion in 2027 at a compound annual growth rate (CAGR) of 8%. This growth is fueled by the launch of new products such as plant-based creams and creamers, as well as the expansion of distribution channels to reach a wider consumer base.



Key Sources of Dairy Analogues

The most popular sources for dairy analogues include coconut, soy, almonds, and oat. These sources are used to create a variety of products such as plant-based cheese, plant-based milk, and plant-based yogurt. The use of cereal-based, legume-based, nut-based, seed-based, and pseudo-cereal-based sources is also increasing, offering a diverse range of options for consumers.

Challenges and Opportunities

While the growth of the analogue market presents opportunities for innovation and expansion, it also poses challenges for manufacturers. One of the main challenges is to produce products that mimic the taste and texture of traditional dairy products. Manufacturers must also ensure that their products meet the regulatory requirements and are labeled accurately to avoid confusion among consumers.

Conclusion

In conclusion, analogues in the dairy context are products that mimic the characteristics of dairy products but are made from non-dairy sources. The regulatory framework governing analogues is designed to ensure that consumers are aware of the difference between dairy and non-dairy products and to prevent confusion. The market for analogues is growing rapidly, driven by increasing consumer demand for plant-based and vegan products. As the market continues to evolve, manufacturers must adapt to the changing landscape and ensure that their products meet the regulatory requirements and consumer preferences.

Read More – NAAS 2024. Milk vs Plant Based Dairy Analogues: Myths and Facts, Policy Paper No. 126, National Academy of Agricultural Sciences, New Delhi: 16 pp.

Case Study

Coca-Cola's Plastic Problem: A Label of Convenience or a Symbol of Change?

Coca-Cola, a company often criticized for its role in plastic pollution, is taking steps to reduce its environmental impact. The company has announced that it will make all versions of its namesake soda sold in 20-ounce bottles from 100% recycled plastic, a move that marks a significant milestone in its efforts to achieve its goal of making half of its portfolio produced from recycled material by 2030.

This change is part of Coca-Cola's broader sustainability initiative, which includes a commitment to make 100% of its packaging recyclable globally by 2025 and to use at least 50% recycled material in packaging by 2030. The company has already made progress in this area, with 90% of its packaging currently recyclable globally and the use of 23% recycled material.

The switch to 100% recycled plastic bottles is expected to reduce the company's plastic usage by 83 million pounds in the US, equivalent to two billion bottles. While this is a significant step forward, some experts argue that it is still not enough to address the scale of the plastic pollution problem.

Coca-Cola's sustainability efforts are not limited to packaging. The company has also committed to reducing its carbon footprint, aiming to reduce absolute greenhouse gas emissions by 25% by 2030. It is also working to reduce its water footprint, with a goal of replenishing the water it uses in its beverages and production processes by 2020.

However, despite these efforts, Coca-Cola was named the world's top plastic polluter for the sixth-consecutive year in 2023 by the environmental organization Break Free from Plastic. The company's waste count was 33,830, out of 537,719 pieces of plastic waste the non-profit audited across 40 countries, with Coca-Cola bottles being the most common item found discarded, often in public spaces such as parks and beaches.

The watchdog group said the beverage giant's changes are the "bare minimum" the company can do. "Plastic recycling is never going to make a dent in the plastic pollution crisis — plastic was never designed to be recycled, and it cannot be recycled indefinitely," Emma Priestland, global corporate campaigns coordinator of Break Free from Plastic, told CNN. "Coke already knows that real solutions look like reusable glass bottles in scalable reuse systems. Coca-Cola needs to urgently and dramatically reduce its use of plastic — full stop," she said.

In summary, Coca-Cola's efforts to reduce its environmental impact are a step in the right direction, but more needs to be done to address the scale of the plastic pollution problem. The company's sustainability efforts are part of a broader trend in the industry, with many companies facing growing pressure from consumers and governments to reduce their environmental impact. However, some critics argue that the industry's reliance on single-use plastics is a major contributor to the problem and that more radical changes are needed.

Ethylene Oxide, Spice, and Everything Nice: Exporters' Guide



Ethylene oxide (ETO) contamination prevention in spices exports to the EU is crucial due to its potential health risks and regulatory implications. ETO, a versatile chemical used for sterilization and fumigation, poses challenges in the food industry, especially in spices. The EU strictly regulates ETO residues in herbs and spices, setting Maximum Residue Levels (MRLs) to ensure food safety. Exporters are advised against using ETO as a sterilizing agent and encouraged to adopt alternative sterilization methods like steam sterilization or irradiation. Preventive measures include rigorous testing for ETO contamination, implementing Hazard Analysis Critical Control Points (HACCP) plans, and ensuring that all processes, from procurement to transportation, are ETO-free.

To prevent ETO contamination, exporters must adhere to stringent guidelines throughout the supply chain. Incoming materials should be thoroughly inspected, cleaned, and sourced from approved suppliers to minimize contamination risks. Measures to prevent microbiological cross-contamination involve strict segregation of treated and untreated products, ensuring separate processing areas, and maintaining hygienic storage conditions. Packaging plays a critical role in preventing contamination, with the use of non-porous containers and gas-tight packaging recommended to safeguard spices from moisture and pests.

During transportation, exporters must take precautions to protect spices from environmental factors, moisture, and pests. Clean, dry, and odour-free vehicles are essential to prevent cross-contamination, and proper palletization and ventilation are crucial to maintain spice quality during transit. Adequate space between bags, monitoring of temperature and humidity, and the use of desiccants are essential practices to prevent moisture absorption and maintain spice quality.

Sample handling and testing procedures are vital to ensure the absence of ETO contamination. Careful handling of samples to avoid cross-contamination, coupled with appropriate testing methods using Gas Chromatography-Mass Spectrometry (GC-MS/MS), are essential for accurate detection of ETO residues in spices.

In conclusion, preventing ETO contamination in spices exports to the EU requires a comprehensive approach encompassing strict adherence to regulations, adoption of alternative sterilization methods, rigorous testing protocols, and meticulous attention to detail throughout the supply chain to ensure the safety and quality of exported spices.

Read More-

https://www.indianspices.com/indianspices/sites/default/files/EU%20CIRCULAR%20ETO%20AND%20ANNEX%20I_compressed-2.pdf

Whey Ingredients: Expanding the Horizons of Bakery Innovation



Whey, often considered a by-product of cheese manufacturing, has found a prominent place in the baking industry for decades. Its application in bakery products stems from its multifaceted functionality, ranging from enhancing texture to fortifying nutritional content. Among the various forms of whey ingredients, Whey Protein Concentrate (WPC) stands out as a versatile ingredient offering a spectrum of benefits across different baked goods.

Understanding Whey Ingredients in Bakery Products :

The journey of whey in baking traces back to its initial utilization for enhancing browning, tenderizing crumb texture, and cost-effectiveness. Over time, the repertoire of whey ingredients has expanded, offering improved functionalities and nutritional profiles.



Deodeep Kumar

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From cakes to cookies, bread to pastry, the application of whey ingredients presents numerous opportunities for both functional enhancement and nutritional fortification.

Choosing the Optimal Whey Ingredient :

Selecting the right whey ingredient hinges upon understanding its composition and unique functional properties. Whey ingredients typically contain protein, lactose, ash, fat, and moisture, each contributing to various functionalities such as emulsification, foaming, browning, and nutritional enrichment. Whey Protein Concentrate (WPC), with protein content ranging from 34% to 80%, is often recommended for egg replacement due to its protein-rich composition and emulsifying properties.

Enhancing Functionality in Bakery Products :

- **Improve Dough Handling:** Enhances dough relaxation and handling, making it easier to work with, especially for artisan breads.
- **Enhance Crumb Structure:** WPC improves crumb texture and structure, resulting in a more tender and moist final product.
- **Increase Shelf Life:** It inhibits staling and improves the overall freshness of baked products.
- **Replace Eggs:** It can partially or fully replace eggs in cakes and other baked goods, especially those with high sugar and low fat levels.
- **Replace Fat:** WPC can replace fat in low-fat pound cake formulas, resulting in a higher volume, softer product that is preferred over both a full fat control and a low-fat control.

Nutritional Benefits :

- **Reduce Carbohydrates:** WPC can be used to reduce the carbohydrate content of baked products, making them more suitable for low-carb diets.
- **Increase Protein Content:** It can increase the protein content of baked products, providing a nutritional boost to consumers.
- **Enhance Flavor and Browning:** WPC contains lactose, which contributes to the Maillard reaction, resulting in enhanced browning and flavor profiles in baked products.

Read More at [U.S. Dairy Export Council](#)

Applications in Bakery Products :

WPC can be used in a variety of bakery products, including:

- **Artisan Breads:** It is particularly useful in artisan breads that require a long fermentation process, improving dough handling and relaxation.
- **Cakes:** Used to replace eggs and fat in cakes, enhancing their structure and texture.
- **Cookies:** Also used to replace skim milk powder or egg in cookies, improving their color, thickness, and chewiness.
- **Crackers:** Helps to replace flour in yeast leavened crackers, improving their texture and shelf life.
- **Pie-Crusts:** WPC can be used to emulsify shortening in pie crusts, allowing for a reduction in shortening without sacrificing texture.

Commercial Production and Application Considerations

Commercially, whey protein undergoes a series of processes including clarification, pasteurization, ultrafiltration, and spray drying to produce high-quality whey ingredients suitable for bakery applications. When incorporating whey ingredients, factors such as protein content, moisture level, and functional properties should be carefully considered to optimize product performance and quality.

In conclusion, Whey protein concentrate (WPC) emerges as a cornerstone ingredient in the baking industry, that offers numerous functional and nutritional benefits in bakery products. Its ability to improve dough handling, enhance crumb structure, and increase shelf life makes it an attractive option for artisan bakers. Additionally, its nutritional benefits, including reducing carbohydrates and increasing protein content, make it a valuable ingredient for consumers seeking healthier options. By understanding the composition and functional properties of WPC, bakers can make informed decisions about its use in their products, ultimately enhancing the quality and appeal of their baked goods.



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Sorbet



Ingredients	Amount %	Procedure
Water *	768	<ul style="list-style-type: none">• Weigh all the ingredients.• Mix all ingredients using an immersion blender.• Leave to rest in the refrigerator for 3 hours at 4 °C.• Mix again, then pour into an ice cream/sorbet maker. <p>* When using a fruit puree in a recipe, the water content of the puree must be taken into account and the added water adjusted accordingly.</p>
Sugar	100	
Corn Syrup - 55°Bx	124	
Citric Acid	3	
CMC	2.8	
Carragenan	2	
Flavour	q.s.	
Colour	q.s.	
TOTAL	999.8	

Cloudifiers: Enhancing the Aesthetics and Functionality of Beverages for a Cleaner Label

F&B manufacturers understand the importance of both the taste and appearance of their products. To enhance the visual appeal and mouthfeel of beverages, cloudifiers or clouding agents are added to create an appealing opalescence, mimicking the natural look and feel of plant cell particles like pectin, oil, or protein. These clouding agents help beverages appear more natural and attractive, providing a thicker consistency that communicates the authenticity of freshly squeezed fruit or juiced vegetables.



Cloudifiers are utilized to mask sedimentation, where particles settle at the bottom, or prevent ringling, where flavouring or colouring oils rise to the surface during storage. They are commonly used in fruit juice, enhanced water, carbonated soft drinks, dilutable, mixers, and alcoholic beverages. Consumers are increasingly seeking clean labels with recognizable ingredients, driving the demand for natural clouding agents.

Clouding agents are widely used in various beverages to enhance their visual appeal and mouthfeel. In functional beverages, clouding agents are used to enhance the visual appeal and mouthfeel. In milky products like smoothies and yogurts, clouding agents are used to create a creamy texture. Clouding agents can also be used in sauces, dressings, and desserts to add a desirable visual effect.

The manufacturing process of clouding agents involves dispersing the stabilizer in water, premixing the citrus oil with the weighting agent, and combining it with the water mixture to create a pre-emulsion. The pre-emulsion is then passed through a high-pressure homogenizer to obtain the required globule size. This process is crucial in achieving the desired cloudiness and stability of the final product.

While clouding agents like Arabic gum are safe and may offer health benefits, consumer perceptions around unfamiliar ingredients can impact purchasing decisions. To address this, producers are developing formulations that combine colour and cloud emulsions, reducing the need for multiple components and improving label transparency. Innovative approaches aim to enhance compatibility and efficiency while overcoming challenges associated with working with various emulsions.





Future Market insights shows that the cloud emulsions market is projected to reach \$1200.35 million by 2032, reflecting a Compound Annual Growth Rate (CAGR) of 7.3% from \$592.8 million in 2022. Clouding emulsions are typically composed of neutral-flavoured oils, stabilizers like Arabic gum, and weighting agents to prevent ringing. The manufacturing process involves dispersing stabilizers in water, pre-mixing citrus oil with weighting agents, and passing the pre-emulsion through a high-pressure homogenizer to create the final cloudifier.

In conclusion, clouding agents play a crucial role in the beverage industry by enhancing visual appeal, texture, and stability of products. As consumer preferences shift towards natural and clean label products, the demand for innovative and transparent formulations continues to drive the growth of the cloud emulsions market.



MAP for Fresh Fruits and Vegetables: A Guide to Effective Packaging and Storage

Modified Atmosphere Packaging (MAP) is a widely used modern packaging technology that extends the shelf life of minimally processed fresh produce. MAP involves packaging produce in polymer films that maintain a commodity-specific modified atmosphere, such as reduced oxygen levels and elevated carbon dioxide levels. The gas composition inside a MAP package can differ from the normal atmosphere outside, as long as the total pressure is equilibrated. To maintain this equilibrium, several factors must be considered, including the respiration rate and mass of the product, the film thickness and surface area, the gas transmission rates through the film, the initial free volume and atmospheric composition, and external conditions like temperature and humidity.

There are two main ways to create the modified atmosphere:

Passive MAP - The produce respiration rate is matched to the permeability of the packaging film, generating an atmosphere that evolves naturally from oxygen consumption and carbon dioxide production. Proper film selection is critical to rapidly establish the target atmosphere without creating unsafe conditions.

Active MAP - The package is either evacuated and flushed with the desired gas mixture, or the gas mixture is continuously flowed in to replace the existing air. Absorbers or adsorbers may also be used within the package to scavenge oxygen, carbon dioxide or ethylene and maintain the optimal atmosphere.

The most common MAP approach for fresh produce is low oxygen MAP, where oxygen levels are reduced to 1-10% and carbon dioxide is increased above the normal 0.03% in air. This suppresses respiration and delays ripening, softening, and microbial growth, extending shelf life. High oxygen MAP, using over 40% oxygen, has also been researched. High oxygen can inhibit enzymatic browning and microbial growth, but its effects on produce quality are complex and variable. Commercialization has been limited by a lack of understanding of the biological mechanisms involved and safety concerns around the use of highly oxygenated atmospheres.

To enable MAP to be applied to a wider range of fresh produce, new plastic films with a broader range of gas permeability properties are needed. Specialized films, windows, and microperforations have been explored to achieve the required gas transmission rates and ratios. Microperforated films in particular offer benefits, as the small holes provide a high and consistent gas transmission rate that cannot be matched by solid polymer films alone. The size and number of perforations can be engineered to create the optimal modified atmosphere for produce with high respiration rates.

One of the key benefits of MAP is that it reduces the need for chemical preservatives. By creating an optimal gaseous environment, MAP can extend the shelf life of fresh produce without the use of additives, which is appealing to consumers who prefer more natural and minimally processed foods. MAP also offers cost-effective advantages for manufacturers and distributors. By extending the shelf life of products, MAP allows for wider distribution and reduced product rotation, leading to decreased labor and waste costs. The longer freshness cycle also reduces the frequency of deliveries and product returns, further improving efficiency and profitability. The success of MAP relies on the careful selection and control of the packaging film and gas mixture. Barrier films like polyethylene, polypropylene, and ethylene vinyl alcohol are commonly used to provide protection and maintain the modified atmosphere. The permeability properties of these films are crucial in achieving the desired oxygen and carbon dioxide levels inside the package.

MAP has been used for food preservation since ancient times, with early examples of grain storage in sealed containers. Today, it is widely adopted across various food categories, including meats, fruits, vegetables, cheeses, and even coffee beans and cannabis products. The benefits of MAP extend beyond just fresh produce. It can also be applied to other perishable goods, such as pharmaceuticals, where the controlled atmosphere helps maintain product quality and stability. Continued innovation in packaging materials and technologies will further expand the applications of this valuable food preservation technique. As research and development continue, the applications of MAP are likely to expand further, contributing to the overall sustainability and efficiency of the food and consumer goods industries.

In summary, modified atmosphere packaging has revolutionized the storage and transport of perishable foods. By carefully controlling the gaseous environment around the product, MAP can significantly extend shelf life without the need for preservatives. This provides benefits to manufacturers, retailers and consumers through improved quality, reduced waste, and extended distribution reach. Continued innovation in packaging materials and technologies will further expand the applications of this valuable food preservation technique.

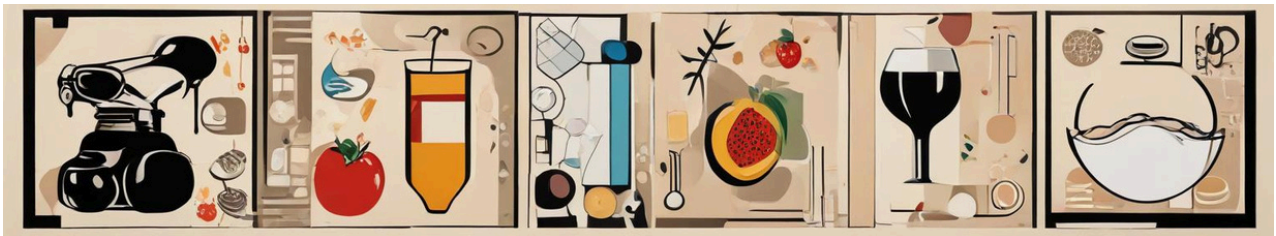
Schedule of Events

Discover the World of Professional expertise,
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Event Name	Dates	Venue
Bakers Technology Fair	3-5 July, 2024	Codissia, Coimbatore, India
India International Hospitality Expo	3-6 August, 2024	India Expo Centre & Mart, Greater Noida, India
Pack Plus	22-24 August, 2024	Pragati Maidan, New Delhi, India
Dairy Tech India 2024	22-24 August, 2024	BIEC, Bangalore, India
Anuga FoodTec India	28-30 August, 2024	Bombay Exhibition Center, Mumbai, India



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