



**Bluegrass**  
INGREDIENTS®

## Dairy Concentrates at the Intersection of Innovation and Clean Label

Consumer expectations around the food they purchase and put on the dinner table has never been higher. From plant-based meat to fresh, regional flavors available year-round and across the globe, consumers expect products that can only be achieved through fast-evolving processes and technologies. At the same time, they expect these advances to harness natural ingredients and sustainable processes.

This interplay of innovative processes and clean label products has created a conundrum for food manufacturers across sectors looking to stay one step ahead of consumer demands and taste trends. Add to that [unprecedented supply chain disruptions](#) and rising ingredient costs, and it's easy to understand why R&D leaders, food technologists, regulatory experts, and purchasing managers are eager for modern ingredient solutions.

In cheese-forward products, enzyme-modified cheeses (EMCs) represent a significant opportunity for food manufacturers to deliver innovative and clean label solutions with predictable costs and handling. Yet to date, EMC adoption has been held back by lingering misconceptions and a lack of awareness.

That's starting to change.

### What is Enzyme Modified Cheese?

EMCs are concentrated cheese flavor ingredients produced from cheese or cheese curd that have been treated with enzymes such as proteases and lipases. These enzymes accelerate the flavor and texture benefits that come with traditional cheese aging practices and can enhance cheese flavor by as much as 10 times.

*"EMCs have really become an essential tool for modern ingredient developers. They give our team a lot of consistency and control over the exact flavor and texture we're looking to achieve. We can achieve that distinctive flavor of an aged Cheddar or a Parmigiano-Reggiano in a fraction of the time."*

- **Chad Mitchell**, Bluegrass Ingredients Business Development Director - Concentrates

EMC technologies started to gain ground in the 1970s, and some remain wary of the process to this day. The reality is all cheese undergoes enzyme modification. It's a natural – and a vital – part of the cheesemaking process and has been for centuries. But the “enzyme-modified” terminology feels too processed for consumers and some manufacturers seeking out simple, natural ingredients. They mistake it for a process that's altering the genetic makeup of the cheese, when that's not the case at all.

The disconnect between what certain words mean to R&D teams and ingredient experts and how they're interpreted by consumers is not uncommon. All food is, by definition, “organic.” Yet the term has come to take on a specific definition on grocery store shelves.

The yogurt sector offers a good example. You can't make yogurt without bacteria – microorganisms that convert sugar into lactic acid. Despite being harmless (and essential), food manufacturers have looked to avoid using bacteria in product descriptions. They opt instead for marketing language on packaging like “cultured” and “probiotic.” Today, consumers actively seek out cultured products offering more probiotics than the competition.

The EMC space has yet to find its “cultured” phrasing.

## Enzyme Modified Cheese Gaining Ground

Despite positioning challenges, EMCs are poised for an uptick in utilization in the future. Today, EMCs are gaining ground in applications including processed cheeses, spreads, snacks and seasonings, soups, sauces, biscuits, dips, dressings, cracker doughs, pasta fillings, and various entrees and appetizers. As EMCs have found increased adoption, other concentrated dairy products such as butter, cream, and yogurt are seeing an uptick, particularly in baked goods.

*“Globally, the market for enzyme modified cheese is growing according to its wide applications in the food processing industry.”*

- [Persistence Market Research](#), “Enzyme Modified Cheese Market”

The growth in this sector reflects the power of EMCs to satisfy consumer trends while harnessing innovation around cost and handling. “Rising innovations, changing consumer's tastes, zeal among the millennial population to explore new dishes and the advent of westernization is all together giving rise to continental and Italian dishes, which is further subjected to increase the demand for various enzyme modified cheese among food manufacturers globally,” according to a [Persistence Market Research report](#).

## The Benefits of Enzyme Modified Cheeses

As these trends gain traction, more and more manufacturers are realizing the benefits of EMCs. EMCs can provide deeper, more targeted enhanced cheese flavors without needing to add more cheese, which can drive up costs. When properly incorporated into formulations, concentrates can achieve these benefits without sacrificing mouthfeel and still providing that “buttery” texture that sets many cheese products apart. What's more, using concentrates can help reduce the calories that would come with adding more cheese.





On the production side, EMCs create cost savings and predictability in supply and processing. EMCs are easy to incorporate into typical food facility operations as they will disperse readily into a mixer or kettle at various temperatures and are also heat and acid stable in various formulation and processing scenarios. They have a more consistent shelf life and flavor profile in comparison to the variability of natural cheeses which age over time, are subject to inconsistencies from vat to vat, and often times present quality concerns, including molding. With current supply chain challenges and shifting demand, the consistency of EMCs has become a distinguishing advantage for purchasing managers.

These cost and production benefits work in tandem with an ingredient that satisfies most clean-label requirements – it is minimally processed and doesn't add a long list of hard-to-pronounce ingredients.

## Positioning Enzyme Modified Cheese Ingredients for Consumers

Still, the negative perceptions around EMCs persist. That's due in large part to the fact that "clean label" requirements are notoriously fluid and difficult to pin down. Different customers and end consumers will have different expectations about what ingredients qualify as clean label, and which don't.

The best approach is to bring labeling requirements and expectations into the conversation as early as possible. The right ingredients provider should seek to be an active partner in determining how EMCs can be incorporated into updated and new products to ensure the desired mouthfeel and flavor characteristics while satisfying any labeling considerations.

*"Too many customers don't realize what's possible with EMCs. From longer shelf life to giving a dip or sauce that undeniable cheesiness, EMCs really are a one-of-a-kind way to streamline production without sacrificing flavor."*

- **Eric Goan**, Bluegrass Ingredients Director - Technical Services

At Bluegrass Ingredients, we've partnered with countless clients to harness the power and potential of EMCs in building great flavors. We offer customized and off-the-shelf enzyme modified dairy products with detailed labeling considerations. And we're just getting started. As an agile ingredient innovation company, we deliver solutions informed by emerging trends with a sharp focus on satisfying consumer expectations through deeper, proactive partnerships. We regularly craft and refine EMC formulations for clients and just introduced a vegan cheez concentrate.



Learn more about Bluegrass Ingredients' concentrates and other market-driven flavor solutions. [Contact Us.](#)