The background of the entire page is a photograph of four glasses filled with different colored beverages. From left to right, the colors are green, yellow, orange, and red. The glasses are filled with ice and have a textured surface. The background is a solid blue color. There are several abstract, leaf-like shapes in white and light green overlaid on the image.

Explore the frontier of color emulsion technology

ADM's vast portfolio of naturally derived colors and patented emulsions bring vibrancy and stability to food and beverage products.

Optimal stability. Expanded shades. World-class emulsion technology.

From an energetic pop of yellow in a sports drink to verdant green cupcake frosting, colors play an undeniable role in making foods and drinks enticing and appetizing. Achieving just the right vibrancy, opacity, or clarity to appeal to consumers depends on the carefully calibrated formulations of color emulsions. At ADM, our team of industry-leading experts has the emulsion knowledge and skills to help you create the vibrant colors you want with the emulsion stability you need.

34%

of US consumers agree that “free from artificial coloring” claims impact their food and drink purchase decisions.¹

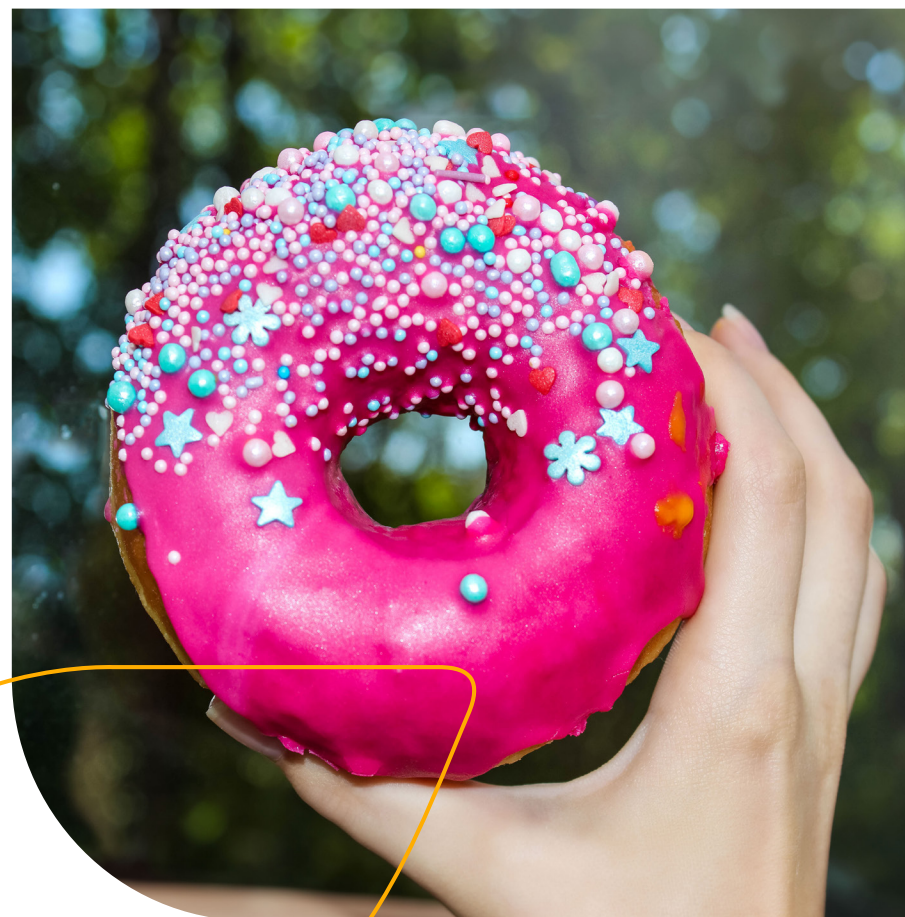


¹Mintel “Patent insights: emerging food colour innovations” Jan. 2024

What is a color emulsion?

Part of a general class of two-phase systems of matter called colloids, an emulsion comprises two or more substances that are normally immiscible, or unmixable. Color emulsions distribute pigments in beverage or food applications in a variety of different shades, clarity, or opacity.

When you partner with ADM, our experts can adapt emulsions to meet your needs for beautiful, high-quality, and stable color applications. Read on to explore how our patented color emulsion technology helps you create food and beverage applications in every color of the rainbow.



Achieve ideal clarity or opacity with expert emulsion technology



Color plays an essential role in the visual perception of taste and predetermines flavor and quality expectations. With more consumers seeking out food and beverages that are aesthetically pleasing and offer the perceived benefits of naturally derived ingredients, color emulsions must work harder than ever.

By combining our advanced technology with the highest quality ingredients sourced from nature to align with health and wellness goals, ADM offers a wide range of color solutions your consumers will crave.

Emulsion challenges

Successful emulsions maintain even color dispersion and reliable stability. However, achieving these goals requires addressing multiple factors, from compatibility with other ingredients to processing conditions.

“

Chief Emulsion Scientist Ratjika Chanamai notes that ADM works with customers to achieve custom solutions for their unique applications by taking every need and factor into consideration. There are many factors that can impact the success and stability of a color emulsion. A small amount of incompatible ingredients can cause the emulsion to break or become unstable, resulting in undesirable consequences such as cap staining, ringing, color precipitation, sedimentation, color migration or bleeding.

”



Factors to consider when using color emulsions:

Internal elements and ingredients

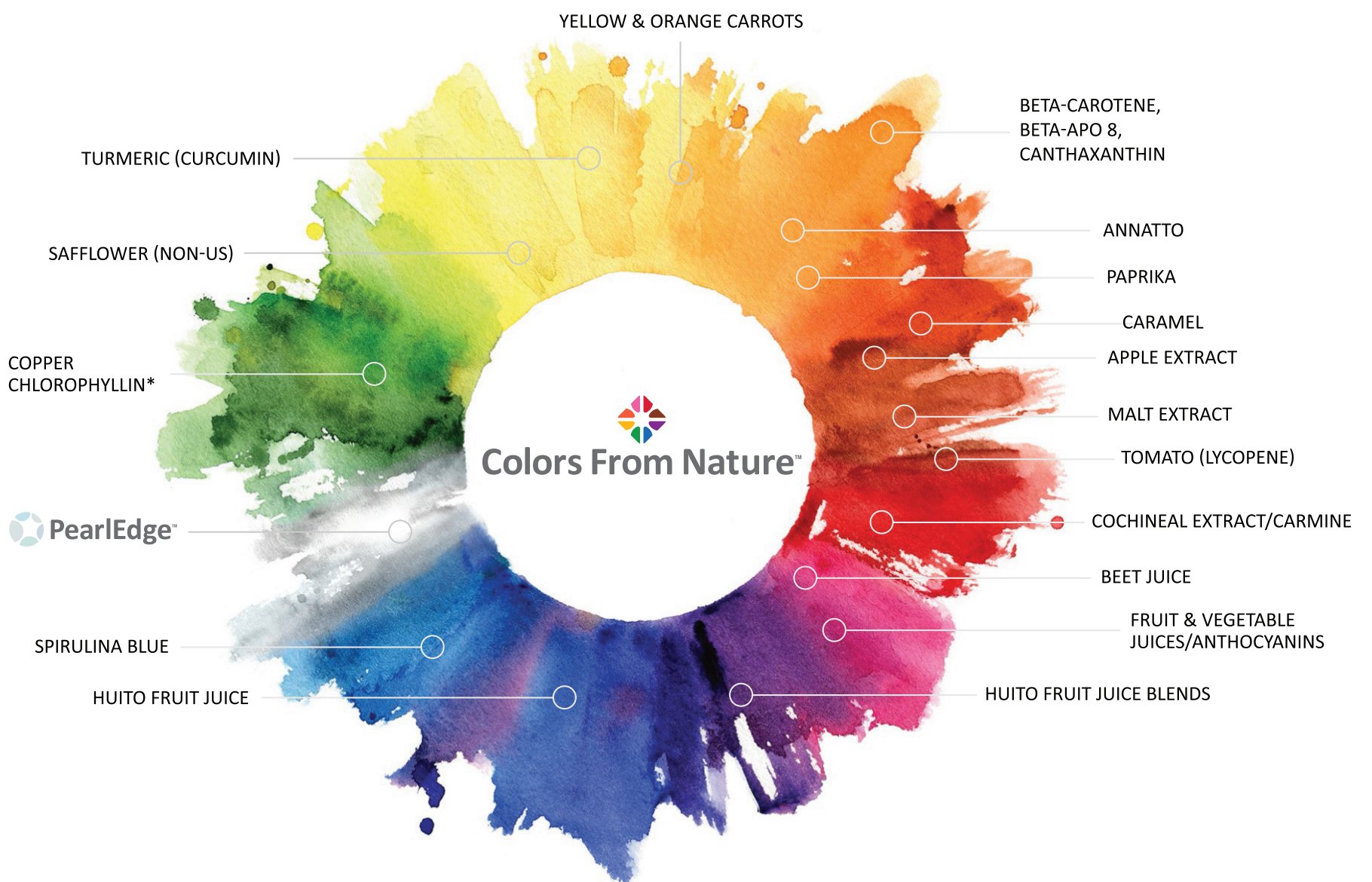
- Taste, texture, and appearance compatibility
- Base colors and desired vibrancy, hues, shades, and clarity or opacity
- pH levels
- Preservatives

External elements of the final product

- Temperature
- Chemical composition of packaging materials
- Processing, storage, and transit environments and conditions
- Shelf life
- Brand and global regulations
- Labeling requirements

Unlimited color possibilities across applications

ADM's Colors from Nature™ portfolio leverages a variety of naturally sourced raw materials, enabling a rainbow of colorful innovations in a wide range of food and beverage applications. However, without the right color emulsion technology, some water- or fat-based systems have a limited palette. ADM's color emulsion expertise solves this challenge, facilitating vibrant, naturally derived colors in all types of beverages, sauces, dressings, icings, coatings, fat, oils, and much more.



*Limited Applications



Global leaders in emulsion expertise

Transforming naturally sourced raw materials into stable color emulsions is no easy task. As Chanamai — one of the top scientists in the field — notes, ADM's commitment to using state-of-the-art technology, equipment, and techniques produces the highest level of emulsion quality and control for clients.

ADM's proprietary color emulsion technology allows us to customize color solutions across a variety of applications and in a range of formats and qualities. This technical expertise and agility help us deliver a multitude of benefits and solve some of the toughest challenges prompted by the use of naturally derived colors in various food and beverage applications.



Benefits of ADM's color emulsion technology

- Clear or cloudy, preservative-free, non-GMO, and GMO
- No ringing, staining, or sedimentation
- Deodorized technology
- Excellent light and heat stability
- Superb Beta Carotene stability in alcoholic beverages for yellow and orange shades
- Extended shade and hue range
- Custom blends
- Full in-house stability testing

ADM emulsions in action: The PearlEdge™ solution



The quest for an alternative to titanium dioxide led ADM to develop PearlEdge™, appealing to consumers looking for trusted, naturally derived ingredients and a cleaner label. Available for non-alcoholic and alcoholic beverages, PearlEdge™ Splash, Splash+, and Star-Lite formulations offer the following benefits:

- Strong whitening and opacifying effect with excellent stability
- No ringing, precipitation, sediments, or staining
- Compatibility with other ingredients
- Liquid and powdered solutions
- Industry-leading emulsification technology, regulatory guidance, and application expertise



Alcohol Beverage TiO2



Alcohol Beverage PearlEdge™



Non-Alcoholic Beverage TiO2



Non-Alcoholic Beverage PearlEdge™



Team up with the experts for color emulsion solutions



ADM takes your product needs into account from start to finish, helping you create custom color emulsion solutions with superior stability by addressing multiple factors. And with a broad portfolio of raw materials and ingredients across the globe, we can help get your product to market faster.



As your trusted partner, you can count on ADM for unparalleled expertise and a holistic approach to successful formulations every step of the way.



Contact us

Find out more about ADM color emulsion solutions at go.adm.com/yourcolors.

For a technical consultation and samples, contact us at food@adm.com or call **844-441-FOOD**.

©2024 Archer Daniels Midland Company

ARCHER DANIELS MIDLAND COMPANY DISCLAIMS ANY AND ALL WARRANTIES, WHETHER EXPRESS OR IMPLIED, AND SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. OUR RESPONSIBILITY FOR ANY CLAIM IS LIMITED TO THE PURCHASE PRICE OF MATERIAL PURCHASED FROM US. CUSTOMERS ARE RESPONSIBLE FOR OBTAINING ANY LICENSES OR OTHER RIGHTS THAT MAY BE NECESSARY TO MAKE, USE, OR SELL PRODUCTS CONTAINING OUR INGREDIENTS. ANY CLAIMS MADE BY CUSTOMERS REGARDING INGREDIENT TRAITS MUST BE BASED ON THE SCIENTIFIC STANDARD AND REGULATORY/LEGISLATIVE REQUIREMENTS OF THE COUNTRY IN WHICH THE FINAL PRODUCTS ARE OFFERED FOR SALE.